

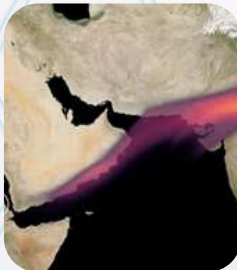


SHAPING TALENT SINCE 2009

# MONTHLY CURRENT AFFAIRS

FOR UPSC CIVIL SERVICE EXAMINATION

## NOVEMBER 2025



WOMEN'S CRICKET  
WORLD CUP  
INDIA 2025



$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

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# 150 Years of Vande Mataram

**Context:** The Prime Minister recently launched year-long celebrations to mark 150 years of Vande Mataram.

## About Vande Mataram

- Vande Mataram is India's National Song, with status equal to the National Anthem.
- Meaning: "I bow to thee, Mother" — symbolising devotion to the Motherland.
- Written in Sanskritised Bengali by Bankim Chandra Chattopadhyay.
- First published in Bangadarshan (1875), later included in the novel Anandamath (1882).
- Rabindranath Tagore set it to music, turning it into a powerful national hymn.
- Famous lines like "Sujalam, Suphalam..." celebrate India's natural beauty and cultural richness.

## Role in the Freedom Struggle

- Served as an anthem of national awakening, inspiring unity and patriotism.
- Became the rallying cry during the Swadeshi Movement and Partition of Bengal (1905).
- United people across caste, class, and region; linked bhakti (devotion) with deshbhakti (patriotism).
- Leaders like Sri Aurobindo and Bipin Chandra Pal portrayed it as a "mantra of national regeneration."
- The British banned its public singing, recognising its revolutionary impact.
- Its influence spread across India — including the Gulbarga Movement (1938) — and abroad, where patriots like Madan Lal Dhingra and Indian groups in Europe used it as a symbol of resistance.

## Controversy and Truncation (1937)

- Some later stanzas depicting the Motherland as a goddess led to concerns among non-Hindu communities.
- A committee (Tagore, Nehru, Bose) recommended that only the first two stanzas be used officially to maintain inclusivity.
- While aimed at reducing communal tensions, the move drew criticism from leaders like Subhas Chandra Bose, who felt it diluted the song's spirit.

## Communal Opposition and Gandhi's View

- Sections of the Muslim League opposed the hymn for its religious imagery.
- Mahatma Gandhi defended its inclusive essence, calling it a shared "battle cry" for Hindus and Muslims alike.

**Conclusion** -Vande Mataram remains a timeless symbol of India's nationalist spirit. As India commemorates 150 years, it continues to inspire unity, service, and a deeper commitment to the nation.

# Birth Anniversary of Birsa Munda

**Context:** November 15 is observed as Janjatiya Gaurav Divas (Tribal Pride Day) to honour the birth anniversary of tribal freedom fighter Birsa Munda.

## More on News

- The Ministry of Tribal Affairs is setting up 11 tribal museums to showcase tribal uprisings and cultures.
- 2024-25 is being celebrated as Janjatiya Gaurav Varsh marking 150 years of Birsa Munda's birth.

## About Birsa Munda

- Born in 1875 in Ulihatu village, Khunti (Jharkhand), belonging to the Munda tribe.
- Grew up amid British exploitation, land alienation, and dominance of feudal landlords (dikus).
- His birth anniversary, 15 November, is celebrated as Birsa Munda Jayanti.

## Leadership & Contributions

- A revered tribal leader, freedom fighter, and religious reformer.
- Known as 'Dharti Aba' (Father of the Earth) for championing tribal land rights.
- Founded the Birsait/Mundaism/Kisangism movement — promoting one-God worship, cultural revival, unity, and resistance to colonial oppression.
- Opposed British rule, missionary influence, and landlord exploitation.

## Major Movement: Ulgulan (The Great Tumult)

- Led a major tribal uprising in the Chotanagpur region.
- Mobilised Munda and Oraon tribes against:
  - Forced labour (begar)
  - Missionary interference
  - Cultural suppression
  - Land alienation
- Demanded restoration of tribal land and traditional rights.

## Death & Legacy

- Arrested by the British in 1895; died in prison in 1900.
- His struggle led to the Chotanagpur Tenancy Act, 1908, which:
  - Protected tribal land ownership
  - Restricted transfer of tribal land to non-tribals
  - Recognised Mundari Khuntkattidar traditional land tenure

## Honours

- Jharkhand state was created on 15 November 2000, his birth anniversary.
- In 2021, the Government declared 15 November as Janjatiya Gaurav Divas to honour tribal freedom fighters.





# Vijayanagara-Era Gold Coins

**Context:** Over 100 gold coins from the Vijayanagara era were discovered during restoration of a Later Chola-era Shiva temple at Kovilur, Tiruvannamalai district, Tamil Nadu.

## Details of the Discovery

- **Size:** Around 5 mm in diameter; circular in shape (unlike the square coins of the Sangam Age).
- **Symbol:** Some coins carry the Varaha (boar) emblem — a royal symbol of the Vijayanagara Empire.
- **Age:** Likely from the 14th–16th century CE, when rulers like Krishnadevaraya promoted temple construction and endowed temples with gold.

## Why Coins Were Buried

### 1. Religious Offering:

- Gold coins were placed beneath temple sanctums as sacred offerings to seek prosperity and divine protection.

### 2. Economic Purpose:

- Durable metal coins (gold, silver, copper) were stored or used for transactions due to their lasting value.

## About the Vijayanagara Empire

- Founded in 1336 CE by Harihara I and Bukka Raya I, guided by Saint Vidyanaraya, on the banks of the Tungabhadra River (modern Hampi, Karnataka).
- Capital: Vijayanagara — a wealthy, powerful, and heavily fortified metropolis of medieval India.



# 150 Years of Arya Samaj

**Context:** At the International Arya Mahasammelan, the Prime Minister highlighted 150 years of Arya Samaj and 200th birth anniversary of Maharshi Dayanand Saraswati.



## About Arya Samaj

- Founded: In 1875 by Swami Dayananda Saraswati in Bombay.
- A reformist movement promoting monotheism, rationality, and social reform.

## Core Principles (Ten Principles)

- God is the source of true knowledge.
- Vedas are the foundation of true knowledge.
- Actions must follow dharma (righteous conduct).
- Promote universal welfare—social, spiritual, and material.
- Collective good is above individual interest.

## Social & Educational Contributions

- Worked for universal education, women's empowerment, equality, and social reform.
- Established major institutions:
  - DAV College, Lahore (1886)
  - Gurukul Kangri, Haridwar (1902)
  - Kanya Mahavidyalaya, Jalandhar (1896)
- Ideological Split (1890s):
  - College Party: Lala Hansraj, Lala Lajpat Rai — supported modern, English-based education.
  - Gurukul Party: Swami Shraddhanand — promoted traditional Vedic education.
- Shuddhi Movement: Reconversion of Hindus who had adopted other religions; aimed at strengthening social unity.

## About Dayananda Saraswati

- Born: 1824 in Morvi (Gujarat) as Mulshankar.
- Became an ascetic, later trained under Swami Virajananda in Mathura.

## Philosophy & Ideology

- Gave the call: “Back to the Vedas” — revival of Vedic learning, not a return to the Vedic era.
- Viewed the Vedas as infallible and the true basis of Hinduism.
- Advocated rational, ethical, monotheistic religion.
- Supported a classless, casteless, united India.
- Rejected idol worship, polytheism, priestly dominance, and superstitions.
- Opposed Puranic authority, rigid caste, child marriage, and ritualism.

## Major Work

- Satyarth Prakash (The Light of Truth) — detailed his religious and social ideas.

## Social Reform Ideas

- Condemned untouchability, idolatry, child marriage, animal sacrifice.
- Supported women's equality, widow remarriage, and inter-caste marriages.
- Upheld chaturvarna based on merit, not birth.
- Emphasised education, morality, and national regeneration.



# Lucknow: Creative City of Gastronomy

**Context:** At UNESCO's 43rd General Conference in Samarkand (Uzbekistan), Lucknow was designated a "Creative City of Gastronomy", becoming India's second city after Hyderabad to receive this title.

## Lucknow's Culinary Heritage

- Famous for Awadhi cuisine rooted in nawabi royal kitchens.
- Known for dishes like tunday kebabs, biryani, korma, and rich Ganga-Jamuni culture.
- A major centre for culinary tourism and traditional food preservation.

## UNESCO Creative City of Gastronomy

- Part of the UNESCO Creative Cities Network (UCCN), created in 2004.
- Recognises cities that use creativity—especially food culture—as a tool for sustainable urban development.

## Criteria & Selection

Cities must demonstrate:

- Rich and authentic culinary heritage.
- Innovation in gastronomy.
- Sustainable food practices.

## Process:

Nomination → National screening (Ministry of Culture) → UNESCO evaluation → Approval at General Conference.

## Indian Cities in UNESCO Creative Cities Network

- Jaipur - Crafts & Folk Arts
- Varanasi - Music
- Chennai - Music
- Mumbai - Film
- Hyderabad - Gastronomy
- Srinagar - Crafts & Folk Arts
- Kozhikode - Literature
- Gwalior - Music
- Lucknow - Gastronomy

# Denmark Bans Social Media for Children

**Context:** Denmark has banned social media use for children below 15 years, citing rising mental health issues, online addiction, and data privacy risks.



## Global Context

- Similar move: Australia banned social media for under-16s (2024).
- Several European nations are reviewing digital age limits due to youth mental health concerns.

## Key Highlights of Denmark's Ban

- Age Restriction:
  - Children under 15 cannot create or use social media accounts.
  - Ages 13–15 may access limited apps with parental consent.
- Reasoning: Government states social media “steals children’s time and well-being,” causing isolation and mental decline.
- Platforms Covered: Snapchat, YouTube, Instagram, TikTok, etc.

## Why Such Bans Are Being Advocated

- 1. Cyberbullying
  - Young children, especially girls, face high cyberbullying risks.
- 2. Exposure to Pornography
  - Children may accidentally encounter explicit content and develop addictive behaviour.
  - India recorded 1,000+ cases of child pornography in 2022.
- 3. Addiction & Feedback Loops
  - Platforms use dopamine-driven algorithms, making children highly prone to addiction.
- 4. Mental Health Decline
  - Excessive screen time harms cognitive development, socialisation, and emotional stability.
- 5. Exposure to Violence
  - Viral violent content, abusive language, soft porn, and hate speech can influence behaviour.
- 6. Health Impacts
  - Symptoms include ADHD-like behaviour, aggression, memory issues, headaches, eye strain, lethargy, depression.
- 7. Misinformation
  - Children lack media literacy:
  - UNICEF: Only 2% of children can identify fake news reliably.

## Arguments Against a Blanket Ban

### 1. Enforcement Challenges

- Children can bypass bans easily.
- Example: South Korea’s “Cinderella Law” for gaming led to increased identity theft among minors.

### 2. Shared Device Usage

- In India, children often help parents with digital tasks—making supervision unrealistic.

### 3. Low Digital Literacy

- Age-verification systems are difficult in low-literacy settings.
  - NSSO (2021): Only 40% of Indians could perform basic computer tasks.

### 4. Positive Digital Engagement

- Social media fosters critical thinking, creativity, and global collaboration.
  - Example: Greta Thunberg used social media for climate activism.

### 5. Learning Opportunities

- Digital platforms enable learning, communication, and exposure to diverse perspectives.

## Way Forward

### 1. Age-Appropriate Design

- Follow UK's Age-Appropriate Design Code (2020) to ensure safer default settings for children.

### 2. Continuous Tech Review

- Platforms must regularly update safety features and monitor behavioural impact.

### 3. Digital Safety Education

- Include online safety in school curriculum like physical-world safety lessons.

### 4. Address 'Sharenting'

- Regulate parents oversharing children's data online.
  - Example: Assam Police warns parents against this practice.

### 5. Parents as Role Models

- Parents' own social media habits shape children's behaviour.

### 6. Evidence-Based Policy

- Policies should be driven by child-focused research and industry standards.
- Research must keep pace with evolving digital risks.

# Artificial Intelligence in School Education

**Context:** The Ministry of Education has announced that AI and Computational Thinking (CT) will be introduced from Class 3 onwards, starting 2026-27, in line with NEP 2020 and NCF-SE 2023.

## Why AI in School Education?

### 1. Empowering Teachers

- AI can automate routine tasks like attendance, grading, and progress tracking.
- Helps teachers design better, data-based lesson plans.

### 2. Skill Development for Industry 4.0

- Early exposure to AI bridges the gap between schooling and the modern job market.
- NITI Aayog estimates 4 million AI-driven jobs in the coming years.

### 3. Better Student Engagement

- Generative AI can create customised quizzes, study material, and chatbots for interactive learning.





#### 4. Personalised & Inclusive Learning

- Adaptive platforms tailor lessons to each child's pace.
- Supports multilingual learners and students with special needs.

#### 5. Promotes Innovation

- Hands-on AI projects connected to SDGs help students build problem-solving and research skills.

### Challenges

#### 1. Curriculum Overload

- Risk of AI becoming a vague term covering coding, gadgets, and general tech use.
- Need clarity: AI literacy vs AI-assisted learning vs AI as a subject.

#### 2. Teacher Preparedness

- Many schools lack trained teachers; some have only 1-2 teachers.
- Lack of basic resources like electricity or computers.

#### 3. Digital Divide

- Only 34% of schools have internet access (UDISE+ 2021-22).
- Poor infrastructure can increase inequality.

#### 4. Pedagogic Concerns

- Students aged 10-13 may struggle with complex AI concepts.
- Requires specialised teaching methods.

### Educational & Ethical Issues

#### 1. Purpose of AI Education

True AI learning must include:

- Critical thinking about AI's impact.
- Ethics, data privacy, bias, responsible use.
- Not just coding or using chatbots.

#### 2. Age Appropriateness

- Complex ideas like machine learning or neural networks must be introduced gradually.
- Superficial early exposure risks rote learning without understanding.

#### 3. Equity in Access

- Rural and under-resourced schools must not be left behind.

#### 4. Data Privacy

- Need for strong rules to protect student data and regulate AI in classrooms.

### Way Forward

#### 1. Strengthen Digital Foundations

- Ensure internet, devices, and basic coding skills first.
- AI literacy in Classes 3-8; AI skills (coding, NLP, data science) in higher classes.

#### 2. Build Teacher Capacity

- Large-scale training and a national pool of AI-trained educators.
- Encourage teachers to creatively use AI tools.

#### 3. Redesign Curriculum

- Contextual, age-appropriate, project-based AI lessons.
- Focus on ethics and real-world applications.



#### 4. Ensure Ethical Safeguards

- Clear guidelines on child data protection and safe technology use.

#### 5. Reduce Digital Gaps

- Public-private partnerships, PM eVidya, offline modules for low-connectivity regions.

#### 6. Encourage Critical Thinking

- Promote questioning, analysis, and understanding how AI affects society.

## National Action Plan on Antimicrobial Resistance 2.0

**Context:** India has launched the National Action Plan on AMR (NAP-AMR 2.0) to strengthen efforts against rising antimicrobial resistance.

### What is Antimicrobial Resistance (AMR)?

- AMR is when microbes like bacteria, viruses, fungi, and parasites stop responding to medicines that once worked.
- This makes infections harder or impossible to treat.
- Antibiotics and antimicrobial drugs gradually become ineffective.
- WHO considers AMR one of the top 10 global health threats.

### About NAP-AMR 2.0 (2025–29)

#### Why a New Plan?

- Increasing cases of drug-resistant infections and superbugs.
- Rising environmental contamination with resistant microbes.
- Need to address gaps in the first plan (2017–21).
- Aligns with the WHO Global Action Plan on AMR.

#### Nodal Ministry

- Ministry of Health & Family Welfare.

### Key Features

#### 1. One Health Approach

- Tackles AMR across human health, animal health, agriculture, and the environment.

#### 2. Multi-ministry Collaboration

- Includes action plans, budgets, and timelines for all relevant ministries to ensure coordinated implementation.

#### 3. Awareness & Education

- Public campaigns for citizens, prescribers, and frontline health workers.

#### 4. Professional Training

- AMR-focused training for doctors, veterinarians, pharmacists.

#### 5. Stronger Labs & Surveillance

- Expansion of microbiology labs.
- Better infection prevention and control systems in hospitals.
- Strengthening AMR surveillance networks across public and private sectors.

#### 6. Private Sector & Community Engagement

- Involves pharma companies, diagnostic labs, healthcare providers, NGOs, cooperatives, and global partners.



# Eklavya Model Residential Schools (EMRS)

**Context:** The Prime Minister recently inaugurated several tribal welfare and education projects, including new EMRS and community centres.

## About EMRS

- **Launched:** 1997–98 by the Ministry of Tribal Affairs (MoTA).
- **Purpose:** Provide free, quality residential education to ST students (Class 6–12) in remote tribal areas.
- **Goal:** Reduce the education gap between tribal and non-tribal communities while promoting sports, skills, and tribal culture.

## Expansion

- Revamped in 2018–19 to scale up coverage.
- EMRS to be set up in every block with >50% ST population and at least 20,000 ST residents.
- **Target:** 728 schools by 2026.
- **Management:** Operated by National Education Society for Tribal Students (NESTS), an autonomous body under MoTA.

## Key Features

- Fully residential and co-educational, modelled on Navodaya Vidyalayas but with tribal-focus.
- Follows CBSE curriculum; everything is free — boarding, books, uniforms, and other facilities.
- Each school has capacity for 480 students, ensuring gender balance.

# The State of the World's Children 2025 Report

**Context:** UNICEF released the State of the World's Children 2025 report on World Children's Day (20 November).

## About the Report

- UNICEF's flagship annual publication (since 1980).
- Analyses global challenges faced by children, backed by data and policy suggestions.
- Aims to inform governments, civil society, and global agencies for better child-focused policymaking.
- The UN Convention on the Rights of the Child (1989) defines a child as anyone under 18 years.
- **2025 Theme:** Ending Child Poverty: Our Shared Imperative.



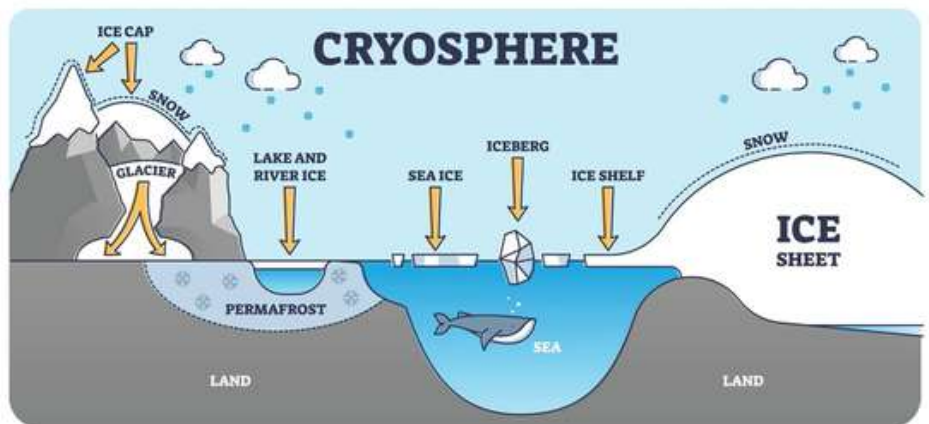


## Key Global Findings

- Child Poverty Crisis
  - 1 in 5 children in low- and middle-income countries lack at least two essential needs (education, health, food, housing, water, sanitation).
  - 412 million children live in extreme monetary poverty (less than USD 3/day).
  - 417 million face severe multidimensional deprivation.
- India-Specific Findings
  - India has 460 million children below 18 years — one of the world's largest child populations.
  - India is on track to meet SDG 1.2 (reducing poverty in all dimensions by 2030).
  - As per NITI Aayog's Multidimensional Poverty Index:
    - 248 million people exited multidimensional poverty between 2013-14 and 2022-23.
    - Poverty rate dropped from 29.2% → 11.3%.

## Cryosphere Melting

Context: The State of the Cryosphere 2025 Report, released by the International Cryosphere Climate Initiative (ICCI) during COP30 (Belém, Brazil), warns that global ice loss is accelerating to dangerous levels—threatening sea-level rise and water security, especially in Himalayan regions.



### Key Findings of the 2025 Report

- Ice Sheets: Ice loss from Greenland and Antarctica has quadrupled since the 1990s, nearing irreversible tipping points.
- Polar Oceans: High greenhouse gas levels are damaging ocean functions like carbon absorption and circulation. Acidification at >430 ppm CO<sub>2</sub> threatens marine life.
- Mountain Glaciers: Glacier loss is rising exponentially—273 gigatons/year (2000–2023), with a 36% increase in recent years.
- Sea Ice: Global sea ice has reduced 40–60% since 1979; record lows in 2023–25. Multi-year Arctic ice has nearly vanished.
- Permafrost: Over 210,000 km<sup>2</sup> has thawed every decade for 100 years, with faster melting since the 1990s.

## Why the Cryosphere Is Melting Faster

- **Greenhouse Gas Rise:** Warming of even 1–2°C severely impacts ice-covered regions.
- **Arctic Amplification:** Loss of reflective ice exposes darker surfaces, absorbing more heat.
- **Ocean Warming:** Warmer waters thin Antarctic and Greenland ice shelves, accelerating glacier flow into oceans.
- **Marine Heatwaves:** Intensify melting and destabilize ecosystems.
- **Black Carbon (Soot):** Settles on snow, reduces reflectivity (albedo), and speeds Himalayan glacier melt.
- **Changing Snowfall Patterns:** Less snowpack exposes ice earlier, increasing melt periods.

## Environmental Impacts

- **Permafrost Thaw:** Releases methane and CO<sub>2</sub>—deepening warming feedback loops.
- **Sea Ice Loss:** Collapses marine food webs dependent on ice algae and krill.
- **Sea-Level Rise:** Threatens islands, mangroves, coral reefs, and coastal communities.
- **Altered Ocean Salinity:** Freshwater influx disrupts species distribution and nutrient cycles.
- **Lower Albedo:** Accelerates global warming.
- **Ancient Pathogens:** Thawing ice may release dormant viruses and bacteria.
- **Loss of Habitat:** Polar bears, walruses, seals, and penguins face severe habitat decline.
- **Weakening of Major Currents:** Melting ice disrupts AMOC/AOC, altering global climate patterns.

## Measures to Address Cryosphere Melting

- **Deep Emission Cuts:** Limiting warming to 1.5°C could save ~50% of glacier mass by 2100.
- **Fossil Fuel Phaseout:** Coal by 2040s, gas by 2050s, oil by 2060s.
- **Cut Methane & Black Carbon:** Essential for slowing near-term warming and glacier melt.
- **Boost Renewable Energy:** Triple capacity by 2030; 15× by 2050.
- **Carbon Removal:** Large-scale CO<sub>2</sub> removal needed to reverse temperature overshoot.
- **Adaptation Measures:** Coastal defenses, managed retreat, water storage for glacier-fed basins, and infrastructure protection.
- **Himalayan Cooperation:** Data sharing, joint risk mapping, and climate diplomacy.
- **Climate Finance:** Support for vulnerable regions.
- **Eco-sensitive Development:** Strict regulation of infrastructure and tourism in glacier zones.

**Conclusion -** Cryosphere protection is now a global survival priority. Without urgent and sustained emission reductions, the world risks irreversible climate tipping points and widespread ecological and human damage.



# Fujiwhara Interaction

**Context:** Weather models suggest the formation of two cyclonic storms in the Bay of Bengal, with a rare possibility of a Fujiwhara-type interaction.



**What is the Fujiwhara Effect?**

- The Fujiwhara Effect (or Fujiwhara interaction) occurs when two nearby cyclones begin to influence each other in the atmosphere.
- Their centres start rotating around a common point in a counterclockwise direction.
- This central rotation point depends on the relative strength and size of the cyclones.
- First described in 1921 by Japanese meteorologist Dr. Sakuhei Fujiwhara.

**When does it occur?**

- Typically when two cyclones come within about 1,400 km of each other (distance varies by intensity and size).

**Possible Outcomes**

- Intensification: Interaction may strengthen one or both cyclones.
- Merger: A stronger system may absorb the weaker one.
- Repulsion: Cyclones may drift apart after interacting.
- Track change: Movements become unpredictable, making forecasts difficult.

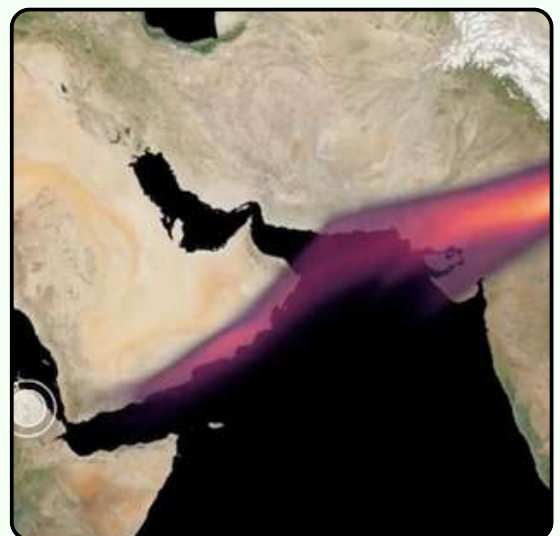
**Overall:** The Fujiwhara Effect can significantly alter the paths and behaviour of cyclones.

# Hayli Gubbi Volcano

**Context:** Ash from Ethiopia's Hayli Gubbi volcano has spread across several countries after a major eruption.

**About Hayli Gubbi Volcano**

- A shield volcano located in the Afar region of Ethiopia, part of the Erta Ale volcanic range.
- The Erta Ale Range lies within the East African Rift System, where tectonic plates are pulling apart.
- 2025 eruption: Released massive ash plumes reaching 14 km into the atmosphere.





### East African Rift (EAR)

- A major continental rift where the African Plate is splitting into the Nubian and Somali plates.
- Runs from the Red Sea → Ethiopia → Mozambique.

### Why the Recent Eruption Occurred

- Magma buildup due to rifting: As the African and Arabian plates move apart, hot mantle material rises and recharges magma beneath the volcano.
- High-pressure, gas-rich magma: Accumulated magma and trapped gases caused an explosive eruption.
- Opening of crustal faults: New fractures likely formed, creating a pathway for magma after nearly 12,000 years of dormancy.

### About Ethiopia

- A landlocked country in East Africa (area: 1.1 million sq. km).
- Borders: Eritrea, Djibouti, Somalia, Kenya, South Sudan, and Sudan.

## Supreme Court Order on Stray Dog Crisis

**Context:** The Supreme Court has directed all States/UTs to remove stray dogs from public institutions and shift them to designated shelters after sterilisation and vaccination.

### Key Highlights of the November 2025 SC Order

#### 1. Removal & Relocation

- Stray dogs must be removed immediately from schools, hospitals, transit hubs, and public premises.
- Must be sterilised + vaccinated as per ABC Rules 2023 before relocation.
- Cannot be released back in the same area.

#### 2. Accountability

- Municipal bodies/local authorities responsible for strict compliance.

#### 3. Infrastructure Mandates

- Public institutions must install fencing, gates, and boundary walls to prevent dog entry.

#### 4. Animal Welfare Measures

- AWBI to prepare nationwide SOPs for dog-bite prevention and stray management.

#### 5. Removal of Cattle

- Cattle and stray animals must be removed from highways and public roads.

### Why the ABC Programme Fails

- Poor governance: Lack of skilled staff, weak coordination, and low accountability.
- Infrastructure gaps: Few sterilisation centres, poor post-operative care, and limited funds.
- Weak data systems: No reliable stray-dog census or independent audits.
- Legal confusion: Conflicting orders and poor compliance with ABC Rules.
- Root causes ignored: Open garbage, unregulated feeding, and low public awareness.

## Background: Key Previous SC Orders

11 August 2025

- Suo motu case on rising dog-bite incidents in Delhi-NCR.
- Order: All stray dogs in Delhi-NCR to be captured and permanently kept in shelters (“no-release rule”).

22 August 2025

- Modified approach supporting the Catch-Neuter-Vaccinate-Release (CNVR) model.
- Order: Sterilised and vaccinated dogs to be released back to their territories to avoid the ecological vacuum effect.

## Ethical Dimensions of Stray Dog Management

- Moral Status: Debate on whether animals have intrinsic worth or are protected through human moral duty.
- Kantian view: Animals lack rationality; they don’t have direct rights, but cruelty reflects poor human morality.
- Jain Philosophy: Ahimsa—non-violence towards all living beings; harming animals is spiritual violence.
- Rigvedic ethos: Promotes harmony and coexistence within the universal order (Rta).
- Human safety vs animal rights: State must protect citizens from rabies while avoiding cruelty.
- State responsibility (Parens Patriae): State acts as guardian of animals.
- Citizen responsibility: Proper waste disposal, responsible pet ownership, support for sterilisation drives.
- Community ethics: Balance between humane feeding practices and public safety.

## Measures to Balance Public Safety & Animal Welfare

- Scientific control: Implement ABC Rules 2023—sterilisation, vaccination, deworming; set up ABC centres in every district.
- Public health: Ensure anti-rabies vaccines, rapid-response systems, and rabies surveillance.
- Institutional accountability: Appoint nodal officers; conduct regular inspections and compliance audits.
- Garbage management: Enforce solid-waste rules; remove open garbage.
- Designated feeding zones: Created with RWAs and authorities.
- Awareness: Promote responsible pet ownership, dog-bite prevention, and humane coexistence.
- Data-driven governance: Maintain centralised stray-dog and rabies databases; link municipal funding to outcomes.





# Implementation of Four Labour Codes

**Context:** The Government of India will implement the four Labour Codes from 21 November 2025, replacing 29 existing labour laws.

## Background

- The Second National Commission on Labour recommended grouping multiple labour laws into 4-5 codes.
- Code on Wages, 2019 was the first to be notified (8 Aug 2019).
- The remaining three were notified on 29 Sept 2020.

## The Four Labour Codes

1. Code on Wages, 2019
2. Industrial Relations Code, 2020
3. Code on Social Security, 2020
4. Occupational Safety, Health and Working Conditions (OSHC) Code, 2020

## Why Labour Law Codification Was Needed

- **Ease of Doing Business:** Simplifies compliance and reduces paperwork.
- **Employment Generation:** Transparent norms encourage investment and job creation.
- **Worker Welfare:** Improved wage, safety, and social security provisions.
- **Single Framework:** Introduces single registration, single license, and single return.
- **Modernisation:** Replaces outdated colonial-era laws with contemporary labour norms.

## Before vs After Labour Codes

### 1. Formalisation

- **Before:** No mandatory appointment letters.
- **After:** Appointment letters compulsory for all workers.

### 2. Social Security

- **Before:** Limited coverage.
- **After:** PF, ESIC, insurance for all workers, including gig and platform workers.

### 3. Minimum Wages

- **Before:** Applied only to scheduled industries.
- **After:** Universal minimum wage for all workers.

### 4. Healthcare

- **Before:** No provision for annual health check-ups.
- **After:** Free annual health check-up for workers above 40 years.

### 5. Timely Wages

- **Before:** No strict enforcement.
- **After:** Mandatory timely wage payment.

### 6. Women Workforce Participation

- **Before:** Restrictions on night shifts and some occupations.
- **After:** Women allowed in all shifts with safeguards.

### 7. Compliance Burden

- **Before:** Multiple registrations and returns.
- **After:** Single registration, single licence, single return.



## Challenges & Concerns

### 1. Trade Union Opposition

- Allegations of weakened strike rights, easier layoffs, and diluted collective bargaining.

### 2. State-Level Implementation Gaps

- Labour is a Concurrent List subject → states vary in readiness and rule-making.

### 3. Rise of Contract/FTE Jobs

- Risk of employers replacing permanent jobs with fixed-term contracts, increasing insecurity.

### 4. National Wage Floor Concerns

- Methodology, state alignment, and enforcement mechanisms remain unclear.

### 5. Weak Social Security Enforcement

- Many benefits are still schemes, not legally enforceable rights.
- Huge informal and gig workforce still inadequately protected.

### 6. Patchy Coverage of Gig & Informal Workers

- Despite definitions, actual implementation is limited.

### 7. Fragmented Scheme Architecture

- Multiple centre-state schemes overlap without coordination.

### 8. Data Gaps

- Lack of unified identity and database affects portability and national mobility.

## Way Forward

### 1. State Implementation Roadmap

- Time-bound rule notifications.
- Central dashboard for tracking inspections, registrations, tribunal cases.

### 2. Strengthen Social Security

- Make PF, ESIC, maternity benefits legally enforceable.
- Universal worker-ID linking EPFO, ESIC, e-Shram, BOCW.

### 3. Prevent Misuse of Fixed-Term Employment

- Sector-wise caps on FTE usage.
- Mandatory disclosures on workforce composition.

### 4. Building State Capacity

- Invest in inspector training, digital tools, analytics, and social audits.

### 5. Transitional Safeguards

- Ensure old welfare benefits are not diluted.

### 6. Improve Gig & Platform Worker Inclusion

- Operationalise the Social Security Fund with automated aggregator contributions.
- Create an app-based system for workers to track dues.

### 7. Support MSMEs Without Diluting Protections

- Link compliance incentives with verified adherence to safety and wage norms.



# Cryptocurrency as 'Property' – Madras High Court Ruling

**Context:** The Madras High Court recently ruled that cryptocurrency qualifies as “property” under Indian law—an asset that can be owned, enjoyed, transferred, and held in trust.



## Legal & Regulatory Context in India

- **Income Tax Act, 1961:**
  - Section 2(47A) classifies cryptocurrency as a Virtual Digital Asset (VDA).
  - Income from transfer/sale taxed at 30% under Section 115BBH.
  - 1% TDS on transfers under Section 194S.
- **RBI Stance:** Not recognized as legal tender in India.

## What is Cryptocurrency?

- Digital Medium of Exchange using cryptography to secure transactions.
- Operates on blockchain technology: a decentralized ledger across peer-to-peer networks.
- Not issued by governments or central banks.
- Examples: Bitcoin (BTC), Ethereum (ETH), Dogecoin (DOGE).

## Court's Recognition of Cryptocurrency as Property

1. **Judicial Observation:**
  - Cryptocurrency is not tangible property nor currency, but can be beneficially enjoyed and possessed.
2. **Statutory Basis:**
  - Refers to Section 2(47A) of the Income Tax Act, defining cryptocurrency as a Virtual Digital Asset.
3. **Functional Nature:**
  - Can be stored, traded, and sold, exhibiting characteristics of property.
4. **Trust Principle:**
  - Virtual digital assets held electronically can be held in trust, creating a fiduciary duty for exchanges toward users.

## Significance:

- Provides legal clarity for ownership rights, fiduciary responsibility, and property claims over cryptocurrencies in India.
- Supports enforceability in transactions and disputes, strengthening investor confidence.



# Tribunal Reforms Act, 2021 – Supreme Court Verdict 2025

**Context:** The Supreme Court struck down key provisions of the Tribunal Reforms Act, 2021, which aimed to centralize the appointment and functioning of tribunals. The Court also directed the Centre to set up a National Tribunal Commission within four months.

## What Are Tribunals?

- **Definition:** Specialized quasi-judicial bodies for speedy, expert resolution of disputes in areas like taxation, IP, environment, labour, and administrative services.
- **Constitutional Basis:**
  - Article 323-A: Administrative tribunals.
  - Article 323-B: Tribunals for taxation, land reforms, labour, industrial disputes, etc.
  - SC (2010): Tribunals can be created for any matter within legislative competence.
- **Jurisdiction:** Limited to specialized domains; appeals generally to High Courts or Supreme Court if statute allows.

## Provisions Struck Down by SC

Aspect	Provision in 2021 Act	SC Ruling (2025)
<b>Tenure of Members</b>	Fixed 4-year tenure for Chairpersons/Members	Unconstitutional; minimum 5-year tenure must continue
<b>Minimum Age</b>	Advocates must be ≥50 years	Unconstitutional; eligibility cannot be barred solely by age
<b>Executive Control</b>	Central Government dominates appointments/service conditions	Judicial primacy in selection is mandatory for independence
<b>Service Conditions</b>	Union Govt can prescribe salaries/allowances	Excessive executive discretion violates independence and separation of powers
<b>Tribunal Independence</b>	Ministries retain administrative influence	Tribunals must be independent from executive
<b>Re-enactment of struck provisions</b>	2021 Ordinance reintroduced invalid provisions	Declared impermissible legislative override, violating constitutional supremacy



# 53rd Chief Justice of India – Justice Surya Kant

## Context:

- Justice Surya Kant assumed office on 24 November 2025 as the 53rd Chief Justice of India, succeeding Justice B.R. Gavai.

## Role of the Chief Justice of India (CJI)

- Head of Indian Judiciary: Presides over the Supreme Court and safeguards the Constitution.
- Administrative Powers:
  - Supervises rule-making for the SC (Article 145).
  - Controls appointments of Supreme Court staff (Article 146).
  - Approves the location of the SC (Article 130).

## Constitutional Provisions

- Article 124: Establishes the SC and provisions for judge appointments.
- Articles 145 & 146: Administrative and procedural powers of the CJI.
- Article 130: Seat of the Supreme Court.

## Appointment and Tenure

- Appointed by: President of India.
- Convention: Senior-most Supreme Court judge is recommended.
- Tenure: Until 65 years of age; no fixed term.
- Resignation: By writing to the President.
- Removal: Only for proven misbehaviour or incapacity.

## Eligibility (Same as SC Judge)

- Citizen of India.
- Judicial Experience:
  - High Court judge for 5 years, OR
  - High Court advocate for 10 years, OR
  - Distinguished jurist in President's opinion.



# India AI Governance Guidelines (2025)

- Released by Ministry of Electronics and IT (MeitY) to guide responsible AI development and adoption in India.
- Emphasizes a “hands-off” regulatory approach, balancing innovation with accountability and ethics.
- Separate from the draft IT Rules 2021 amendment, which deals with AI-generated content labeling.
- No new AI-specific law proposed; existing laws will apply, with targeted amendments if needed.

## Objectives

- Promote safe, trusted, and inclusive AI innovation.
- Advance India's vision of "AI for All", ensuring ethical, equitable, and accountable AI use.

## Six Pillars of AI Governance

### 1. Infrastructure

- Strengthen digital infrastructure and leverage Digital Public Infrastructure (DPI) for large-scale inclusion.

### 2. Capacity Building

- Promote AI skilling and training, developing India's AI workforce.

### 3. Policy & Regulation

- Encourage flexible and adaptive governance instead of rigid laws.

### 4. Risk Mitigation

- Implement risk assessment systems tailored to India's socio-economic and technological realities.

### 5. Accountability

- Ensure transparency across the AI value chain for developers, deployers, and users.

### 6. Institutions

- Establish governance bodies and integrate AI safety mechanisms:
  - AI Governance Group (AIGG): High-level policy coordination.
  - Technology & Policy Expert Committee (TPEC): Technical and legal advisory.
  - AI Safety Institute (AIS): Research and AI safety monitoring.

## Significance

- Provides a national framework for AI ethics and responsibility.
- Supports innovation without stifling growth, while safeguarding security, accountability, and inclusivity.

SHAPING TALENT SINCE 2009

# Assam Prohibition of Polygamy Bill, 2025

**Context:** Tabled in the Assam Legislative Assembly to criminalise polygamy, with exceptions for certain tribal customary practices under the Sixth Schedule.

## Polygamy Overview

- **Definition:** Marital system where a person has multiple spouses simultaneously.
- **Types:**
  - Polygyny: One man, multiple wives.
  - Polyandry: One woman, multiple husbands.
- **Prevalence (NFHS-5, 2019-20):** 2.1% Christians, 1.9% Muslims, 1.3% Hindus, 1.6% others.

## Legal Status in India:

- Hindu Marriage Act, 1955 – bans bigamy.
- Muslim personal law (Shariat Act, 1937) – allows up to four wives.
- Parsi Marriage Act, 1936 – prohibits polygamy.
- Special Marriage Act, 1954 – bans marriage if spouse exists.
- Goa – exception allows bigamy under conditions.

## Key Provisions of the Bill

### 1. Criminalisation:

- Polygamy punishable with up to 7 years imprisonment + fine.
- Up to 10 years if the existing marriage is concealed.
- Repeat offenders face double punishment.

### 2. Scope & Applicability:

- Applies throughout Assam except Sixth Schedule areas and certain tribal customary laws.
- Covers Assam residents marrying outside the state.

### 3. Police Powers:

- Officers can preemptively prevent prohibited marriages.

### 4. Compensation Mechanism:

- Special fund for women affected by polygamous marriages.

### 5. Penalties for Abettors:

- Family/community members: Up to 2 years jail + ₹1 lakh fine.
- Priests/qazis solemnising marriages: Fine up to ₹1.5 lakh.
- Applies to anyone hiding or delaying reporting such marriages.

### 6. Disqualifications:

- Convicted individuals barred from government jobs, state benefits, and elections.

### 7. Safeguards:

- Existing valid marriages before the Bill remain unaffected if compliant with personal laws.

## 20th G20 Summit 2025 – Johannesburg, South Africa

### Context:

- First-ever G20 Summit hosted by an African nation.
- Summit focused on inclusive, sustainable, and rules-based multilateralism.





## Key Highlights

### Geopolitical & Institutional Outcomes:

- **Africa-Centric Mandate:** Platform for African development, South-South cooperation, and Ubuntu philosophy (“I am because we are”).
- **Multilateralism & Stability:** Reaffirmed rules-based order; condemned terrorism; addressed geopolitical fragmentation.
- **Global Governance Reform:** Advocated transformative reforms of global institutions, especially UNSC representation for Africa, Asia-Pacific, and Latin America.

### Climate, Energy & Finance:

- **Climate Ambition:** Triple global renewable energy capacity; double energy-efficiency improvement rate.
- **Adaptation & Resilience:** Universal early warning systems by 2027.
- **Debt Sustainability:** Strengthened mechanisms for low-income countries; explored debt-for-development/climate swaps.

### Technology & Inclusivity:

- **Critical Minerals:** Emphasis on equitable value-sharing and local industrialisation.
- **Women-Led Development:** Remove socio-economic barriers for women’s full participation.

### India’s Role:

- **Core Philosophy:**
  - **Integral Humanism:** Holistic development balancing individual, society, economy, and ecology.
  - **Human-Centric Technology:** AI and digital tech to be open-source and inclusive, not finance-centric.
- **Proposals:**
  - Climate accountability, food security, disaster resilience.
  - Global shift to future skills and equitable technology access.

### Bilateral/Multilateral Cooperation:

- **Australia-Canada-India Tech Initiative (ACITI):** Cooperation in critical/emerging tech.
- **Italy:** Counter-terror financing, defence, AI, space, trade.
- **Canada, UK, France:** Defence, technology, investment, climate, education collaboration.

### Challenges for G20:

- **Representation & Legitimacy:** Exclusive membership excludes most UN states.
- **Transparency & Accountability Gaps:** No permanent secretariat; weak institutional memory.
- **Limited Policy Effectiveness:** Developed-country dominance; diverging priorities hinder consensus.
- **Geopolitical Rivalries:** US-China, Russia-West tensions; leader boycotts.
- **Implementation Gap:** Non-binding pledges, delayed climate finance, weak ODA.



### Way Forward / Recommendations:

- **Regional Consultative Groups:** Enhance inclusion, legitimacy, and regional dialogue.
- **Global South Participation:** Permanent observers, rotating guest seats, engagement with ASEAN, CARICOM, PIF, ECOWAS.
- **Institutional Strengthening:** Permanent secretariat, Troika mechanism, working groups on climate finance, AI, debt relief, hunger.
- **Equitable Development & Climate Justice:** Binding climate finance, Green Development Fund, reformed debt architecture, expanded IMF SDRs.
- **Food Security:** Anti-hunger alliances, climate-resilient crops, nutrition systems, Deccan Principles.
- **Human-Centric Technology & AI Governance:** Norms for safe, accountable AI, regulation of deepfakes, open-source digital public goods.

### US Boycott:

- **Reason:** Political/ideological friction; opposition to South Africa's climate, debt, and Global South priorities.
- **Impact:** Enabled Global South-driven consensus; demonstrated G20 can function without major Western powers.

## BRICS Pay: An Alternative to SWIFT

### Context:

- BRICS nations are operationalising BRICS Pay, a cross-border payment system to reduce reliance on the U.S.-controlled SWIFT network.
- Initiative aligns with BRICS' long-term goal of financial autonomy, monetary multipolarity, and South-South cooperation.

### Evolution of BRICS Financial Cooperation

- **2014 Fortaleza Summit:** Launch of New Development Bank (NDB) and Contingent Reserve Arrangement (CRA).
- **Post-2014:** Western sanctions on Russia accelerated the push for independent financial mechanisms.
- **2020s:** Creation of BRICS Payments Task Force (BPTF); move toward local currency settlements.
- **2024 Kazan Summit:** Emphasis on strengthening correspondent banking and settlements in local currencies; BRICS Pay operationalised.

### Features of BRICS Pay

- Part of BRICS Cross-Border Payments Initiative.
- Connects national payment platforms:
  - India: UPI | China: CIPS | Russia: SPFS | Brazil: Pix
  -
- Uses Decentralised Messaging System (DCMS) to ensure security and avoid single-point failures.
- Allows settlements in local currencies, reducing dependence on the dollar.

## Opportunities

1. **Financial Sovereignty:** Less vulnerable to U.S. monetary policy; reduces dollar reserve burden.
2. **Sanction Immunity:** Offers alternative routes for countries facing Western financial restrictions.
3. **South-South Cooperation:** Promotes trade in regional/local currencies; strengthens emerging economies.
4. **Innovation & Inclusion:** Leverages national digital payment systems for instant, low-cost, secure transactions.
5. **Multilateralism & Multipolarity:** Reduces Western dominance, enhances collective financial influence.

## Challenges

- **Diverse National Interests:** Each BRICS country prioritises its own platform (UPI, CIPS, Pix, SPFS).
- **Interoperability:** Technical, regulatory, and currency alignment across five economies is complex.
- **Geopolitical Pressure:** U.S. may view initiative as dollar undermining; potential trade retaliation.
- **Trust Deficit:** Political/economic differences (e.g., China-India tensions) hinder cohesion.
- **Limited Initial Scope:** Member-only network; smaller than SWIFT's global reach.

## Way Forward

- **Phased Integration:** Start with bilateral/regional settlements; gradually move to multilateral framework.
- **Institutional Reinforcement:** Link with NDB for liquidity and risk mitigation.
- **Regulatory & Digital Harmonisation:** Draft a BRICS Fintech Charter for standardisation.
- **Technological Modernisation:** Use blockchain, AI fraud detection, encryption; interlink national systems.
- **Strategic Expansion (BRICS+):** Include countries like Saudi Arabia, UAE, Egypt to connect key trade corridors.
- **Complementarity with Global System:** Co-exist with SWIFT; promote interoperability while ensuring financial sovereignty.

# 32nd Asia-Pacific Economic Cooperation (APEC) Summit, 2025

## Context:

- Held in Gyeongju, South Korea.
- Chinese President Xi Jinping emphasised global free trade and multilateral cooperation.



**APEC 2025  
KOREA**





## About the Summit

- Theme: “Building a Sustainable Tomorrow: Connect, Innovate, Prosper.”
- Participants: Leaders from 21 Asia-Pacific economies.
- Key Focus Areas:
  - a. Regional economic integration and free trade.
  - b. Supply chain resilience.
  - c. Cooperation in Artificial Intelligence (AI).
  - d. Addressing ageing populations and demographic challenges.
  - e. Promotion of sustainable and green growth strategies.

## About APEC

- Founded: 1989, to foster regional economic integration, trade liberalisation, and sustainable growth.
- Nature: Consensus-driven regional economic forum; non-binding decisions.
- Secretariat: Singapore.
- Membership: 21 Asia-Pacific economies.
  - Major members: U.S., China, Russia, Japan, South Korea, Australia, Canada, Indonesia.
  - India: Observer, not full member.

## Significance for India and the Region:

- Provides insights into Asia-Pacific economic trends, technology cooperation, and climate/green growth strategies.
- Opportunity for India to strengthen ties as an Observer and prepare for potential future membership.

# Gavi-UNICEF Agreement on R21/Matrix-M Malaria Vaccine

## Context:

- Gavi and UNICEF signed a procurement agreement to make the R21/Matrix-M malaria vaccine more affordable and accessible in malaria-endemic countries.



## About R21/Matrix-M Vaccine

- Type: Next-generation malaria vaccine.
- Developed by: University of Oxford in collaboration with Serum Institute of India (SII).
- WHO Status: Recommended for wider use in October 2023, becoming the second WHO-approved malaria vaccine after RTS,S.



### About Gavi (Global Alliance for Vaccines and Immunization)

- Nature: Public-private global health partnership to increase access to vaccines in low- and middle-income countries.
- Founded: 2000, World Economic Forum, Davos.
- Headquarters: Geneva, Switzerland.
- Mission & Objectives:
  - Save lives and reduce disease through vaccination.
  - Strengthen immunization systems and equitable vaccine distribution.
  - Support introduction of new vaccines and cold-chain/delivery systems.
- Key Partners:
  - Governments (donor & recipient), WHO, UNICEF, World Bank, Bill & Melinda Gates Foundation.
  - Vaccine manufacturers and civil society organisations.

### India's Role

- Graduated from Gavi support in 2017.
- Emerged as a key vaccine supplier and contributor.
- Commitment: Pledged \$10 million during the previous funding cycle to support global immunization.

### Significance:

- Strengthens global malaria control by improving vaccine accessibility.
- Promotes South-South cooperation with India as a supplier.
- Supports equity in vaccine distribution in malaria-endemic regions.

## India-Bangladesh Extradition Treaty (2013)

### Context:

- Bangladesh's interim government has requested India to extradite former PM Sheikh Hasina, citing treaty obligations.

### About the Treaty

- Signed: January 2013
- Purpose: Strengthen cooperation in criminal justice, counter-terrorism, and security.
- Function: Allows both countries to hand over individuals wanted for serious crimes who are found in the other country.

### Scope of the Treaty

#### 1. Dual Criminality Principle:

- Extradition applies only for offences punishable by at least 1 year of imprisonment under both countries' laws.

#### 2. Serious Crimes Covered:

- Terrorism, organized crime, murder, kidnapping, drug trafficking, economic offences.

#### 3. Extended Liability:

- Includes attempts, aiding, abetting, conspiracy, or participation as an accomplice.

## Key Provisions

### 1. No Extradition for Political Offences:

- Individuals cannot be extradited for political offences.
- Exceptions: Serious crimes like murder, terrorism, kidnapping, bombings, firearms use, and offences under multilateral treaties are excluded from political protection.

### 2. Protection Against Persecution:

- Extradition is denied if the request is intended to persecute based on race, religion, nationality, or political opinion.

### 3. Rule of Speciality:

- The extradited person can only be tried for the offence for which extradition was granted.
- Re-extradition to a third state requires the consent of the Requested State.

### 4. Evidence Requirement:

- Requests must include prima facie evidence and supporting documents.

### 5. Domestic Prosecution Option:

- Extradition may be refused if the accused can be tried domestically for the same offence.

### 6. Grounds for Mandatory Refusal:

- Trivial or outdated offences, purely military offences, or sentences below one year.

## Significance:

- Enhances bilateral legal cooperation and helps combat transnational crime and terrorism.
- Balances justice delivery with protection of individual rights, including safeguards against persecution and political misuse.

# India's Green Hydrogen Production Potential – 2025

## Context:

- Union MoS (Independent Charge) for Science & Technology addressed the 3rd International Conference on Green Hydrogen (ICGH-2025) in New Delhi.
- Focus: India's strategic push to lead the global green hydrogen transition.

## About Green Hydrogen

- Definition: Hydrogen produced from renewable energy (solar, wind, hydropower) with total emissions  $\leq 2$  kg CO<sub>2</sub> per 1 kg H<sub>2</sub>.
- Alternate Sources: Biomass conversion, provided emissions remain within limits.
- Key Production Method: Electrolysis
  - Water (H<sub>2</sub>O) split into hydrogen (H<sub>2</sub>) and oxygen (O<sub>2</sub>) using electricity from renewables.
  - Grey hydrogen, in contrast, involves fossil fuel combustion.



## Key Initiatives Announced at ICGH-2025

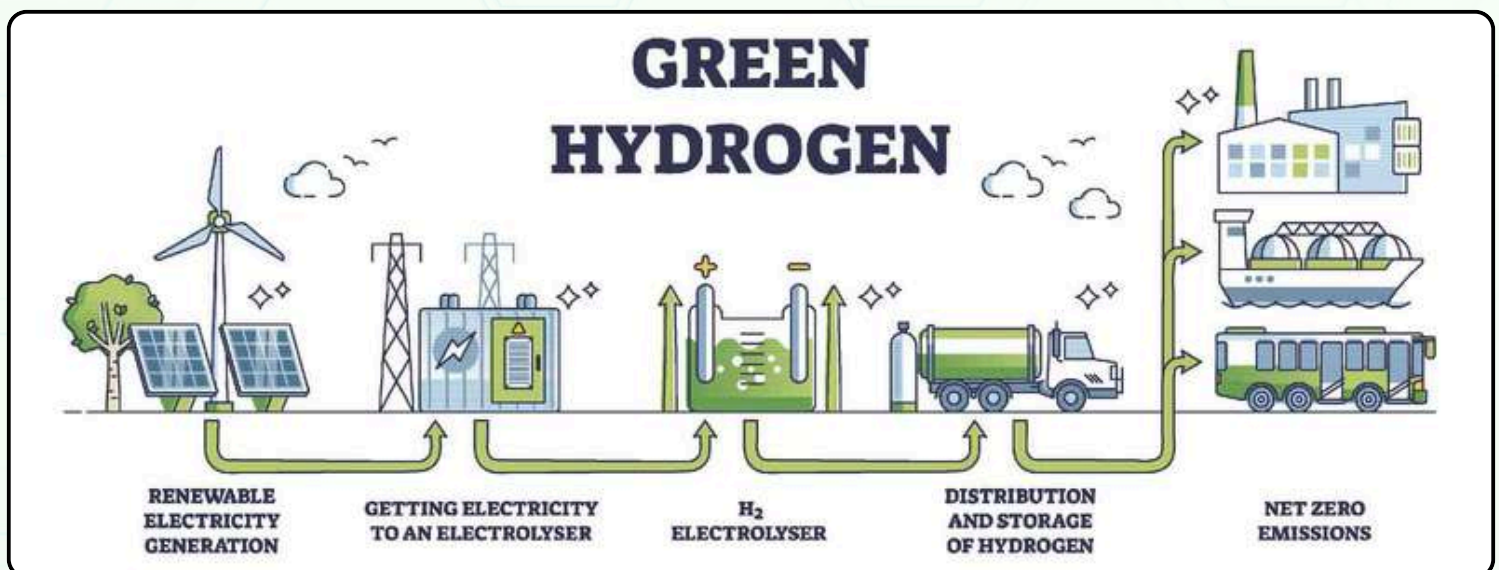
1. **Hydrogen Valley Innovation Clusters (HVICs)**
  - Four Hydrogen Valleys are being developed across India.
  - Objective: Demonstrate the full hydrogen value chain – production, storage, transport, and utilization.
2. **Research, Development & Innovation (RDI) Scheme**
  - Launched Nov 2025 with ₹1 lakh crore funding.
  - Focus on large-scale structural R&D boost in hydrogen technologies.
3. **Anusandhan National Research Foundation (ANRF)**
  - Established under ANRF Act, 2023.
  - Provides institutional integration for hydrogen research and innovation.
4. **MAHA-EV Mission**
  - Supports indigenous batteries, fuel cells, EV components, and hydrogen mobility technologies.
  - Develops scalable EV charging and hydrogen refuelling infrastructure.
  - Promotes Atmanirbhar Bharat in green mobility.
5. **Mission Innovation 2.0**
  - International collaboration to reduce clean hydrogen cost to USD 2/kg.
  - Goal: Replicate Hydrogen Valley model globally by 2030.
6. **India's Global Position**
  - Projected as a key driver of the global hydrogen economy.
  - Hydrogen framed as an economic, technological, and strategic imperative.

## Production Requirements

1. **Electrolyzers:** Split water into hydrogen and oxygen.
2. **Renewable Energy:** Solar, wind, or hydropower ensures zero-carbon electricity.
3. **Water Supply:** ~9 tons of water required to produce 1 ton of hydrogen.

## Strategic Significance

- Supports India's energy transition, green mobility, and carbon-neutral goals.
- Enhances economic and technological leadership in global hydrogen innovation.
- Aligns with Atmanirbhar Bharat and Mission Innovation 2.0.



# India Skills Report 2026

## Context:

- The report analyses India's employability landscape, skill gaps, and workforce trends.
- Published jointly by ETS, CII, AICTE, and AIU.
- Data based on 100,000+ assessments via the Global Employability Test (G.E.T.).
- Theme: "The Future of Work: Gig Workforce, Freelancing, AI-Supplemented Workforce, Remote Work & Entrepreneurship."

## Key Findings

### 1. National Employability Trends

- Overall employability: 56.35% (up from 54.81% in 2025).
- Emerging hubs: Tier-2 and Tier-3 cities like Lucknow, Kochi, Chandigarh narrowing urban-rural employability divide.
- Global Employability Test: Over 50% of graduates scored above 60%.

### 2. Gender Inclusion

- Women's employability: 54% > Men: 51.5% (first time in India).
- Hybrid work and digital skill growth driving the shift.
- Industry preference:
  - Women: Legal (96.4%), Healthcare (85.95%)
  - Men: Graphic Design (83.11%), Engineering Design (64.67%)

### 3. Industry Trends

- AI in Hiring: 70% IT & 50% BFSI firms use AI in recruitment.
- Hiring Intent 2026-27: 40% (up from 29% in 2025), strong in tech, BFSI, healthcare, renewable energy.

### 4. Workforce Composition

- Permanent employment: 72%
- Gig/third-party roles: 16% (growth in flexible work ecosystems)

### 5. Domain-Wise Employability

- Computer Science: 80%
- IT engineers: 78% (driven by AI, analytics, automation)

### 6. Age-Wise Trends

- Highest employability: 22-25 years (75.7%), dominating entry-level hiring.

### 7. Emerging Skills

- Digital fluency and critical thinking rising.
- Leading states: Maharashtra (68.23%), Karnataka (54.83%)

### 8. Skill Shortages

- Persistent shortages in AI, cloud, data, and cybersecurity specialists.

### 9. State-Level Performance

- Top employable states: Uttar Pradesh, Maharashtra, Karnataka, Kerala (4th).
- Kerala ranks among top 10 preferred states for women professionals, driven by gender-inclusive labor policies.



## Key Takeaways

- India is witnessing steady employability growth and narrowing urban-rural gaps.
- Women workforce participation is increasing due to digital skills and hybrid work models.
- AI adoption in hiring is accelerating and shaping workforce requirements.
- Gig economy is maturing, but permanent jobs still dominate.
- Skill shortages in emerging tech domains require policy and educational interventions.

# Marine Fisheries Census (MFC) 2025

## Context:

- Launched on 31 October 2025 at ICAR-CMFRI, Kochi by the Union Minister of State for Fisheries.
- Fifth edition of the national marine fisheries census, conducted every 5 years since 2005.
- Slogan: “Smart Census, Smarter Fisheries”

## Coverage & Scope

- Target Population: 1.2 million fisher households
- Villages: 4,000–5,000 marine fishing villages
- States/UTs: 13 coastal states and UTs including Andaman & Nicobar Islands and Lakshadweep
- Nodal Agency: ICAR-Central Marine Fisheries Research Institute (CMFRI), Kochi, Kerala

## Unique Features

### 1. Fully Digital Census

- First-ever digital MFC with real-time data flow from field to central servers.
- Powered by VYAS mobile application suite:
  - VYAS-NAV: Validation of fishing villages & harbours
  - VYAS-BHARAT: Household & infrastructure enumeration
  - VYAS-SUTRA: Real-time supervision, verification, monitoring

### 2. Data Coverage:

- Socio-economic: Income, liabilities, credit sources, insurance
- Infrastructural: Fishing infrastructure and facilities
- Institutional: Fish Farmer Producer Organisations (FFPOs), Self-Help Groups (SHGs)
- PMMSY & PM-MKSSY: Coverage and COVID-19 impact assessment

### 3. Advanced Technology Integration:

- Drone Technology: Aerial validation and neutral verification of fishing crafts
- Geo-tagging: Ensures spatial accuracy
- Live Monitoring Dashboards: Enhances transparency and data reliability

### 4. National Fisheries Development Portal (NFDP):

- Fishers must register on NFDP to access government schemes under PM-MKSSY
- Registration facilitated via Common Service Centres (CSCs)





## Significance

- Digitisation ensures accuracy, efficiency, and transparency.
- Helps in policy planning, welfare schemes, and targeted interventions for the fisher community.
- Strengthens institutional mapping for better governance of marine fisheries.

# UNFCCC COP30 – Belém, Brazil (2025)

## Context:

- **Date & Venue:** Concluded on 22 November 2025, Belém, Brazil
- **Theme:** Implementation-focused COP; “how to make climate pledges happen”
- **Outcome:** Adoption of the Belém Political Package

## Brazil's Priorities as COP30 Presidency

1. Strengthen multilateralism
2. Centre climate action on people
3. Accelerate Paris Agreement implementation

## India's Initiatives at COP30

- **Climate Finance & Equity:** Advocated Article 9.1 compliance, predictable grant-based finance; opposed CBAM
- **Forests & Nature-Based Solutions:** Supported TFFF, ecosystem services, indigenous rights, LiFE principles
- **Health & Resilience:** Promoted Belém Health Action Plan, Global Healthcare Response Team
- **Sustainable Fuels & Bioenergy:** Backed 4× pledge, led Global Biofuels Alliance initiatives
- **Adaptation & NAPs:** Stressed scaling adaptation finance and accelerated NAP implementation

## Significance of COP30

- Shift from pledges to implementation
- First COP in the Amazon, highlighting forests, biodiversity, and indigenous communities
- Focus on climate justice: equity, CBDR-RC, and vulnerable populations
- Nature-based solutions elevated via TFFF
- Integration of health, food security, and poverty into climate policy

## Challenges

1. Weak fossil fuel commitment – no phase-out roadmap
2. Climate finance gaps – Article 9.1 obligations unmet
3. Green protectionism – CBAM threatens developing countries' exports
4. Voluntary initiatives (Santa Marta, TFFF) have limited legal enforceability
5. Political and geopolitical divides hinder consensus
6. Deadlock on “Big Four” tracks – Finance, Trade, Fossil Fuels/1.5°C, Transparency

## Initiative Highlights

- **Belém Health Action Plan** - First global plan on climate-health risks; focus on resilient health systems, heat preparedness, zoonotic surveillance, climate justice, and community-led resilience
- **Tropical Forests Forever Facility (TFFF)** - Payment-for-performance mechanism; mobilises ~USD 125 billion; rewards forest conservation; Brazil invested \$1B; India is an Observer
- **Belém Political Package** - Mandated two-year climate finance negotiations; emphasized finance delivery, 1.5°C alignment, CBAM impacts, and transparency; fossil fuel phase-out avoided
- **Santa Marta Conference (2026)** - Proposed by Colombia & Netherlands; focuses on legal, social, economic, technological aspects of fossil fuel phase-out
- **Belém 4× Sustainable Fuels Pledge** - Quadruple sustainable fuel use by 2035 (biofuels, biogas, green hydrogen)
- **Belém Declaration on Hunger, Poverty & People-Centred Climate Action** - Supported by 43 countries & EU; emphasizes adaptation, social protection, crop insurance, women-led resilience
- **Global Mutirão Decision & Platform** - USD 1.3 trillion climate finance annually by 2035; double adaptation finance by 2025, triple by 2035; 60 indicators under Global Goal on Adaptation (GGA)
- **Just Transition Mechanism** - Framework for equitable transitions, labour inclusion, capacity-building, technology transfer
- **Fostering Investible National Implementation (FINI)** - Unlock USD 1 trillion adaptation project pipelines in 3 years with 20% private sector mobilisation

## 10 Years of the Paris Agreement

**Context:** A decade after the 2015 Paris Agreement, emissions and climate disasters continue to rise, but the treaty has triggered a global clean-energy shift, proving that coordinated global action can shape climate outcomes.



## Background - From Kyoto to Paris

- **Kyoto Protocol (1997):**
  - First treaty operationalising CBDR.
  - Binding targets only for developed countries; developing nations acted voluntarily.
- **Shift at Paris (2015):**
  - Rise of major emitters like China pushed for a universal climate framework.
  - Paris Agreement introduced Nationally Determined Contributions (NDCs)—flexible, country-led targets.
  - Increased inclusivity, but weakened accountability of historical polluters.

## Achievements After 10 Years

- **Lowered Warming Trajectory:**
- Projected warming reduced from 4-5°C (2015) to 2-3°C (2025) due to global climate action.
- **Renewable Energy Boom:**
- Solar and wind costs dropped ~80%, now cheaper than fossil fuels in many regions.
- **Rise of Net-Zero Pledges:**
- Over 140 countries have announced net-zero targets.
- **EV Revolution:**
- EVs account for 20% of global new car sales, driven by cheaper batteries and storage.
- **Massive Green Investment:**
- Global clean energy investment has crossed \$1 trillion annually.

## Challenges to the Paris Agreement

- **Warming Overshoot:**
- World still on a 2.7°C path, far above the 1.5°C limit. Weak NDC implementation persists.
- **Finance Gap:**
- Developing nations need \$6 trillion/year till 2030, but climate finance remains inadequate.
  - **Baku Deal (2025):** Raised the outdated \$100B target to only \$300B from 2035.
  - NCQG negotiations stuck over fund sources and grant-vs-loan balance.
- **Erosion of Trust:**
- Global South faces the worst climate impacts despite negligible emissions.
- Attempts to dilute historical responsibility and fears of another U.S. exit deepen mistrust.
- **Technical Bottlenecks:**
  - Article 6 carbon markets stalled over Corresponding Adjustments and Share of Proceeds.
  - Global Goal on Adaptation lacks measurable indicators.
  - Weak transparency mechanisms limit accountability.
- **Geo-Economic Tensions:**
  - EU's CBAM acts as a non-tariff barrier for developing countries.
  - U.S. IRA subsidies triggered a global green subsidy race.
  - Competition for critical minerals (lithium, cobalt, nickel) reshapes geopolitics.





## India's Milestones in 10 Years

- 50% non-fossil power capacity achieved—five years ahead of 2030 target.
- Net Zero by 2070 commitment aligned with Viksit Bharat 2047 vision.
- International Solar Alliance (ISA): 120+ members; enhances solar access for developing nations.
- CDRI: Leads global work on disaster- and climate-resilient infrastructure.
- Key Missions: Green Hydrogen Mission, PM-KUSUM, Battery Storage Mission.

## Domestic Challenges

- Ensuring a just transition in coal-dependent regions.
- High costs for CCUS, green hydrogen, steel/cement decarbonisation.
- Limited fiscal space → need for green budgeting, carbon pricing, and innovative finance tools like green bonds.

## Way Forward

- Mainstream Adaptation: Integrate climate resilience in budgets, urban planning, and disaster policies.
- Deepen Technology Partnerships: Joint R&D in hydrogen, EVs, CCUS.
- Accessible Climate Finance: Simplify, speed up, and increase grant-based funding.
- South-South Cooperation: Strengthen ISA, CDRI, and Global Biofuels Alliance.
- Nature-Based Solutions: Promote afforestation, restoration, and sustainable agriculture.

# Belém Health Action Plan (BHAP)

**Context:** The Belém Health Action Plan was launched at COP30 (Belém, Brazil), marking a major step in placing health at the centre of global climate adaptation.

## What is BHAP?

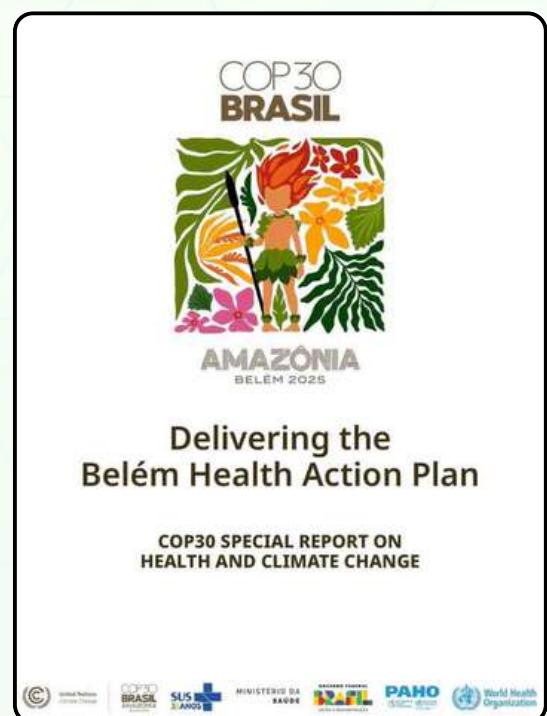
BHAP is a global framework to address rising climate-related health risks such as heatwaves, vector-borne diseases, malnutrition, and water insecurity.

## Guiding Principles

- Based on health equity, climate justice, and community participation.
- Focuses on strengthening resilient health systems, especially for vulnerable and high-risk populations.

## Alignment with COP30

- Supports Objective 16 of the COP30 Action Agenda, which aims to improve health system resilience under climate stress.



### Goals of BHAP

- Integrate health priorities into global and national climate plans.
- Reduce health vulnerabilities and support climate adaptation measures.
- Provide a clear roadmap for countries to build climate-resilient health systems and involve communities in decision-making.

## Declaration on Information Integrity on Climate Change

**Context:** At COP30 in Belém, Brazil, countries adopted the world's first Declaration on Information Integrity on Climate Change.

### Key Highlights

- **Global First:** This is the first international commitment to counter climate misinformation and disinformation.
- **Signatories:** 12 countries — Brazil, Canada, Chile, Costa Rica, Finland, France, Netherlands, Nigeria, Spain, UK, USA, and Vanuatu.
- **Aim:** To ensure that climate-related information remains accurate, evidence-based, transparent, and resistant to manipulation.
- **Why Important:**
  - Misinformation weakens public trust and hinders climate action.
  - Accurate information is essential to achieving the Paris Agreement and global climate goals.

### Why Now?

- Rising threats from AI-generated deepfakes, greenwashing, and polarised digital platforms have created unprecedented levels of climate misinformation.

## Blue NDC Challenge

**Context:** At COP30 in Belém, Brazil, 17 countries—including France and Brazil—joined the Blue NDC Challenge to speed up ocean-based climate action.

### Background

- Under the Paris Agreement (2015), countries submit NDCs outlining their climate commitments.
- Traditional climate policy focused mainly on land and energy sectors.
- Oceans—critical for regulating climate, absorbing carbon, and supporting biodiversity—were largely overlooked.
- The Blue NDC Challenge aims to integrate ocean-climate solutions into national climate strategies.



## What is the Blue NDC Challenge?

- A global initiative launched by France and Brazil in June 2025 at the 3rd UN Ocean Conference (UNOC-3) in Nice, France.
- It encourages countries to include ocean-based climate actions in their NDCs, such as:
  - Coastal and marine ecosystem protection
  - Sustainable fisheries
  - Blue carbon solutions (mangroves, seagrasses, salt marshes)

## Institutional Support

### Supported by:

- Ocean Conservancy
- Ocean and Climate Platform
- World Resources Institute (WRI)
- through the Ocean Resilience and Climate Alliance (ORCA).

### Participating Countries

#### 17 countries including:

- France, Brazil, Australia, Fiji, Kenya, Mexico, Seychelles, and others committed to strengthening ocean-related climate measures in their NDCs.

# Gogabeel Lake – India's 94th Ramsar Site

Context - Gogabeel Lake in Katihar district, Bihar, has been designated as India's 94th Ramsar Site (2025).

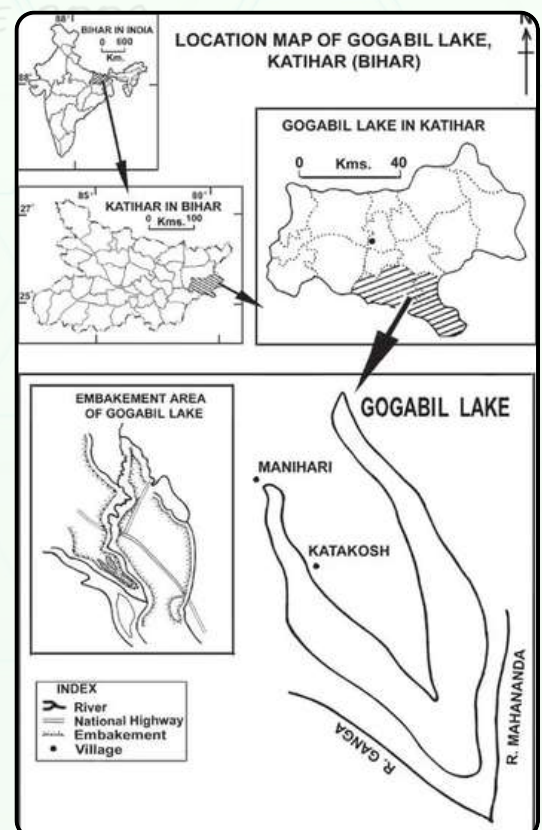
With this, Bihar now has 6 Ramsar sites.

### India remains:

- 1st in Asia
- 3rd globally (after UK - 176 and Mexico - 144)
- Total wetland area under Ramsar: 13.6 lakh hectares
- 4 → World Wetlands Day: 2 February
- Secretariat: IUCN HQ, Gland, Switzerland
- Contracting Parties: 172 (as of 2025)
- India joined: 1982

### About Gogabeel Lake

- Type: Oxbow lake
- Location: Between the Ganga and Mahananda rivers, Katihar district
- Status: Bihar's first Community Reserve, jointly managed by the local community + forest department





## Hydrology

- Naturally connects with the Ganga and Mahananda during floods
- Helps in flood regulation

## Ecological Importance

- Habitat for migratory birds, diverse aquatic flora, and fisheries
- Enhances wetland biodiversity

## Socio-Economic Importance

- Supports livelihoods: fishing, reed collection, eco-tourism
- Provides flood control, groundwater recharge, and boosts climate resilience

## Ramsar Sites in Bihar (6)

1. Kanwar Lake - Begusarai
2. Nagi Lake - Jamui
3. Nakti Lake - Jamui
4. Gokul Jalashay - Buxar
5. Udaipur Jheel - West Champaran
6. Gogabeel Lake - Katihar (new, 2025)

# Soil Organic Carbon (SOC)

**Context:** An ICAR study warns of severe decline in Soil Organic Carbon across India's agricultural lands.

## What is Soil Organic Carbon (SOC)?

- The carbon part of organic matter in soil (from decomposed plants, roots, microbes).
- Core of soil health—influences soil chemistry, physics, and biology.

## Why SOC Matters

- Improves soil fertility, structure, and water-holding capacity
- Enhances nutrient availability → higher crop yields
- Reduces erosion and land degradation
- Acts as a carbon sink, helping mitigate climate change

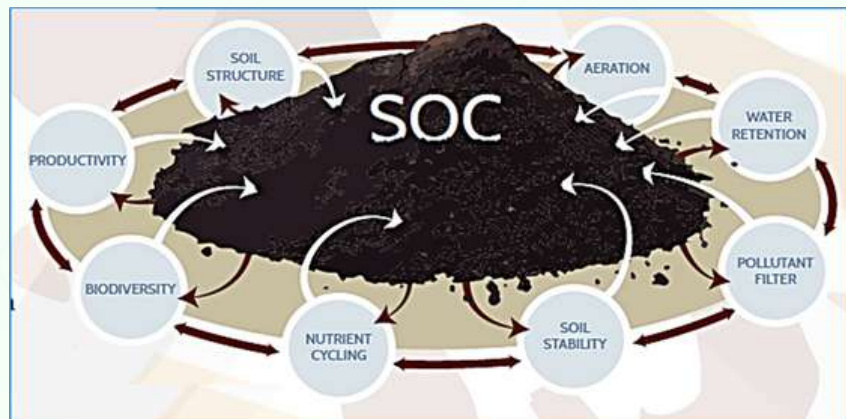
## Key Findings of the ICAR Study (2017–2023)

- Analysed 2.54 lakh samples from 620 districts across 29 states
- SOC strongly influences micronutrient levels:
  - Low SOC → high micronutrient deficiency
  - High SOC → lower deficiency
- Climate & Geography:
  - SOC positively correlated with elevation (cool, high-altitude regions retain more carbon)
  - SOC negatively correlated with temperature
  - → Hot regions like Rajasthan and Telangana show low SOC
  - Rainfall + temperature + elevation decide SOC distribution



## Threats to SOC

- Overuse of chemical fertilizers (especially urea and phosphorus)
- Higher temperatures due to climate change
- Soil erosion
- Leaving land bare/fallow



**Agri-Ecological Base Map** - Developed by ICAR to integrate climate, geography, cropping patterns, and fertilizer use with SOC levels.

## Uses

- Identify high-risk zones of soil carbon decline
- Aid policy planning, soil restoration, carbon credit mechanisms
- Map land degradation
- Help design region-specific soil management strategies

## Cropping Systems & Soil Carbon

Different crop systems influence how much carbon soil can hold:

- Rice & pulses → Higher SOC (more microbial activity + moisture)
- Wheat & coarse grains → Contribute less organic matter → lower SOC
- Balanced crop rotation → Healthier SOC levels

## Regional Fertilizer Use Patterns

- High decline: Punjab, Haryana, Western UP → due to heavy, imbalanced fertilizer use
- Better SOC: Bihar and eastern states → more balanced fertilizer application

# High Seas Treaty (BBNJ Agreement)

**Context:** The High Seas Treaty—officially the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement—will come into force in January 2026.

## Background

- UNCLOS (1982) governs oceans but lacked strong provisions for protecting biodiversity in areas beyond national jurisdiction.
- UN formed an ad hoc working group (2004) to address these gaps.
- Four Intergovernmental Conferences (2018–2023) negotiated the treaty.
- Treaty adopted in June 2023.

## What is the High Seas Treaty?

- A legally binding international agreement under UNCLOS.
- Goal: Conserve and ensure sustainable use of marine biodiversity in the high seas.
- Significance: First-ever binding global framework to protect marine life in international waters.

## Signing & Ratification

- Treaty becomes international law 120 days after 60 ratifications.
- Current status (as of Nov 2025):
  - 145 countries signed
  - 75 countries ratified
- India: Signed in 2024, not yet ratified.

## What Are the High Seas?

- Areas of the ocean lying beyond any country's jurisdiction.
- Begin beyond 200 nautical miles (past the Exclusive Economic Zone).
- Governed by freedoms of navigation, overflight, fishing, and scientific research.

# Climate Inequality Report 2025

**Context:** The Climate Inequality Report 2025 highlights how global emissions are disproportionately driven by the world's richest, especially through ownership of high-carbon assets.

## About the Report

- Published by World Inequality Lab.
- Co-authored by Lucas Chancel and Cornelia Mohren.
- Focus: Links between wealth concentration, asset ownership, and global emissions.

## Major Findings

### 1. Extreme Emission Inequality

- Top 1% responsible for:
  - 15% of global consumption-based emissions.
  - 41% of emissions linked to capital ownership (e.g., fossil fuel companies, heavy industries).

### 2. Why Ownership-Based Emissions Matter

- Consumption emissions = from goods/services used.
- Ownership emissions = from assets/investments one owns.
- Report argues ownership-based accounting shows true climate responsibility.

### 3. Per Capita Emission Gap

- Top 1% emit:
  - 75× more CO<sub>2</sub> than bottom 50% (consumption basis).
  - 680× more when asset ownership is factored in.

## Core Insight

- Climate change is not driven only by individual consumption, but heavily by wealth-driven ownership of polluting industries.
- Policy Recommendations
  - Introduce taxes on carbon-intensive assets owned by the wealthiest.
  - Target producers and investors, not ordinary consumers.
  - Encourage divestment from high-carbon industries, reduce inequality, and promote cleaner investments.





# Global Tuberculosis Report 2025

**Context:** WHO's Global TB Report 2025 shows India achieved a 21% decline in TB incidence from 2015 to 2024 — almost double the global average.

## Global Trends

- 10.7 million TB cases and 1.23 million deaths worldwide in 2024 — TB remains the top infectious killer.
- 30 high-burden countries account for 87% of cases; India, Indonesia, Philippines, China, Pakistan, Nigeria, DR Congo, and Bangladesh contribute 67%.
- Funding Gap: Only \$5.9 billion raised in 2024 vs. the \$22 billion target for 2027.

## India-Specific Findings

- Incidence: Declined from 237/lakh (2015) to 187/lakh (2024) — 21% reduction.
- However: India still accounts for 25% of global TB cases.
- Mortality: Reduced from 28/lakh to 21/lakh.
- High-Burden States: UP > Maharashtra > Bihar > MP.
- Highest prevalence: Delhi.

## Why TB Declined in India

- Faster diagnosis: Rapid molecular tests, AI-enabled X-rays, expanded labs.
- Drug-resistance detection: Rifampicin susceptibility testing coverage 92% (global: 83%).
- BPaLM Regimen: A 6-month shorter and safer treatment for MDR-TB (Bedaquiline + Pretomanid + Linezolid + Moxifloxacin).
- Mass screening: TB Mukht Bharat screened 19 crore people, detecting 24.5 lakh cases (including 8.6 lakh asymptomatic).
- Decentralised care: Ayushman Arogya Mandirs improved rural access.

## Challenges

- Funding deficit: Global TB funding far below needs; research is only 24% funded.
- Missed 2025 target: India could not eliminate TB as planned.
- Drug-resistant TB: India has 32% of global MDR/RR-TB cases — the highest worldwide.
- Healthcare gaps: Rural infrastructure, stock-outs of TB drugs, and shortage of trained staff.
- Social barriers: Poverty, malnutrition, stigma affect diagnosis and treatment adherence.

## Recommendations

- Strengthen primary healthcare, labs, real-time surveillance.
- Expand rapid testing, AI-screening, universal drug-susceptibility tests.
- Scale up modern MDR-TB regimens like BPaLM.
- Increase TB Preventive Therapy (TPT) for high-risk groups.
- Address nutrition, sanitation, poverty, and stigma.
- Ensure sustainable financing and boost vaccine/diagnostic research.

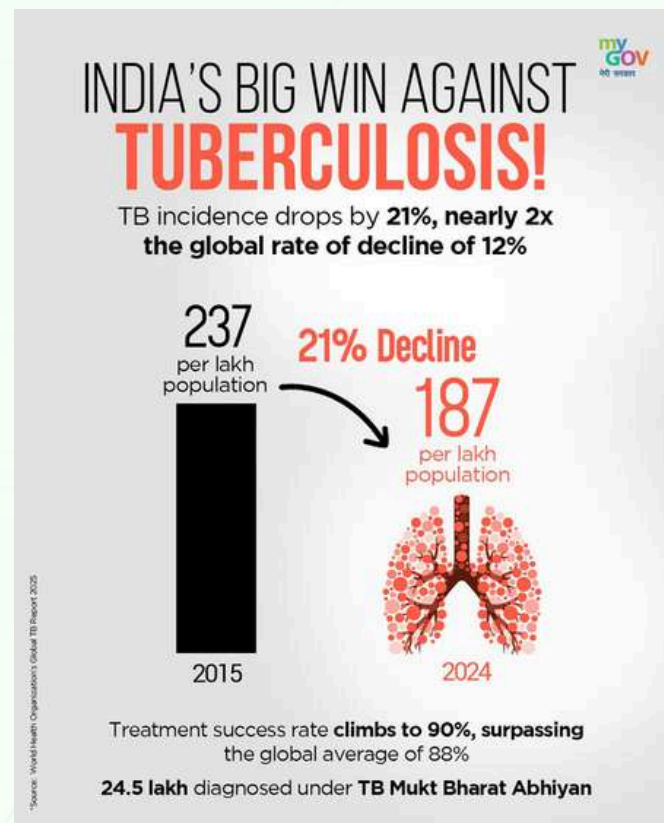
## Key Initiatives

### Global

- WHO End TB Strategy (2015–2035): Targets 90% reduction in deaths, 80% decline in incidence by 2030.
- Global Fund & Stop TB Partnership: Funding, surveillance, and private-sector coordination.
- New WHO Guidelines (2024–25): Improved rapid diagnosis and shorter MDR-TB regimens.

### India

- NTEP: National TB elimination programme aligned with global End TB goals.
- Largest testing network: 9,391 molecular test centres, 107 culture & DST labs.
- AI-enabled screenings: 500+ handheld X-ray units (1,500 more incoming).
- Decentralised TB services: Through 1.78 lakh Ayushman Arogya Mandirs.
- Nutrition support: Ni-kshay Poshan Yojana increased DBT from ₹500 → ₹1,000/month.



## Global Antibiotic Resistance Surveillance Report 2025

**Context** - The WHO's Global Antimicrobial Resistance Surveillance System (GLASS) Report 2025 warns that antimicrobial resistance (AMR) in India has become a "serious and escalating threat."

### About GLASS

- Launched: 2015
- By: World Health Organization (WHO)
- Purpose:
  - Standardise AMR data collection
  - Build global surveillance capacity
  - Create comparable global datasets for policymaking

### What is Antimicrobial Resistance (AMR)?

- AMR is the ability of microbes (bacteria, viruses, fungi, parasites) to resist medicines designed to kill them.
- Makes infections harder to treat, increases medical costs, hospital stays, and mortality.
- Recognised by WHO as one of the top 10 global public health threats.

## Key Findings of the GLASS 2025 Report

### 1. High Resistance Burden in India

- 1 in 3 bacterial infections in India were resistant to commonly used antibiotics in 2023.
- Global average: 1 in 6.

### 2. Major Drivers of AMR in India

- Overuse and misuse of antibiotics
- Easy over-the-counter availability leading to self-medication
- Poor infection control in hospitals
- Weak surveillance systems and inconsistent reporting

### 3. Infection Hotspots

High resistance observed particularly in:

- E. coli
- Klebsiella pneumoniae
- Staphylococcus aureus
- Especially concerning in Intensive Care Units (ICUs), where infections are more severe.

## BIRSA 101 Therapy

**Context** - India has launched BIRSA 101, its first indigenous CRISPR-based gene therapy for treating Sickle Cell Disease (SCD).

### What is Gene Therapy?

A technique that modifies genetic material inside a person's cells to treat or prevent disease by correcting defective genes.

### Types of Gene Therapy

- **Somatic Gene Therapy:**
  - Targets non-reproductive cells; changes are not inherited.
  - (Used for cancers, muscular dystrophy, inherited disorders)
- **Germline Gene Therapy:**
  - Alters reproductive cells; changes can be inherited.
  - (Ethically restricted)

### About "BIRSA 101" Therapy

- **Name:** Named after Bhagwan Birsa Munda, tribal freedom fighter.
- **Technology:** Based on CRISPR-Cas9, a precise gene-editing platform.
- **Purpose:** Designed primarily to cure Sickle Cell Disease; potential future use for other genetic disorders.
- **Affordability:**
  - A low-cost alternative to global therapies costing ₹20-25 crore.
  - Tailored for Indian patients.

### Developed By

- CSIR-Institute of Genomics and Integrative Biology (IGIB), New Delhi
- In partnership with Serum Institute of India (SIIPL) to mass-produce affordable CRISPR-based treatments.



## How BIRSA 101 Works

- Edits the defective gene responsible for SCD.
- Delivered through a single infusion (one-time cure).
- Enables the body to produce healthy red blood cells instead of sickle-shaped ones.

## About CRISPR-Cas9 Technology

A powerful gene-editing tool that enables accurate removal, insertion, or alteration of DNA.

## Components

- Cas9 Enzyme: Molecular scissors that cut DNA at a specific site.
- Guide RNA (gRNA): Directs Cas9 to the exact genetic sequence to be edited.

Process- Once Cas9 cuts the DNA, the cell's natural repair system replaces or fixes the targeted segment, enabling precise genome correction.

# Ricin

Context - Gujarat ATS arrested three individuals, including a doctor, for attempting to manufacture ricin, a highly lethal toxin, for a suspected terror plot.

## What is Ricin?

- Ricin is a highly toxic protein extracted from the seeds of the castor plant (*Ricinus communis*).
- The plant is native to tropical Africa but also grows in the Mediterranean region and India.
- It is found in the solid residue left after castor oil extraction.

## Extraction

- Castor seeds contain 30–60% oil; the leftover solid mass contains 1–5% ricin.
- Ricin can be extracted through simple processes, increasing its misuse risk.

## Toxicity

- Even 1 mg of ricin can be fatal.
- Once inside the body, it binds to ribosomes and stops protein synthesis, leading to cell death.

## Health Effects

- Ingestion: Vomiting, diarrhea, low blood pressure, hallucinations, organ failure.
- Inhalation/Injection: Chest tightness, cough, rapid respiratory distress, and systemic collapse.

## Treatment

- No antidote exists.
- Treatment is only supportive (early vomiting induction, gastric lavage).
- Rare cases and non-specific symptoms make diagnosis difficult.

## Regulation

- Classified as a Schedule 1 toxin under the Chemical Weapons Convention, indicating extreme misuse potential.

# CE20 Cryogenic Engine

**Context - ISRO successfully demonstrated the bootstrap mode start test on the CE20 cryogenic engine, which powers the upper stage of the Launch Vehicle Mark-3 (LVM3).**

## Cryogenic Engine

- Uses super-cooled liquid propellants:
  - Liquid Oxygen (LOX) at  $-183^{\circ}\text{C}$
  - Liquid Hydrogen ( $\text{LH}_2$ ) at  $-253^{\circ}\text{C}$
- Stored at extremely low temperatures for high-efficiency propulsion.

## CE20 Engine

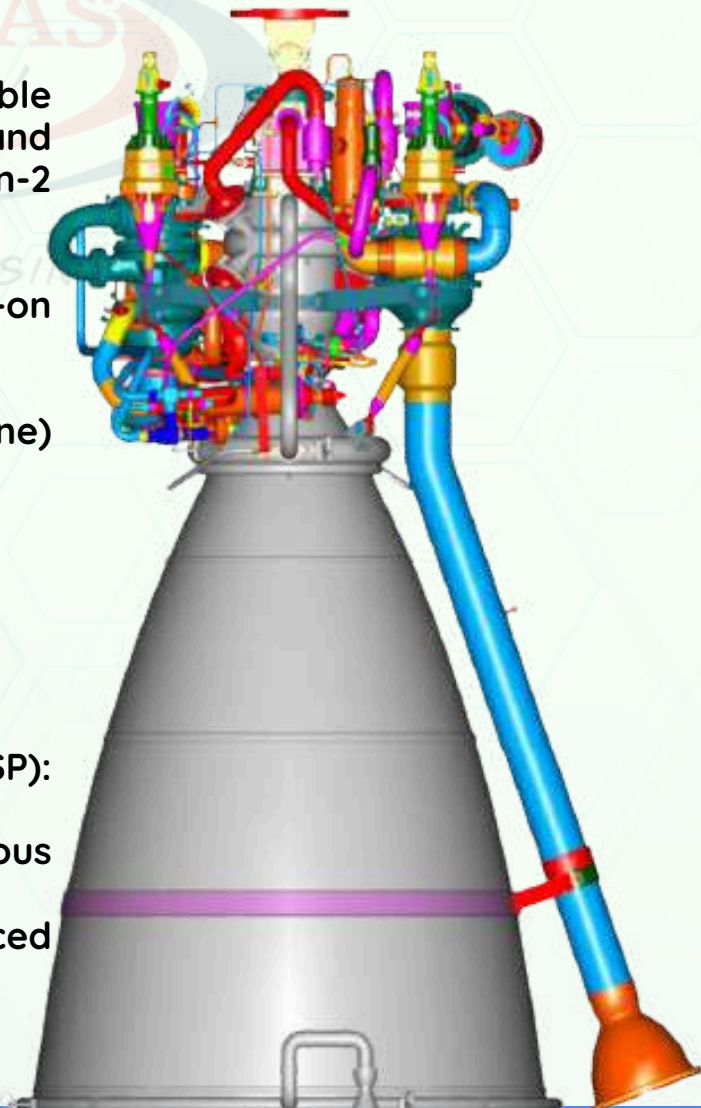
- India's most powerful cryogenic engine, developed by ISRO's Liquid Propulsion Systems Centre (LPSC), Kerala.
- Powers the cryogenic upper stage of LVM3 (GSLV Mk-III).
- Represents mature indigenous cryogenic capability.

## Launch Vehicle Mark-3 (LVM3 / "Bahubali")

- India's heaviest operational rocket; capable of launching heavy satellites and interplanetary missions (e.g., Chandrayaan-2 & 3).
- Three-stage rocket:
  - a. Stage 1: Solid propellant strap-on boosters (liftoff)
  - b. Stage 2: Liquid propellant core stage
  - c. Stage 3: Cryogenic stage (CE20 engine) for final orbit injection
- Payload Capacity:
  - LEO: Up to 8,000 kg
  - GEO: Up to 4,000 kg

## India's Cryogenic Journey

- 1990s: India denied cryogenic technology.
- Cryogenic Upper Stage Project (CUSP): Indigenous development started.
- GSLV-D5 (2014): First successful indigenous cryogenic flight.
- CE20: Symbol of self-reliance and advanced cryogenic capability.



# GSAT-7R (CMS-03) – Indian Navy Communication Satellite

## Context

- Launched by ISRO aboard LVM3-M5 for the Indian Navy.
- Follows the successful Chandrayaan-3 launch, where India achieved the first lunar south pole landing.

## About GSAT-7R (CMS-03)

- Series: Part of India's advanced defence communication satellite GSAT-7 series.
- Launch Vehicle: LVM3 (Launch Vehicle Mark-3)
- Launch Site: Satish Dhawan Space Centre, Sriharikota (SDSC-SHAR)

## Orbital Details

- Initial Orbit: Geosynchronous Transfer Orbit (GTO)
  - Perigee: ~250 km
  - Apogee: ~29,970 km
- Final Orbit: Geostationary Orbit (GEO) at ~35,786 km above Earth
- Purpose of GTO: Elliptical orbit to transfer satellite from LEO to GEO using onboard propulsion

## Specifications

- Weight: ~4,400 kg (heaviest commsat launched from India)
- Service Life: 15 years
- Payload: Multiband transponders supporting voice, video, and data with high-bandwidth connectivity

## Purpose & Applications

- Primary Role: Replace ageing GSAT-7 (2013) and strengthen the Indian Navy's secure communication network across the Indian Ocean Region (IOR).
- Coverage: Entire Indian landmass + adjoining maritime zones
- Applications:
  - Real-time, encrypted communication for naval operations
  - Disaster management coordination
  - Coastal security and maritime surveillance support



# Alfvén Waves – Sun's Corona Heating

## Context

- Direct observation of Alfvén waves in the Sun's corona confirmed by Northumbria University (UK).
- Helps explain why the corona is ~200× hotter than the solar surface (~2 million °F vs 10,000 °F).





## Definition

- Alfvén waves are low-frequency transverse magnetohydrodynamic (MHD) waves that travel along magnetic field lines in plasma.
- Transport energy and momentum without compressing the plasma.

## Historical Background

- Predicted by Hannes Alfvén (1942) as oscillations between magnetic tension and plasma inertia in magnetized fluids.
- Nobel Prize (1970) awarded to Alfvén for contributions to magnetohydrodynamics (MHD).

## Detection

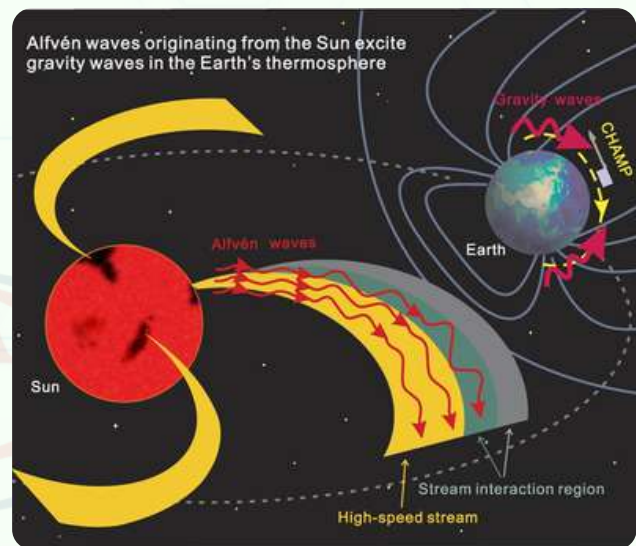
- Observed via red and blue Doppler shifts using the CryoNIRSP instrument.
- Shows twisting motion in coronal magnetic fields.

## Mechanism of Coronal Heating

- Energy from the solar surface propagates as Alfvén waves along magnetic field lines.
- Waves dissipate energy as heat, contributing to coronal temperatures.
- May account for  $\approx 50\%$  of the energy required to heat the corona.

## Significance

- Enhances understanding of solar plasma dynamics and energy transfer.
- Improves solar wind modeling and space weather forecasting.
- Aids understanding of stellar evolution and related astrophysical processes.



# 3I/ATLAS – Interstellar Comet

## Context

- 3I/ATLAS reached perihelion (closest to Sun) on 30 October 2025, its brightest and most active phase.
- Monitored by NASA and other global missions.

## Key Facts

- Type: Interstellar comet – not bound to the Sun; passes through the Solar System once before heading back to interstellar space.
- Perihelion Distance: 1.35 AU (~125 million miles from the Sun).
- Activity:
  - Solar heat causes sublimation of surface ice, producing a coma.
  - Forms two tails:
    - Dust tail – driven by solar radiation.
    - Ion tail – shaped by solar wind.

## Observation

- Tracked by:
  - NASA missions: Psyche, Lucy.
  - ESA mission: JUICE.
  - Mars-based observations on 3 October 2025.

## Chemical Composition

- Unusually high carbon dioxide (CO<sub>2</sub>) and nickel.
- Suggests origin in a metal-rich molecular cloud from another star system ~7 billion years ago.

## Scientific Significance

- Comparison with Solar System comets provides insight into:
  - Planetary formation processes.
  - Early cosmic chemistry.
  - Composition diversity of interstellar objects.

# Vanadium Redox Flow Battery (VRFB)

## Context

- India's first megawatt-hour (MWh) scale VRFB system inaugurated at NTPC's NETRA, Noida.
- Supports grid-scale energy storage and integration of renewable energy, aiding India's sustainable power transition.

## Working Principle

- Energy storage: In liquid electrolytes containing vanadium ions in different oxidation states.
- Operation: Electrolytes circulate through cell stacks separated by an ion-selective membrane, allowing ion transfer while preventing mixing.
- Unique Feature: Same element (vanadium) for both electrolytes → prevents cross-contamination, enhancing lifespan.

### Advantages

Feature	VRFB Benefit
Scalability	Energy (electrolyte volume) and power (cell stack) can be scaled independently
Safety	Water-based electrolyte → non-flammable
Longevity	>25 years, thousands of charge/discharge cycles without degradation
Full Discharge	Can safely discharge 100%, unlike lithium-ion
Eco-friendly	Less reliance on lithium/rare-earth metals; recyclable electrolyte

### VRFB vs Lithium-Ion Battery

Feature	VRFB	Lithium-Ion
Energy Storage	Liquid vanadium electrolytes	Solid electrodes
Scalability	Independent scaling (energy & power)	Fixed cell capacity
Energy Density	Lower → stationary applications	Higher → portable applications
Lifespan	>25 years	5-10 years, capacity loss over time
Applications	Grid-scale, renewables, backup	Vehicles, electronics, short-term storage

## Vanadium (V)

- Atomic number: 23, transition metal.
- Properties: Hard, ductile, silvery-grey, high melting point (~1910°C), corrosion-resistant, multiple oxidation states (+2 to +5).
- Importance in VRFB: Multiple oxidation states enable efficient large-scale energy storage.

## Industrial & Energy Uses

- Steel alloy production: Strength, ductility, corrosion resistance.
- Aerospace: High strength-to-weight ratio.

### About Bharat Taxi

- **Nature:** India's first cooperative-driven national ride-hailing platform.
- **Objective:**
  - Provide transparent, citizen-centric, and technology-enabled mobility services.
  - Empower local taxi cooperatives and ensure fair earnings for drivers.
- **Promoters & Supporters:**
  - Key cooperative and financial institutions backing the platform include:
    - NCDC, IFFCO, AMUL, KRIBHCO, NAFED, NABARD, NDDB, NCEL

### Significance

- Pioneers a cooperative model in the mobility sector, reducing dominance of private ride-hailing giants.
- Supports digital governance and financial inclusion by integrating cooperatives into the tech ecosystem.
- Enhances citizen access to reliable, accountable, and affordable ride services nationwide.

## Neodymium (Nd)

**Context -** India, through Indian Rare Earths Limited (IREL), plans a ninefold increase in neodymium production to 500 tonnes by FY27, strengthening self-reliance in critical minerals.

### About Neodymium

- Chemical symbol: Nd
- Atomic number: 60
- Category: Rare-earth metal (lanthanide series)
- Physical nature: Lustrous, silvery metal; highly reactive in air.

### Availability & Sources

- **Natural occurrence:** Found in minerals such as monazite and bastnäsite.
- **Global deposits:** China, USA, Brazil, Australia, India, Sri Lanka.
- **India's advantage:**
  - Coastal monazite sands are a major source of neodymium and other rare-earth elements.
  - India holds ~6% of global rare-earth reserves, mainly along the coasts of Odisha, Kerala, and Tamil Nadu.
- **Nodal PSU:** Indian Rare Earths Limited (IREL).

### Global Production Scenario

- **China's dominance:**
  - Controls over 80% of global neodymium magnet production.
- **Others:** Smaller shares by the USA and Australia, leading to global supply-chain vulnerabilities.





## Applications-

### 1. High-Strength Permanent Magnets

- Neodymium magnets (Nd-Fe-B magnets) are the strongest commercially available permanent magnets.
- Composition:
  - Neodymium  $\approx$  30%
  - Iron  $\approx$  68%
  - Boron  $\approx$  2%
- Used in:
  - Electric vehicle (EV) motors
  - Wind turbines
  - Drones and robotics

### 2. Strategic & High-Tech Sectors

- Defence guidance and missile systems
- Communication equipment
- Clean energy and advanced electronics

## Strategic Significance for India

- Reduces dependence on China-dominated supply chains.
- Supports EV manufacturing, renewable energy, and defence indigenisation.
- Aligns with Atmanirbhar Bharat and critical minerals strategy.

# White Collar Terrorism

## Context

- The Delhi blast (November 10) highlighted the growing threat of white-collar terrorism, where educated professionals covertly support or execute extremist activities.

## What is White Collar Terrorism?

- A form of extremism where professionals such as doctors, engineers, academics, and finance experts use their social trust, skills, and institutional access to aid terror activities.
- It is less visible, harder to detect, and often embedded within lawful systems.

## Reasons for the Rise of White Collar Terrorism

### 1. Strategic Shift by Terror Groups

- Traditional recruits are heavily surveilled.
- Terror outfits now target educated professionals who are not on watchlists.
- Examples:
  - ISIS leader Abu Bakr al-Baghdadi (PhD)
  - Al-Qaeda's Ayman al-Zawahiri (surgeon)

### 2. Institutional Access & Operational Cover

- Professionals can legally access:
  - Chemicals, lab equipment, vehicles, rented spaces, and sensitive data.
- Their association with hospitals, universities, and labs offers plausible cover.
- Example: Medical professionals in Delhi procured chemicals without suspicion due to their credentials.

### 3. Clean Financial Profiles

- Salaried individuals with normal banking behaviour evade basic AML red flags.
- Terror funding is blended with:
  - Legitimate income
  - Charitable donations
  - Laundered money

### 4. Digital Radicalisation

- Encrypted apps, closed groups, and dark web forums enable remote radicalisation.
- Extremist ideas are presented as intellectual debates or identity defence.
- Example: Radical videos justifying suicide bombings as “martyrdom”.

### 5. Globalised Extremist Networks

- Transnational groups provide:
  - Online training
  - Ideological content
  - Operational guidance
- Target professionals with technical skills (chemistry, coding, medicine).

### 6. Regulatory & Vetting Gaps

- Weak oversight in:
  - Chemical supply chains
  - Lab procurement
  - Rental housing
- Inadequate background checks for tenants, visiting scholars, and contract professionals.

## India's Counter-Terrorism Measures

- Institutional Framework
  - Zero Tolerance Policy against terrorism.
  - National Investigation Agency (NIA)
    - Established under NIA Act, 2008 (post 26/11).
    - Jurisdiction extended to investigate terror cases abroad.
  - NATGRID: Integrated intelligence database linking 21 agencies.
  - UAPA Amendments:
    - Enables property confiscation
    - Allows designation of individuals as terrorists
  - Multi Agency Centre (MAC):
    - IB-led, 24/7 intelligence coordination platform.
- National Terror Databases
  - NAFIS: Over 90 lakh fingerprint records.
  - Integrated Monitoring of Terrorism (IMT): Data on 22,000 terror cases.
  - Narco-Offenders Database: Tracks 5 lakh+ offenders.
  - Human Trafficking Offenders Database: ~1 lakh records.
- Other Measures
  - TFFC Cell (NIA): Focus on terror funding & fake currency.
  - FCORD: Intelligence sharing to counter fake currency circulation.

## Way Forward

### 1. Strengthen Regulatory Oversight

- Stronger KYC and end-use verification for:
  - Chemical precursors
  - Lab reagents
  - Bulk medical supplies
- Mandatory digital inventories in labs and hospitals.

### 2. Profession-Based De-radicalisation

- Ethics and constitutional values in professional education.
- Professional councils to enforce anti-extremism codes of conduct.

### 3. Advanced Financial & Data Analytics

- AI-based detection of:
  - Suspicious financial patterns
  - Rental histories
  - High-value purchases
- Strengthen reporting duties of banks, apps, and charities.

### 4. Digital Counter-Narratives

- Dedicated cyber units to monitor encrypted platforms.
- Collaboration with credible professionals to counter “intellectualised extremism”.

### 5. Balance Security & Civil Liberties

- Avoid profiling professions or communities.
- Focus on behavioural and financial indicators.
- Ensure judicial oversight and transparency.

### 6. Continuous System Testing

- Regular red-teaming exercises assuming insider threats.
- Identify and plug gaps in procurement, finance, and data access.

## Conclusion

- White-collar terrorism shows how extremism can grow within trusted institutions.
- It demands a technology-driven, ethics-based, intelligence-integrated counter-terror strategy without compromising civil liberties.

## Ammonium Nitrate (Quick Facts)

- Chemical formula:  $\text{NH}_4\text{NO}_3$
- Uses: Fertiliser; explosive when mixed with fuel oil (ANFO).
- Regulation:
  - Up to 30 MT → District Magistrate approval
  - Higher quantities → PESO approval
- Monitoring: Through System for Explosive Tracking and Tracing (SETT)

## Use in Terror Attacks

- Common in terror attacks before 2012 (e.g., Delhi serial blasts).
- Used to make ANFO (94% ammonium nitrate + 6% fuel oil).
- Leaves detectable forensic residues (nitrate ions,  $\text{NO}_2$ ).



# Tejas Light Combat Aircraft (LCA)

## Context

- A Tejas fighter jet crashed during a demonstration at the Dubai Airshow 2025, leading to the death of the pilot.
- The incident has renewed focus on indigenous defence platforms and flight safety.

## About Tejas

- Tejas is India's indigenous 4.5-generation Light Combat Aircraft (LCA).
  - It is designed to replace the ageing MiG-21 fleet of the Indian Air Force (IAF).
- 4.5-generation fighters feature advanced avionics, sensors, and weapons, but lack full stealth capability.

## Development & Manufacturing

- Designed by:
  - Aeronautical Development Agency (ADA)
  - Under DRDO, Ministry of Defence
- Manufactured by:
  - Hindustan Aeronautics Limited (HAL)
- Programme Initiation: 1984 (LCA Programme)
- Maiden Flight: 2001
- Induction into IAF: 2016

## Key Features

- Type: Single-engine, multirole combat aircraft
- Design:
  - Canard-delta wing configuration
  - Provides high manoeuvrability and aerodynamic stability
- Maximum Speed: Mach 1.8 (~2,200 km/h)
- Maximum Payload: ~5,300 kg of external stores
- Operational Roles:
  - Air defence
  - Close combat
  - Offensive air support
  - Precision ground-attack missions
- Designed to operate across diverse terrains and climatic conditions.

## Variants

- Tejas Mk-1A (Under Development):
  - Enhanced avionics
  - Improved radar systems
  - Advanced Electronic Warfare (EW) suite
  - Better maintainability and availability
- Twin-Seat Trainer Variant:
  - Used for advanced pilot training and operational conversion.

## Strategic Significance

- Strengthens Atmanirbhar Bharat in defence manufacturing.
- Reduces dependence on foreign fighter aircraft.
- Enhances India's lightweight, multirole combat capability.



# Baliyatra Festival (Odisha)

## Context

- President Droupadi Murmu extended greetings on the occasion of Odisha's historic Baliyatra Festival.

## About Baliyatra (Bali Jatra)

- Baliyatra is a traditional festival of Odisha that commemorates ancient maritime trade and cultural links between Kalinga (ancient Odisha) and Southeast Asian regions, especially Bali (Indonesia).
- Meaning: Bali Jatra literally means "Voyage to Bali."

## Historical Significance

- Celebrates the sea voyages of Kalinga Sadhabas (ancient Odia mariners and traders).
- These traders sailed to Bali, Java, Sumatra, Borneo, Sri Lanka, and other Southeast Asian regions, spreading Indian culture, religion, and trade.
- Highlights Kalinga's status as a major maritime power and prosperous trading empire.

## Time & Rituals

- Celebrated on Kartika Purnima (full moon of Kartika month).
- Marks the traditional day when seafaring traders set sail for distant lands.
- Boita Bandana Ritual:
  - Women float small boats (boitas) made of paper, banana leaf, or sholapith with lighted lamps.
  - Boats are floated in rivers like the Mahanadi as a symbolic send-off.

## Cultural Features

- One of Odisha's largest open-air fairs, especially in Cuttack.
- Includes:
  - Folk dances and music
  - Traditional food stalls
  - Handicrafts
  - Cultural performances and amusement rides

## Significance

- Symbolises Odisha's maritime heritage, nautical skills, and overseas cultural influence.
- Reinforces India's historical soft power in Southeast Asia.
- Preserves collective memory of ancient Indian ocean trade networks.





# Sangai Festival (Manipur)

## Context

- The Sangai Festival began in Manipur amid protests by internally displaced persons (IDPs) demanding their right to return home.



## About Sangai Festival

- Sangai Festival is an annual 10-day cultural festival of Manipur.
- It is organised mainly by the Manipur Tourism Department.
- Objective:
  - Promote tourism in Manipur.
  - Showcase the state's rich cultural, artistic, and ethnic diversity.

## Name & Symbolism

- Named after Sangai, Manipur's state animal.
- Sangai (Brow-antlered deer):
  - Endemic to Manipur.
  - Found exclusively in Keibul Lamjao National Park.

## Keibul Lamjao National Park

- Location: Situated in Loktak Lake, Manipur.
- Unique Feature:
  - World's only floating national park, formed on phumdis (floating biomass).
- Ecological Importance:
  - Last natural habitat of the endangered Sangai deer.

## Cultural Significance

- Celebrates:
  - Indigenous dances and music
  - Handicrafts and traditional cuisine
  - Martial arts (Thang-Ta), folk traditions, and local sports
- Acts as a platform to present Manipur as the "Gateway to Southeast Asia".

# Kazakhstan Joins Abraham Accords

## Context

- Kazakhstan has become the first Central Asian country among the C5 nations to join the Abraham Accords.





## About C5 Central Asian Nations

- The C5 group comprises:
  - Kazakhstan
  - Kyrgyzstan
  - Tajikistan
  - Turkmenistan
  - Uzbekistan
- Geopolitical Significance:
  - Former Soviet republics
  - Strategically located between Russia, China, West Asia, and South Asia
  - Rich in energy resources and critical transit corridors



## About the Abraham Accords

- Definition:
  - The Abraham Accords are a U.S.-brokered diplomatic initiative aimed at normalising relations between Israel and Arab/Muslim-majority countries.
- Launch Year: 2020
- Objective:
  - Promote peace, stability, economic cooperation, and people-to-people ties in West Asia.
- Initial Signatories:
  - United Arab Emirates
  - Bahrain
  - Sudan
  - Morocco
- Significance:
  - Marked a major shift in West Asian geopolitics, bypassing the traditional linkage between Israel-Arab normalisation and the Palestinian issue.

## Significance of Kazakhstan's Entry

- First non-West Asian and Central Asian Muslim-majority country to join.
- Indicates:
  - Expansion of the Accords beyond the Middle East
  - Growing strategic autonomy of Central Asian states
  - Kazakhstan's intent to diversify foreign relations beyond Russia and China
- Strengthens Israel's diplomatic outreach in Eurasia.



# Demarche

## Context

- India issued a strong diplomatic demarche to China after a UK-based Indian woman from Arunachal Pradesh was detained at Shanghai airport, reflecting China's refusal to recognise Arunachal Pradesh as part of India.



## What is a Demarche?

- A demarche is a formal diplomatic communication by one country to another to convey:
  - Protest
  - Concern
  - Request
  - Warning
  - Official policy position

## Purpose

- To register official objections
- To seek clarification or explanation
- To urge corrective action on bilateral or international issues

## Mode of Delivery

- Delivered through:
  - An official diplomatic note
  - A verbal statement
  - A formal meeting between diplomats or government officials

## Nature

- Part of routine diplomatic practice
- Firm but non-confrontational
- Aims to influence the other country through official diplomatic channels

# UN Water Convention (2025)

## Context

- Bangladesh became the first South Asian country to accede to the UN Water Convention in 2025.

## About the UN Water Convention

- Official Name: Convention on the Protection and Use of Transboundary Watercourses and International Lakes
- Adopted: 1992 (Helsinki)
- In force since: 1996
- Administered by: United Nations Economic Commission for Europe (UNECE)

## Key Features

- Aims to promote cooperation, protection, and sustainable use of transboundary rivers and lakes.
- Encourages:
  - Prevention of water pollution
  - Equitable and reasonable use of shared water resources
  - Information sharing and joint monitoring

## Global Expansion

- Initially a regional convention (Europe and Central Asia).
- Opened to all UN Member States in 2016 following a 2013 amendment.

## India's Position

- India is not a signatory to the UN Water Convention.

# Codex Executive Committee

## Context

- India was unanimously re-elected to the Codex Executive Committee at the 48th session of the Codex Alimentarius Commission (CAC48), reaffirming its leadership in global food safety standard-setting.

## Codex Alimentarius Commission (CAC)

- Established: 1963
- Founded by: FAO and WHO
- Purpose: Develop globally harmonised food safety, quality, and trade standards.
- Members: 189 (188 countries + European Union)
- Headquarters: Rome, Italy
- Sessions: Held annually, alternating between Rome and Geneva
  - CAC48 was held at FAO Headquarters, Rome

## Codex Executive Committee

- Composition:
  - Chairperson and Vice-Chairpersons
  - Regional representatives from Codex regions (including Asia)
  - Representatives of FAO and WHO
- Role:
  - Acts as the executive arm of the CAC
  - Reviews food standards before final adoption
  - Ensures coordination, strategic direction, and scientific consistency across Codex work





# Ambaji Marble (GI Tag)



## Context

- Ambaji white marble of Gujarat has received a Geographical Indication (GI) tag, recognising its heritage value, quality, and regional uniqueness, while supporting local artisans.

## About Ambaji Marble

- Location: Ambaji region, Banaskantha district, Gujarat
  - Ambaji is a major Shaktipeeth and pilgrimage centre.
- Key Features:
  - Pure white colour with natural shine.
  - High calcium content gives excellent durability and strength.
  - Presence of calcium oxide and silicon oxide enhances structural stability.
- Longevity:
  - Highly resistant to ageing.
  - Proven durability seen in the Dilwara Jain Temples, Mount Abu (11th-13th century CE).
- Uses & Significance:
  - Traditionally used in temples and religious architecture in India and abroad (USA, UK, New Zealand).
  - Used in the Ram Temple, Ayodhya.

## Other GI-Tagged Marble

- Makrana Marble (GI tag - 2015)
  - Famous calcitic marble used in the Taj Mahal and other iconic monuments.

# Meerut Bugle (GI Tag)



## Context

- The Meerut Bugle has been granted a Geographical Indication (GI) tag, recognising its traditional craftsmanship and cultural significance.

## About Meerut Bugle

- A brass wind instrument traditionally used in military drills, ceremonies, and parades of the Indian armed forces.
- Historical Roots:
  - Bugle-making in Meerut dates back to the late 19th century, closely linked with the growth of India's military traditions.



- **Manufacturing Process:**
  - Made entirely from brass sheets.
  - Handcrafted through manual cutting, hammering, shaping with specialised dies, and fine polishing.
  - Fitted with a detachable metal mouthpiece after multiple stages of moulding and finishing.

#### Other GI Product from Meerut

- **Meerut Scissors** - GI-tagged for their durability and precision craftsmanship.



## Climate Change Performance Index (CCPI)

### Context

- India has slipped 13 positions in the latest Climate Change Performance Index (CCPI), ranking 23rd globally.

### About Climate Change Performance Index (CCPI)

- **Published by:** Germanwatch, New Climate Institute, and Climate Action Network International
- **Year of Launch:** 2005
- **Objective:**
  - To assess and compare countries' performance in tackling climate change, especially major GHG emitters.
- **Coverage:**
  - Evaluates 63 countries and the European Union, accounting for over 90% of global GHG emissions.
- **Assessment Framework:**
  - Based on 14 indicators grouped into four categories:
    - Greenhouse Gas Emissions - 40%
    - Renewable Energy - 20%
    - Energy Use - 20%
    - Climate Policy - 20%

### India's Climate Performance

- **Rank:** 23rd (earlier 10th)
- **Comparison within G20:**
  - India performs better than some of the worst-performing G20 countries:
    - China (54th), Russia (64th), USA (65th), Saudi Arabia (67th)
- **Renewable Energy Progress:**
  - Share of renewables in energy mix increased to ~14% (2015-2023).
- **Non-Fossil Power Capacity:**
  - Over 50% of India's total installed electricity capacity (~256 GW) now comes from non-fossil sources.



# Climate Risk Index (CRI) 2026

## Context

- The Climate Risk Index (CRI) 2026 was released at COP30 (Belém, Brazil) in November 2025.

## Key Global Findings

- South-South Vulnerability:
  - All top 10 most climate-affected countries (1995–2024) belong to the Global South.
  - Saint Vincent and the Grenadines was the worst affected country in 2024.
- Human Impact:
  - Over 8.32 lakh deaths caused by nearly 9,700 extreme weather events globally (1995–2024).
- Economic Losses:
  - Climate disasters led to losses exceeding \$4.5 trillion worldwide during the same period.

## India-Specific Findings

- Overall Rank (1995–2024): 9th most affected country
- Rank in 2024: 15th
- Extreme Events:
  - Around 430 extreme weather events over the past 30 years.
- Impact:
  - Over 1 billion people affected
  - Economic losses: ~\$170 billion (inflation-adjusted)
  - Fatalities: More than 80,000 deaths

## About Climate Risk Index (CRI)

- Prepared by: Germanwatch
- Purpose:
  - Ranks countries based on human and economic losses from extreme weather events.
- Data Sources:
  - Munich Re NatCatSERVICE and IMF data.
- Since: Published annually from 2006.
- Nature:
  - Not a UN index, but widely referenced in UNFCCC and IPCC assessments.

# Emissions Gap Report 2025

## Context

- The United Nations Environment Programme (UNEP) released the Emissions Gap Report 2025, titled “Off Target”.



## What is the Emissions Gap?

- It is the difference between:
  - Emissions expected under current national climate pledges (NDCs), and
  - Emissions required to limit global warming to 1.5°C or 2°C.

## Key Findings of Emissions Gap Report 2025

- **Marginal Improvement:**
  - Even if all updated NDCs are fully implemented, global warming is projected at 2.3–2.5°C, only slightly better than last year's estimate.
- **Large Implementation Gap:**
  - Current NDCs would reduce emissions by only 15% below 2019 levels by 2035, whereas 55% reduction is needed to meet the 1.5°C target.
- **Limited Participation:**
  - Only 60 countries, covering 63% of global emissions, have submitted or announced 2035 NDCs.
- **Record Emissions:**
  - Global GHG emissions rose by 2.3% in 2024, reaching 57.7 Gt CO<sub>2</sub>e, over four times the average growth rate of the 2010s.
- **India-Specific Data:**
  - Emissions grew by 3.6% in 2024.
  - Share in global emissions: ~7%.
  - Per capita emissions: 3 tCO<sub>2</sub>e, far lower than China (11) and USA (17.4).
- **1.5°C Overshoot Likely:**
  - Global temperatures are very likely to exceed 1.5°C within the next decade.
- **G20 Responsibility:**
  - The G20, responsible for 77% of global emissions (excluding AU), remains off track for 2030 climate goals despite some updated pledges.

# Global Methane Status Report (GMSR) 2025

## Context

- Released by UNEP and the Climate and Clean Air Coalition (CCAC) at COP30. Warns that methane emissions are not declining fast enough to meet the 2030 Global Methane Pledge (GMP).

## Key Findings

- **Emission Levels:**
  - 2020: 352 million tonnes (Mt)
  - Projected 2030: 369 Mt under current policies.
- **Main Drivers:**
  - Agriculture (livestock, rice paddies) and waste generation.
- **Target at Risk:**
  - Current trends jeopardize the 30% reduction target by 2030 (from 2020 levels), crucial to keeping global warming near 1.5°C.

## About 2030 Global Methane Pledge (GMP)

- **Launched:** COP26, co-led by Canada and the European Union.
- **Membership:** 159 countries + European Commission.
- **Commitment:** Reduce global methane emissions by at least 30% by 2030 relative to 2020.



# Rift Valley Fever (RVF)

## Context

- Recent Outbreak: WHO confirmed RVF cases in Mauritania and Senegal.
- Impact: 404 cases, 42 deaths, ~10% fatality rate.

## About RVF

- Nature: Viral zoonotic disease first identified in Kenya's Rift Valley in the 1930s.
- Causative Agent: Phlebovirus (family Phenuiviridae).
- Hosts: Livestock — sheep, goats, cattle, camels.
- Transmission:
  - From animals to humans via mosquito bites or contact with infected animal fluids.
  - Human-to-human transmission not documented.
- Symptoms: Mostly mild; flu-like illness with fever, muscle pain, fatigue. Severe cases can occur.
- Treatment: No specific antiviral therapy; supportive care only.

## India & Preparedness

- No reported cases.
- One Health framework focuses on surveillance, preparedness, and risk mitigation due to favorable climate and trade-related risks.

# Uranium (U-238) Contamination

## Context

- A recent study detected Uranium-238 in breastmilk samples across Bihar.
- Levels ranged from 0–5.25 µg/L, below WHO safety limits.

## About Uranium Contamination

- Definition: Presence of excess uranium in soil, water, or food, from natural or human sources.
- Safety Limits:
  - WHO: 30 µg/L in drinking water (provisional)
  - Stricter norms exist in some countries (e.g., Germany: 10 µg/L)
- Public Health Concern: Arises when levels exceed safe thresholds.

## Sources

1. Natural: Uranium-rich rocks and granite, leaching into groundwater.
  2. Anthropogenic:
    - Mining and coal combustion
    - Nuclear industry emissions
    - Phosphate fertilizers
- India Data: Contamination reported in 151 districts across 18 States; 1.7% of Bihar groundwater affected.

## Health Impacts

- **Infants:** Higher vulnerability due to limited detoxification.
- **Potential Effects:**
  - Kidney development impairment
  - Neurodevelopmental delays
  - Cognitive deficits, including reduced IQ with prolonged exposure

## Operation White Cauldron

### Context

- The Directorate of Revenue Intelligence (DRI) dismantled a multi-state drug network by raiding a clandestine factory in Valsad, Gujarat.
- The operation targeted the illegal manufacture of Alprazolam, under the Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985.

### About Alprazolam

- **Class:** Psychotropic drug, benzodiazepine group.
- **Medical Use:** Treats anxiety and panic disorders.
- **Chemical Synthesis:** Requires controlled lab conditions using compounds like p-Nitrochlorobenzene, Phosphorous Pentasulfide, and Ethyl Acetate.
- **Health Risks:** Misuse can lead to drowsiness, dependence, respiratory depression, memory loss, and overdose fatalities.

## James Watson (1928–2025)

### Context

- James Watson, Nobel Laureate and co-discoverer of the DNA double helix, passed away at the age of 97.

### Key Details

- **Early Life & Education:** Born in Chicago; studied at the University of Chicago and conducted research at University of Cambridge.
- **Scientific Contribution:** In 1953, with Francis Crick, co-discovered the double-helix structure of DNA, using Rosalind Franklin's X-ray diffraction data.
- **Academic Career:** Taught at Harvard University; later directed Cold Spring Harbor Laboratory, making it a global genetics research hub.
- **Recognition:** Awarded the 1962 Nobel Prize in Physiology or Medicine (shared with Crick and Wilkins).





## DNA Structure Overview

- Shape: Double helix – twisted ladder.
- Backbone: Sugar-phosphate.
- Rungs: Nitrogenous base pairs – Adenine (A)-Thymine (T) and Cytosine (C)-Guanine (G).
- Function: Sequence of nucleotides forms the genetic code, the molecular basis of heredity.

## Lachit Borphukan (1622–1672)

### Context

- Honoured by PM Modi and Home Minister Amit Shah on Lachit Diwas for his role in defending Assam against the Mughals.

### Key Details

- Birth: 24 November 1622, Charaideo, Assam.
- Role: Commander of the Ahom army during the Battle of Saraighat (1671).
- Achievements:
  - Defeated Mughal forces led by Raja Ram Singh on the Brahmaputra River, Guwahati.
  - Mastered guerrilla warfare and riverine tactics, enabling smaller Ahom forces to defeat a much larger Mughal army.
- Position: One of the five Borphukans under King Chakradhwaj Singha, combining administrative, judicial, and military powers in western Assam.
- Death: 1672, a year after the victory, due to prolonged illness.

### About the Ahom Kingdom

- Founded by: Sukaphaa, a Shan prince from Mong Mao (Myanmar), in 1228 CE.
- Rule: Lasted nearly 600 years (13th–19th century) over present-day Assam.



# Guru Tegh Bahadur (1621-1675)

## Context

- President Droupadi Murmu paid tribute on his 350th martyrdom day.
- Revered as Hind-di-Chadar for defending religious freedom.

## Key Details

- Birth Name: Tyaga Mal, youngest son of Guru Hargobind (6th Sikh Guru).
- Title: Tegh Bahadur ("Mighty of the Sword") for valor in battles against Mughals.
- Guruhood: Became the 9th Sikh Guru in 1664, succeeded Guru Har Krishan.
- Son: Guru Gobind Singh, the 10th Guru.

## Contributions

### 1. Spiritual and Literary:

- Composed 100+ hymns in the Guru Granth Sahib.
- Themes: Devotion, humility, detachment, dignity, and understanding God.

### 2. Institutional & Social:

- Founded Anandpur Sahib, later central to Sikhism and the Khalsa formation in 1699.
- Travelled widely to spread Sikh teachings and support oppressed communities.
- Defended religious freedom, notably resisting forced conversions of Kashmiri Pandits.

## Martyrdom

- Arrested and executed in Delhi, 1675, by Aurangzeb for refusing to convert to Islam.
- Observed annually as Shaheedi Divas (24 November), symbolizing supreme sacrifice for faith.



## Parasocial (Word of the Year 2025 – Cambridge Dictionary)

Meaning: Parasocial relationships are one-sided emotional connections that people form with public figures—celebrities, influencers, athletes, or fictional characters—without any real interaction or reciprocity.



# International Migration Outlook 2025

The OECD's International Migration Outlook 2025 notes a 4% decline in permanent migration to OECD countries in 2024, following post-pandemic peaks.

**About the Report:** An annual publication by the OECD, it tracks migration trends, migrant integration in labour markets, and policy developments across member countries.

## Key Global Trends (2024):

- 6.2 million permanent immigrants to OECD countries (15% higher than 2019).
- Labour migration decreased, while humanitarian migration increased.
- Temporary work permits rose by 26%.
- International student inflows fell 13%; asylum applications reached a record 3 million.
- EU border crossings dropped 37%.

## India-Specific Insights:

- Around 225,000 Indian citizens acquired OECD country citizenship in 2023, among the highest for non-member states.
- India and China together made up one-third of all international students in OECD countries.

# QS World University Rankings 2026

The latest QS World University Rankings have been released, evaluating global higher education quality and research impact.

## About QS Rankings:

- Published annually by UK-based Quacquarelli Symonds (QS).
- Covers 1,500+ universities across 100+ countries.
- Nearly 500 institutions improved their ranks compared to 2025.
- Global Topper: MIT retains its No. 1 position.

## India in QS Rankings 2026:

- Top Indian Universities: IIT Delhi (123rd), IIT Bombay (129th), IIT Madras (180th).

## QS Asia Rankings 2026:

- Assesses Asian universities on academic reputation, research, international outlook, and employability.
- Top Asian University: University of Hong Kong overtook Peking University (China).
- India's Position: IIT Delhi remains the top in India but slipped to 59th from 44th.



# Indian Women's Cricket Team Wins World Cup 2025

India clinched its first-ever ICC Women's ODI World Cup title in 2025, defeating South Africa by 52 runs in the final at Navi Mumbai.

About the Women's Cricket World Cup:

- **Organiser:** International Cricket Council (ICC).
- **Inception:** 1973 in England, predating the men's World Cup by two years.
- **Format:** One Day Internationals (50 overs per side), held every four years.
- **Most Successful Teams:** Australia (7 titles), England (4 titles), India and New Zealand (1 each).

2025 Edition Highlights:

- **Hosts:** India & Sri Lanka
- **Winner:** India
- **Runner-up:** South Africa
- **Player of the Final:** Shafali Verma
- **Player of the Series:** Deepti Sharma (215 runs, 22 wickets)



## Booker Prize 2025

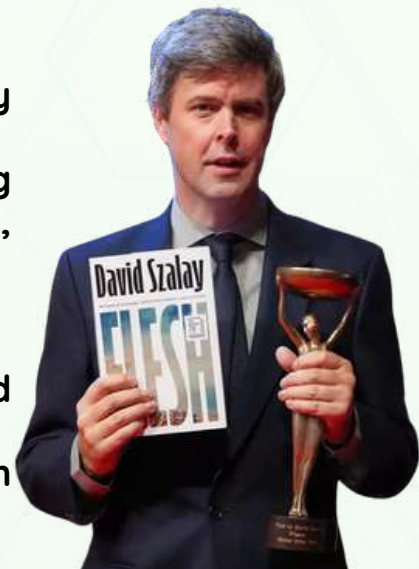
Hungarian-British author David Szalay won the 2025 Booker Prize for his novel *Flesh*, becoming the first Hungarian-British writer to achieve this honour.

About the Winner:

- Szalay is known for minimalist prose exploring masculinity and alienation.
- *Flesh* follows a man's journey from a Hungarian housing estate to London's elite, addressing themes of class, migration, and power.

International Booker Prize 2025:

- Awarded to Heart Lamp by Banu Mushtaq, translated from Kannada by Deepa Bhashthi.
- Recognises fiction translated into English and published in the UK, promoting global literary exchange.



## About the Booker Prize:

- Established in 1969, it is one of the most prestigious awards for English-language fiction.
- Open to novels published in the UK or Ireland, judged by an international panel.
- Notable Indian Winners: V.S. Naipaul (1971), Salman Rushdie (1981), Arundhati Roy (1997), Kiran Desai (2006), Aravind Adiga (2008).

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