

DAILY CURRENT AFFAIRS (DCA)

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Table of Content

3 Years of India-Australia Economic Cooperation and Trade Agreement (Ind-Aus ECTA)

Water Guardians: A Local Fight Against Desertification

The US Push to Redefine the WTO

India Poised to Become \$26 Trillion Economy By 2047–48

Banking Fraud Amount Jumps 30% in April–September 2025

Countries Raise Concern About 'Fake Rabies Vaccine' in India

NEWS IN SHORT

Sabarimala Temple Opens for Makaravilakku Festival

Netaji Subhas Chandra Bose

INSV Kaundinya

New BIS Standard for Incense Sticks

Maiden Flight Test of Pinaka Long Range Guided Rocket

Lambda-Cold Dark Matter (LCDM)

3 YEARS OF INDIA-AUSTRALIA ECONOMIC COOPERATION AND TRADE AGREEMENT (IND-AUS ECTA)

In News

- The India–Australia Economic Cooperation and Trade Agreement (Ind-Aus ECTA) has completed three years of operation since its implementation in December 2022.

What is Ind-Aus ECTA?

- The Ind-Aus ECTA is a **bilateral free trade agreement** between India and Australia, signed on 2 April 2022 and implemented from December 2022.
- It is termed an **“early harvest” or interim agreement**, meaning it focuses on quick and high-impact liberalisation in goods trade, with limited but important commitments in services and investment.
- The ECTA serves as a foundation for a deeper and more comprehensive **Comprehensive Economic Cooperation Agreement (CECA)** in the future.

Key Features of the Ind-Aus ECTA

- Tariff Liberalisation in Goods:**

- Australia’s commitments:** Duty-free access for Indian exports on over 95% of tariff lines from day one.
 - From 1 January 2026, 100% of Australian tariff lines will be at zero duty for Indian exports.
- India’s commitments:** Gradual tariff reduction on Australian exports, with sensitivity for sectors such as agriculture, dairy, and wine.
 - Phased liberalisation protects domestic producers while allowing adjustment.
- Rules of Origin and Trade Facilitation:** Clearly defined Rules of Origin (RoO) prevent misuse and trans-shipment.
 - Simplified customs procedures aim to reduce transaction costs and delays, particularly benefiting exporters and MSMEs.
- Services and Mobility:** Limited but significant provisions for business visitors, contractual service suppliers, and professionals.
 - Enhanced cooperation in IT, education, and professional services, though deeper liberalisation is reserved for CECA.
- Investment and Safeguards:** Provisions for investment promotion and protection.
 - Safeguard mechanisms to address sudden import surges that could harm domestic industries.

India-Australia Bilateral Trade Evolution (FY25)

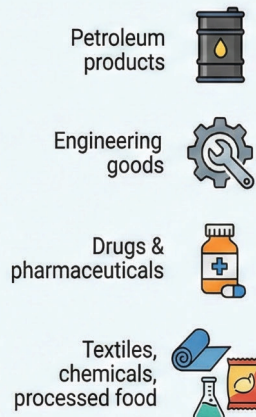


India: Australia’s **8th largest** trading partner



Australia: India’s **14th largest** trading partner

KEY INDIAN EXPORTS



TRADE VOLUME (FY25)

Total Bilateral Trade: ~US\$ 24.1 billion



Trade Deficit: Resource-driven, supports manufacturing and energy security (not consumption-driven).

KEY INDIAN IMPORTS



Significance of the India–Australia Relationship

- **Strategic and Geopolitical Significance:** India and Australia share a common vision of a free, open, and rules-based Indo-Pacific.
 - ♦ Cooperation under initiatives like the Australia–India Indo-Pacific Oceans Initiative Partnership (AIPOIP) strengthens maritime governance and regional stability.
- **Strategic Alliances:** Both are core members of the Quadrilateral Security Dialogue (QUAD) along with the US and Japan.
 - ♦ ECTA adds an economic dimension to QUAD's strategic and security cooperation.
- **Defence and Security Cooperation:** Mutual Logistics Support Agreement (MLSA) enables reciprocal access to military bases and logistics support.
 - ♦ Joint military exercises between both nations like Malabar (naval, QUAD countries), AUSINDEX (bilateral naval exercise) enhances interoperability, maritime security, and trust.
- **Multilateral Alignment:** India and Australia work closely in global and regional forums such as G20, East Asia Summit (EAS) & Indian Ocean Rim Association (IORA).
- **Supply Chain Resilience:** Both countries are partners in the Supply Chain Resilience Initiative (SCRI) along with Japan.
 - ♦ This would reduce dependence on single-country supply chains and promote trusted, resilient production networks.
- **Critical Minerals Partnership:** Australia is a major global supplier of lithium, cobalt, and rare earth elements. These minerals are essential for India's Electric Vehicle (EV) mission, battery manufacturing, and clean energy transition.

Challenges

- **Services share:** Services form ~55% of India's GDP, but get limited coverage under ECTA.
- **Domestic sensitivity:** Dairy sector employs ~80 million rural households in India, a key reason for cautious liberalisation.

Way Forward

- Improve MSME utilisation rate of FTAs (currently estimated below 30% across Indian FTAs).
- Fast-track CECA negotiations focusing on services, digital trade, and investment protection.
- Expand cooperation in green hydrogen, critical minerals processing, and skill mobility.

Source: TH

WATER GUARDIANS: A LOCAL FIGHT AGAINST DESERTIFICATION

Context

- A group of local farmers and volunteers, called **water guardians**, are attempting grassroots water restoration in the semi-arid Homokhátság region in Hungary.

The 'Water Guardians' Initiative

- Parts of Central Europe, particularly Hungary's **Great Hungarian Plain (Homokhátság)**, are witnessing rapid desertification, driven by climate change, falling groundwater levels, and unsustainable land and water management.
- The initiative aims to **retain and redistribute water locally**, rather than allowing it to drain away unused.

What is Desertification?

- Desertification refers to **land degradation in arid, semi-arid and dry sub-humid areas**, resulting from climatic variations and human activities.
- It is a **gradual process of soil productivity loss and the thinning out** of the vegetative cover because of human activities and climatic variations such as prolonged droughts and floods.
- Desertification is a **worldwide problem** directly affecting **250 million** people and a third of the earth's land surface or over **4 billion hectares**.

Reasons for the Rise in Desertification

- **Climate Change:** Increasing global temperatures intensify evaporation, reducing soil moisture and drying surface layers.
 - ♦ Erratic rainfall patterns, shorter monsoon periods and prolonged droughts weaken vegetation cover and soil regeneration.
- **Declining Groundwater Levels:** Excessive extraction of groundwater for agriculture and urban use leads to falling water tables. Further channelisation of rivers and drainage of wetlands disrupt natural flooding and recharge cycles.
- **Unsustainable Agricultural Practices:** Overgrazing removes protective vegetation cover, exposing soil to wind erosion.
 - ♦ Monocropping and excessive use of chemical inputs degrade soil structure and fertility.
- **Deforestation:** Clearing forests for agriculture, infrastructure or mining reduces root systems that bind soil. Also Loss of tree cover increases surface runoff and accelerates land degradation.

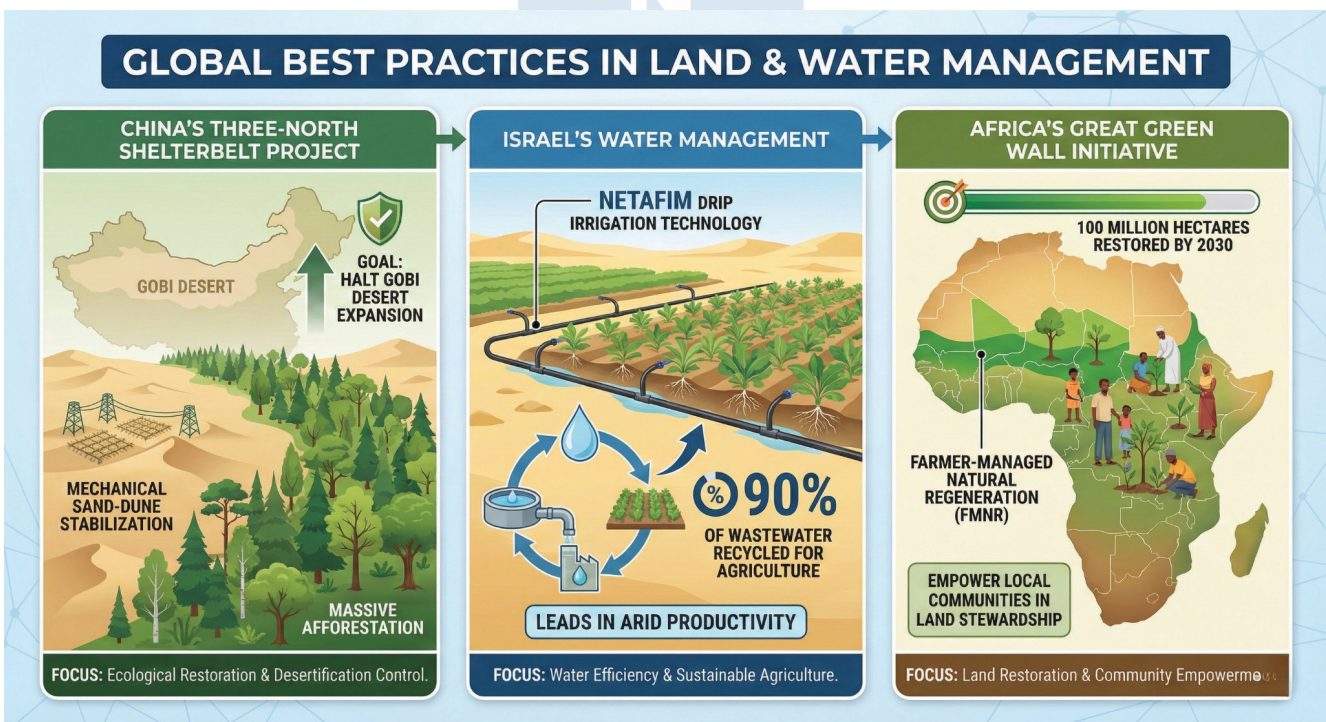
Impacts of Desertification

- **Environmental Impacts:** Decline in biodiversity as grasslands, wetlands and forests degrade. It also leads to increased soil erosion, dust storms and reduced ecosystem services.
- **Economic Impacts:** Reduced agricultural yields affect farmer incomes and rural livelihoods leading to rising costs of irrigation, land reclamation and drinking water supply.
- **Social Impacts:** Food insecurity and nutritional stress, especially among marginal farmers.
- **Climate Change:** Loss of vegetation reduces carbon sequestration, accelerating climate change. Dry soils intensify heatwaves, creating a vicious cycle of warming and degradation.

Steps Taken to Combat Desertification

- The **UNCCD promotes Land Degradation Neutrality (LDN)**, aiming to balance land degradation with restoration by **2030**.
- **United Nations Convention to Combat Desertification (UNCCD):**
 - ♦ UNCCD was **established in 1994** to protect and restore the land and ensure a safer, just, and more sustainable future.

- ♦ It is the **only legally binding framework** set up to address desertification and the effects of drought.
- ♦ There are **197 Parties** to the Convention, including 196 country Parties and the **European Union**.
- **Actions taken by India:**
 - ♦ **National Afforestation and Eco-Development Board (NAEB)** is implementing the **National Afforestation Programme (NAP)** for ecological restoration of degraded forests and adjoining areas through people's participation.
 - ♦ **Aravalli Green Wall Initiative:** The initiative aims to expand green cover in a **five-kilometre buffer** around the Aravalli range. It covers **29 districts** across Gujarat, Rajasthan, Haryana, and Delhi.
 - ♦ **National Action Plan to Combat Desertification, 2023** is prepared taking due consideration of the country's commitments for restoration of **26 million hectares** of degraded land by 2030.



Source: TH

THE US PUSH TO REDEFINE THE WTO

Context

- The US recently articulated its vision for **reforming** the **World Trade Organization (WTO)**.

Major Highlights of the US Suggested Reforms

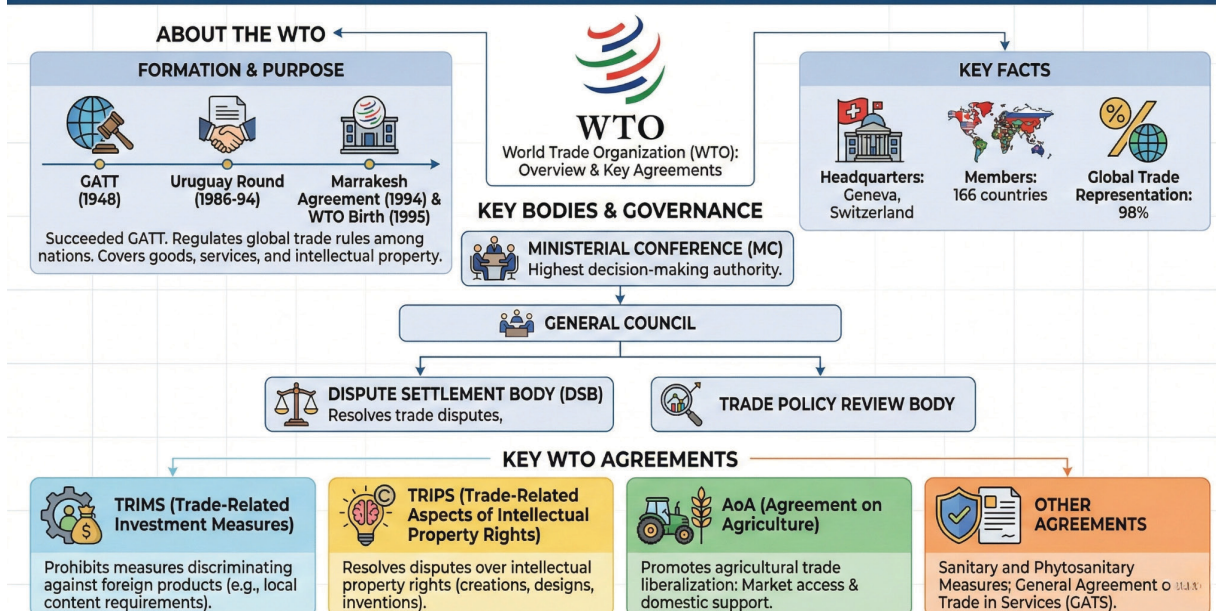
- **Decision-Making (Plurilateralism):** The US argues consensus among 166 members is unrealistic for new trade rules.

- It supports plurilateral agreements among willing members as the future of WTO rule-making.
- Plurilateral** describes agreements, or initiatives involving a limited group of countries that share specific interests, often focusing on particular sectors or issues, offering a flexible way to advance cooperation.
- Special & Differential Treatment (S&DT):** The US wants S&DT largely restricted to least developed countries.
 - It advocates uniform rules for all other members regardless of development gaps.
 - It demands strict justification for any deviation from common obligations.
- Level Playing Field:** US highlights trade distortions from non-market policies and practices.
 - Links erosion of trust in WTO to overcapacity and state intervention.
 - It proposes transparency and stricter notification compliance as key remedies.
- Most-Favoured-Nation (MFN) Principle:** US questions MFN's relevance in an era of divergent economic systems. It argues MFN enforces one-size-fits-all liberalisation.
 - It supports wider departures to allow differentiated trade relationships.
 - MFN principle **requires member countries** to treat all trade partners equally by extending the same trade benefits (e.g., reduced tariffs or market access) to all signatories.
- Role of WTO Secretariat:** The US strongly criticises the role of the WTO Secretariat, which it views as fundamentally administrative rather than substantive.
 - It accuses the Secretariat of overstepping its mandate by expanding its monitoring and commentary on members' trade measures, and undertaking research projects not authorised by members.

Concerns with Reforms

- MFN Principle:** India should strongly oppose dilution of MFN principle.
 - MFN ensures predictability and protects weaker trading nations.
 - Its erosion would entrench power-based trade relations.
- Trade Imbalances:** The concern of Trade imbalances requires attention but it should not dominate trade policy. Structural and macroeconomic factors must be acknowledged.
 - WTO should not be reduced to a balance-of-trade enforcement forum.
- Economic Security:** Economic security concerns should be addressed multilaterally within the WTO.
 - Safeguards Agreement could be expanded to include strategic vulnerabilities.
- S&DT Reform:** Limiting S&DT only to LDCs is excessively rigid. A differentiation approach based on income levels offers a balanced approach.

WORLD TRADE ORGANIZATION (WTO): OVERVIEW & KEY AGREEMENTS



Source: BL

INDIA POISED TO BECOME \$26 TRILLION ECONOMY BY 2047–48

In News

- India is projected to become a \$26 trillion economy by 2047–48, with per capita income exceeding \$15,000, maintaining an average growth rate of ~6% per annum according to a report by Ernst & Young (EY).

Current Status

- Growth Momentum :** India's real GDP grew 8.2% in Q2 FY 2025-26, up from 7.8% in the previous quarter and 7.4% in Q4 of 2024-25, led by resilient domestic demand amidst global trade and policy uncertainties.
 - Real gross value added (GVA) expanded by 8.1%, catalysed by buoyant industrial and services sectors.
- India's services exports have grown by 14 per cent** over the past two decades and stood at \$254.5 billion in 2021–22.
 - A substantial portion of these exports came from Information Technology (IT) services and Business Process Outsourcing (BPO), which together accounted for \$157 billion during the same period.
- Global Capability Centres (GCCs):** India hosts 1,500 GCCs (45% of global total), highlighting scalable talent, emerging technology skills, and efficient business processes.
 - India has become a global hub for technology adoption and digital services.
- Digital Infrastructure:** India has 1.2 billion telecom subscribers, 837 million internet users, and strong government support in building Digital Public Infrastructure, driving digital payments, governance, and entrepreneurship.

Factors Driving Growth

- Structural Reforms:** Liberalisation of the economy, enhanced market orientation, and expanded role of private capital have strengthened global competitiveness.
- Services & IT Leadership:** Rapid growth in services exports, especially IT and BPO, and the presence of Global Capability Centres have positioned India as the "office of the world" for technology and innovation.
- Digital Economy:** A strong digital ecosystem, backed by Digital Public Infrastructure and widespread mobile and internet penetration, has enabled innovations such as digital payments and governance improvements.
- Ongoing Reforms:** Changes like GST 2.0 and monetary easing are bolstering domestic demand

and positioning the economy for sustained growth.

- Demographics:** Employment is a vital link between growth and prosperity in India.
 - With around 26% of the population aged 10–24, the country has a unique demographic advantage.
- Urbanization & Infrastructure:** India's real estate sector, currently contributing 8% to GDP, should reach 18% by 2047.
- FDI & Global Integration:** Cumulative FDI inflows crossed US\$ 1.05 trillion, with record equity inflows in FY25.
- Non-IT Services Potential:** Non-IT services have strong growth potential, with sectors such as education and healthcare expected to gain from digital service delivery, particularly as developed economies face acute skilled-labour shortages.

Challenges

- Trade & Global Uncertainties:** Continued export headwinds, tariff barriers, and the need for trade diversification remain concerns.
- Infrastructure & Logistics:** High logistics costs and infrastructure bottlenecks still limit competitiveness and efficiency.
- Climate & Sustainability:** Balancing rapid growth with environmental commitments remain concerns.
- Global Risks:** Geopolitical tensions, supply chain disruptions, and technological competition.

Reforms & Initiatives

- Aatmanirbhar Bharat** strengthening domestic manufacturing and self-reliance.
- Ease of Doing Business 2.0:** Deregulation and SME empowerment to create India's "Mittelstand".
- Green Growth:** National Hydrogen Mission, renewable energy expansion, and electric mobility.
- Financial Inclusion:** Jan Dhan Yojana, UPI, and digital banking penetration.
- Global Integration:** Trade diversification and strategic positioning amid geo-economic fragmentation.

Conclusion and Way Forward

- India's journey to a \$26 trillion economy by 2047–48 is both aspirational and achievable. With strong fundamentals, reform momentum, and demographic advantage, India is poised to redefine global economic power.
- However, success will depend on inclusive growth, climate resilience, and sustained policy innovation.

Source :DD

BANKING FRAUD AMOUNT JUMPS 30% IN APRIL–SEPTEMBER 2025

Context

- The **RBI's Trend and Progress of Banking in India 2024–25** shows that even as the incidence of banking frauds has declined, the value of losses has increased significantly, pointing to **deep-seated structural and supervisory weaknesses in the banking system**.

Key Findings from the RBI Report

- Nature of Frauds: During 2024-25, Card and internet frauds** accounted for **66.8%** of total cases, highlighting persistent vulnerabilities in digital banking. In terms of amount, the share of advances-related frauds was **33.1 percent**.
- Bank-wise Distribution:** In 2024-25, private banks accounted for **59.3 percent** of the total number of frauds reported, while PSBs accounted for **70.7 percent** of the amount involved.

Frauds cases



Advances			Card/Internet		
	No. of frauds	Amount in (₹ crore)		No. of frauds	Amount in (₹ crore)
FY23	3,989	15,065	FY23	6,669	277
FY24	4,113	9,160	FY24	29,080	1,457
FY25	7,934	31,911	FY25	13,469	520
H1FY26	4,255	17,501	H1FY26	195	14

Deposits			Total		
	No. of frauds	Amount in (₹ crore)		No. of frauds	Amount in (₹ crore)
FY23	652	259	FY23	13,462	16,502
FY24	2,002	240	FY24	36,052	11,261
FY25	1,207	521	FY25	23,879	34,771
H1FY26	222	131	H1FY26	5,092	21,515

Source: RBI Trends & Progress Report

Reasons for Rise in Fraud Amounts

- Weak credit appraisal and monitoring mechanisms**, particularly in consortium and multiple banking arrangements, enable fund diversion and misreporting.
- Delayed recognition and reporting of frauds** allow losses to accumulate over several years before being disclosed.
- Governance gaps and limited accountability** in sanctioning and restructuring large loans contribute to repeated instances of high-value fraud.
- Advances-related frauds** involve **high-value corporate loans**, which inflate the total amount even when the number of cases declines.
- The sharp increase in fraud amounts is largely due to the **re-examination and fresh reporting of large legacy cases**, following compliance with the **Supreme Court judgment of March 27, 2023**.

Impacts of Rising Banking Frauds

- Large frauds weaken **bank balance sheets** by increasing **non-performing assets** and provisioning requirements.
- Repeated fraud disclosures erode **public confidence** in the banking system, especially in public sector banks.
- The need for **government recapitalisation of banks** imposes a fiscal burden and diverts public resources.
- Banks become risk-averse, leading to **credit contraction**, particularly affecting MSMEs and productive sectors.

Initiatives taken by government

- The Central Fraud Registry (CFR)** has been established to enable information sharing among banks and prevent repeat frauds.
- Early Warning Systems (EWS) and Red-Flagged Accounts (RFA) frameworks** have been mandated to detect stress and potential frauds at an early stage.
- The Insolvency and Bankruptcy Code, 2016** has strengthened credit discipline and improved recovery mechanisms.
- Financial Fraud Risk Indicator (FRI)**: RBI directed all banks to adopt the FRI technology developed by the Department of Telecommunications. It supports real-time monitoring and alerts to protect customers from cyber and UPI-related frauds.

Way Ahead

- Early detection and real-time intelligence sharing is needed to catch fraud before damage spreads.
- Stronger **internal governance and clearer escalation norms** within banks and financial entities are required.
- Better **consumer protection**, including dispute resolution and liability protections must be ensured.
- Technology leverage** (AI, shared platforms, risk indicators) is needed to stay ahead of sophisticated digital frauds.

Source: IE

COUNTRIES RAISE CONCERN ABOUT 'FAKE RABIES VACCINE' IN INDIA

Context

- Recently countries like the UK, US, and Australia have issued an advisory about the counterfeit batch of Abhayrab, a rabies vaccine manufactured by government-owned Indian Immunologicals Limited (IIL).

About Abhayrab Counterfeit Controversy

- **Abhayrab is a cell-culture rabies vaccine** manufactured by Indian Immunologicals Limited (IIL), in use since 2000 in India and over 40 countries.
- It reportedly **holds around 40% of India's human rabies vaccine market** and is widely used in government programmes, private hospitals, and for travellers.
- Indian Immunologicals Limited (IIL) stated that in January 2025, it detected one counterfeit batch with altered packaging.
- Later, the company stated that the **batch was identified internally**, following which regulatory and enforcement agencies were informed, and that the **product was no longer available for sale**.

Understanding Rabies and Its Risks

- Rabies is a **viral infection** transmitted through the **saliva of infected animals** such as **dogs, cats, bats, and monkeys**.
- It typically spreads through **bites, scratches, or saliva entering open wounds**.
- Symptoms may include Fever, headache, and nausea; hallucinations and fear of water (hydrophobia);
- **Post-exposure vaccination**, given promptly after a potential exposure, is the **most reliable way** to prevent infection.
- According to **India's National Rabies Control Program**, 6,644 suspected human rabies cases and deaths were reported between 2012 and 2022.
 - ♦ However, the **WHO** estimates a far higher toll, at around **18,000–20,000 deaths annually**, with up to **two-thirds of victims under age 15**.
 - India alone accounts for **36% of global rabies deaths**.
- The issue of rabies is particularly serious because **it is almost 100% fatal once symptoms appear**.

Ethical Perspectives of Abhayrab Controversy

- **Public Health Ethics:** The fake vaccine is a **violation of the principle of non-maleficence** ('do no harm') from a **public health standpoint**.
 - ♦ Public health systems have an ethical duty to **ensure the safety, efficacy, and authenticity** of all vaccines.
 - ♦ Distributing fake vaccines **breaches public trust** and undermines future vaccination drives.
- **Professional Ethics in Medicine:** Medical professionals who administered vaccines

without verifying authenticity acted under **compromised ethical conditions**.

- ♦ However, many doctors were **victims themselves**, relying on state-supplied vaccines, **a failure of institutional ethics**, not individual negligence.
- **Corporate and Manufacturing Ethics:** **Pharmaceutical suppliers and intermediaries** falsified batch numbers and expiry dates, violating **business ethics** and **legal obligations** under the **Drugs and Cosmetics Act, 1940**.
 - ♦ Ethically, it is an act of **deliberate deception** risking lives for profit.
- **Regulatory Ethics:** The **Central Drugs Standard Control Organization (CDSCO)** and **state drug regulators** failed to exercise **due diligence**.
 - ♦ It exposes a **moral lapse in oversight**, echoing ethical negligence **in governance**, comparable to the Ranbaxy data falsification case (2013).

Ethical Framework	Application to Fake Vaccine Case	Core Ethical Failure
Utilitarianism	The harm (deaths, mistrust) outweighs any economic gain.	Violation of collective welfare.
Deontological Ethics	Authorities had a duty to ensure authenticity; failure to act violates duty-based ethics.	Breach of moral duty.
Virtue Ethics	Lack of integrity and accountability among suppliers/regulators.	Absence of moral character.
Justice Theory (Rawls)	Unequal burden on rural poor violates fairness.	Distributive injustice.

Broader Implications

- **Trust Erosion:** Communities may resist future vaccination campaigns (e.g., rabies, polio, COVID-19 boosters).
- **Systemic Reform Need:** Experts from **AIIMS and ICMR** have called for **blockchain-based traceability** and **third-party audits** for all vaccine batches.
- **Moral Responsibility:** Ethical accountability must extend beyond punishment to **institutional reform** and **restoration of public trust**.

Source: IE

NEWS IN SHORT

SABARIMALA TEMPLE OPENS FOR MAKARAVILAKKU FESTIVAL

Context

- The Sabarimala Ayyappa temple will reopen on 30 December for the Makaravilakku festival, marking the second phase of the annual pilgrimage season.

About Makaravilakku Festival

- Makara Vilakku is one of **Kerala's most sacred festivals**, celebrated annually at the **Sabarimala Ayyappa Temple**.
 - It is observed on the first day of **Makara Masam in the Malayalam calendar**, coinciding with Makara Sankranti.
- On this divine day, devotees gather to witness two powerful events:
 - Makara Jyoti**: The bright celestial star (Sirius) appearing in the eastern sky.
 - Makara Vilakku**: The sacred light that appears thrice from the forests of Ponnambalamedu.
- These two sightings are considered spiritually transformative, symbolizing the presence, blessings, and grace of Lord Ayyappa.
- The key rituals** during the Makaravilakku festival include **Kalamezhuthu Pattu, Nayattu Vili, and Guruthi**, performed before the closing of the shrine doors.

Source: TH

NETAJI SUBHAS CHANDRA BOSE

In News

- Prime Minister of India paid tribute to Netaji Subhas Chandra Bose on the historic occasion of December 30, 1943, when Netaji unfurled the tricolor at Port Blair with unmatched courage and valor.

Netaji Subhas Chandra Bose

- Early Life**: He was an Indian nationalist leader who played a pivotal role in India's struggle for independence against British rule.
 - He was born on January 23, 1897, in Cuttack, Odisha
 - He studied at the University of Calcutta and later went to England for the Indian Civil Services (ICS) exam.

- Political career** : He abandoned ICS aspirations to join the Indian National Congress (INC), advocating for complete independence rather than moderate reforms.
 - He was Elected INC President in 1938 and 1939 but resigned due to differences with Mahatma Gandhi and other leaders over non-violent strategies.
- Contributions in Freedom struggle**: Bose's vision for India's freedom was to leverage the support of Axis powers during World War II.
 - He escaped from house arrest in India in 1941, travelling through Afghanistan to Germany, where he sought support from Adolf Hitler.
 - In 1943, he went to Japan, where he took command of the Indian National Army (INA), which had been formed by Indian prisoners of war and expatriates.
 - The INA's actions and post-war trials had a strong psychological impact, weakening British authority.
- Death**: He died in a plane crash in Taiwan in August 1945; circumstances remain mysterious and controversial.
- Legacy**: He is remembered as a symbol of courage and determination; numerous institutions, monuments, and awards are named after him.

Source: PIB

INSV KAUNDINYA

Context

- Indian Naval Sailing Vessel Kaundinya, sailed on her maiden overseas voyage from **Gujarat to Oman**.

About

- INSV Kaundinya is a stitched sail ship, based on a **5th century CE ship depicted in the paintings of Ajanta Caves**.
 - It is named after **Kaundinya**, the Indian mariner who sailed across the Indian Ocean to Southeast Asia.
 - It has been constructed using **traditional stitched shipbuilding techniques**, employing natural materials and methods that date back centuries.
- The project was undertaken through a **tripartite agreement between** the Ministry of Culture, the Indian Navy and Hodi Innovations as part of India's efforts to rediscover and **revive indigenous knowledge systems**.



- The voyage **retraces ancient maritime routes** that once connected the western coast of India with Oman.
- **Significance:** The expedition is expected to significantly enhance bilateral relations between India and Oman by reinforcing shared maritime heritage and strengthening cultural and people-to-people ties.

Source: PIB

NEW BIS STANDARD FOR INCENSE STICKS

Context

- The Union Minister for Consumer Affairs, Food & Public Distribution, released **IS 19412:2025 – Incense Sticks (Agarbatti)** — Specification, an Indian Standard developed by the Bureau of Indian Standards (BIS).

About the notified standards

- The standard classifies Agarbatti into **machine-made, hand-made, and traditional masala agarbattis**, and prescribes requirements for raw materials, burning quality, fragrance performance, and chemical parameters.
- The standard specifies prohibited use of certain insecticidal such as **Alethrin, permethrin, cypermethrin, deltamethrin, and fipronil**, as well as synthetic fragrance intermediates like **benzyl cyanide, ethyl acrylate, and diphenylamine**.

Incense Sticks Sector in India

- India is the **world's largest producer and exporter** of agarbattis, with the industry estimated at around **₹8,000 crore** annually and exports of about **₹1,200 crore** to more than **150 countries**.
- Supports a vast ecosystem of artisans, MSMEs, and micro-entrepreneurs.
- The sector supports a **large ecosystem of artisans, MSMEs and micro-entrepreneurs**, providing substantial employment, particularly for women in rural and semi-urban areas.

Bureau of Indian Standards (BIS)

- The Bureau of Indian Standards is the National Standards Body of India under the **Ministry of Consumer Affairs, Food & Public Distribution**, Government of India.
- It is established by the **Bureau of Indian Standards Act, 2016** which came into effect on **12 October 2017**.
- **Headquarters:** New Delhi.
- **Functions:**
 - ♦ **Formulation of Indian Standards (IS)** across many sectors.
 - ♦ **Product Certification Schemes**, both voluntary and compulsory.
 - ♦ **Release of Quality Control Orders (QCOs):** Making compliance with certain Indian Standards mandatory for some products.
- **The schemes operated by BIS are**, Product Certification (ISI mark), Management Systems Certification, Hall Marking of Gold and Silver Jewellery/Artefacts and Laboratory Services for the benefit of the industry and in turn aiming at consumer protection.

Source: PIB

MAIDEN FLIGHT TEST OF PINAKA LONG RANGE GUIDED ROCKET

In News

- The maiden flight test of the Pinaka Long Range Guided Rocket (LRGR-120) was successfully conducted at the Integrated Test Range (ITR) in Chandipur, Odisha.

Do you know?

- The Pinaka Long Range Guided Rocket (LRGR 120) has been designed by the Armament Research and Development Establishment in collaboration with the High Energy Materials Research Laboratory, with support from the Defence Research and Development Laboratory and the Research Centre Imarat.
 - The "120" denotes its maximum strike range of around 120 kilometres.
- ♦ It is an extended-range, precision-guided rocket developed for the Indian Army's Pinaka Multiple Launch Rocket System (MLRS).

The Pinaka Multiple Launcher Rocket System (MLRS)

- It is a long-range artillery weapon system developed by DRDO for the Indian Army.
- It is known for its rapid response and precision and it significantly enhances the Army's operational capabilities in modern warfare.
- **Trials** : The maiden trial of the 120-km-range Pinaka Long Range Guided Rocket was carried out and it received clearance for induction into the Indian Army by the Defence Acquisition Council (DAC),
 - ♦ The Pinaka system has also emerged as a major success in the defence export segment.
 - ♦ It has been procured by Armenia, while several European countries, including France, have shown interest in the system.

Source :TH

LAMBDA-COLD DARK MATTER (LCDM)

Context

- A new study from Yonsei University (South Korea) suggests that the **expansion of the universe may be slowing down**, challenging the standard **Λ CDM (Lambda-Cold Dark Matter) model which predicts acceleration**.
 - ♦ The researchers suggest that dark energy may actually be weakening, putting the brakes on the universe's acceleration.

Expansion Theory

- The universe was explosively born in a '**Big Bang**' in the void some **13.8 billion years ago**, it expanded, engendering galaxies, star clusters, solar systems, and planets.
- **Edwin Hubble in the 1920s** established that the **universe is expanding**.
 - ♦ This acceleration is **attributed to dark energy**, which makes roughly up to 68% of the universe, often modeled as Einstein's cosmological constant (Λ).

The Lambda Cold Dark Matter (Λ CDM) Model

- Over the years, cosmologists have **tried to map the overall spread of matter through the early universe**.
- In the standard cosmological model, **Λ CDM model**, dark matter and dark energy — the mysterious force that drives the expansion of the universe — **comprise about 95% of the universe**.
- The interplay between these components influences how the primordial fluctuations evolved into the large-scale structures that we observe today.

Dark Matter and Dark Energy

- The content of the Universe is widely thought to consist of **three types of substance: normal matter, dark matter and dark energy**.
- Roughly **68% of the universe is dark energy**, **dark matter** makes up about **27%** and the rest everything observed adds up to **less than 5% of the universe**.
- **Dark Matter**: Unlike normal matter, dark matter **does not interact with the electromagnetic force**. This means it does not absorb, reflect or emit light, making it extremely hard to spot.
 - ♦ Dark matter works like an **attractive force** — a kind of cosmic cement that **holds the universe together**. This is because dark matter **does interact with gravity**.
 - ♦ Since dark matter doesn't emit, absorb or reflect light, astronomers can **only study its gravitational effect on visible matter**, such as stars and galaxies.
- **Dark Energy**: Dark energy is a **repulsive force** — a sort of anti-gravity — that **drives the universe's ever-accelerating expansion**.
 - ♦ Dark energy is the far more dominant force than Dark matter.

Source: TH

