

## DAILY CURRENT AFFAIRS (DCA)

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## INLAND WATERWAYS: FORTIFYING SUPPLY CHAINS

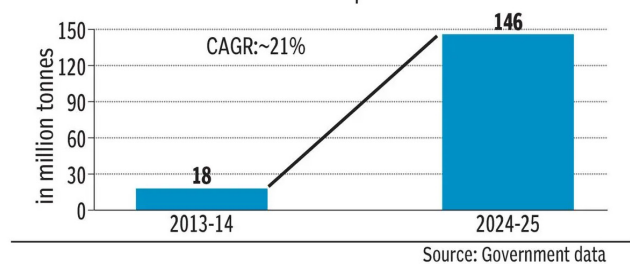
### Context

- Recently, the Chief Economic Advisor (CEA) has highlighted the growing role of **inland waterways** as a resilient and strategic component of India's logistics framework.

### About Inland Waterways

- Inland Water Transport (IWT) refers to the movement of goods and passengers through **rivers, canals, backwaters, and creeks**.
- These are **cost-effective, energy-efficient, and environmentally sustainable**, making them ideal for bulk cargo transport.
- India has over **14,500 km of navigable waterways**, with **111 National Waterways** declared under the **National Waterways Act, 2016**.
  - Key projects such as the **Jal Marg Vikas Project (NW-1: Ganga-Bhagirathi-Hooghly river system)** supported by the World Bank.

### Cargo movement through inland water transport



- Cargo movement increased to about **146 million tonnes** (from 18 million tonnes in 2013–14), registering a **CAGR of almost 21%**.

### Drivers of Growth in Inland Waterways

- Policy Push and Institutional Support:** These initiatives have improved navigability, terminal infrastructure, and cargo handling capacity.
  - Inland Waterways Authority of India (IWAI)** for regulation and development
  - Jal Marg Vikas Project (JMVP)** on National Waterway-1 (Ganga)
  - Sagarmala Programme** and **PM Gati Shakti** for multimodal integration
- Multimodal Logistics Integration:** Inland waterways enhance **intermodal connectivity**, linking ports, railways, and highways, and reduce transit time and logistics costs.
  - The expansion of inland waterways is part of a broader logistics transformation i.e.

integration with **rail freight corridors and ports**, development of **multimodal logistics parks**, and reduction in **supply bottlenecks**.

### Inland Waterways as a Resilient Logistics Mode

- Insulation from Global Disruptions:** Inland waterways provide a **domestic, stable transport alternative**, unlike maritime shipping routes affected by geopolitical tensions.
- Reducing Logistics Costs:** India's logistics costs remain relatively high (~13–14% of GDP).
  - IWT offers **lower fuel consumption and higher load capacity**.
- Decongestion of Road and Rail:** Diverts bulk cargo (coal, cement, food grains); and reduces pressure on overburdened rail and road networks.
- Climate and Environmental Benefits:** Lower carbon emissions per tonne-km; and supports India's **climate commitments and green logistics goals**.

### Strategic Importance in India's Economy

- Enhancing Supply Chain Resilience:** Logistics disruptions (e.g., geopolitical conflicts, pandemics) expose vulnerabilities.
  - It includes rising freight and insurance costs, supply chain disruptions, and energy price volatility (crude oil, LPG, natural gas).
  - Inland waterways provide **redundancy and diversification**, key elements of resilient supply chains.
- Regional Development and Inclusion:** Promotes economic activity in **hinterland and riverine regions**; and facilitates **trade corridors** in Indo-Gangetic plains.
- Supporting Economic Growth:** Efficient logistics systems are crucial for sustaining high growth.
  - IWT contributes by **reducing bottlenecks and improving competitiveness**.

### Challenges in Inland Water Transport

- Seasonal variability in river flow;
- Limited depth (draft issues) and dredging requirements;
- Underdeveloped terminal infrastructure;
- Environmental concerns (e.g., biodiversity impact on Ganga dolphins)
- Low private sector participation;

### Way Forward

- Infrastructure and Technology:** River training, dredging, and modern terminals and use of **digital navigation systems and river information services**.

- **Policy and Institutional Reforms:** Strengthening **National Logistics Policy (2022)** and incentivizing private investment and PPP models.
- **Sustainable Development Approach:** Environmental safeguards; and community participation in river-based economies.
- **Integrated Multimodal Vision:** Align IWT with **rail, road, and port networks** under Gati Shakti; and develop **logistics hubs and economic corridors**.

### Conclusion

- The growing role of inland waterways marks a paradigm shift in India's logistics strategy, from cost-centric to resilience-oriented planning.
- Inland waterways are poised to become a **cornerstone of India's economic and infrastructure development** by offering a **sustainable, efficient, and shock-resistant transport mode**.

Source: BL

## MEDICAL AND WELLNESS TOURISM IN INDIA

### Context

- India is steadily emerging as a major global destination for medical tourism, with the country's medical value travel (MVT) market projected to grow from an estimated **\$8.7 billion in 2025** to nearly **\$16.2 billion by 2030**.

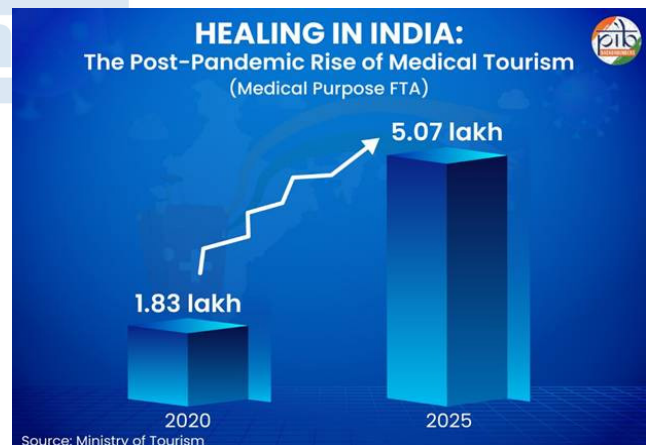
### What is Medical Tourism?

- Medical tourism refers to the **practice of traveling** to another country or region for medical treatment, procedures, or health-related services.
- It involves both **curative care (surgeries, specialised treatments)** and, in some cases, **preventive or diagnostic services**.
- **Reasons:**
  - ♦ Individuals seek medical care in countries where the quality of treatment is high, but the costs are significantly lower than in their home country.
  - ♦ Travel for specialized treatments not available locally or for services that have long wait times.

### Key Trends in Medical Value Travel

- **The global Medical Value Travel** market was valued at about **USD 115.6 billion** in 2022. It is projected to reach around **USD 286.1 billion by 2030**.

- ♦ The market is growing at a compound annual growth rate (**CAGR**) of about **10.8%**.
- According to the **Medical Tourism Index 2020–21, India ranks:**
  - ♦ **10th** among the top 46 medical tourism destinations globally
  - ♦ **12th** among the world's top 20 wellness tourism markets
  - ♦ **5th** among the top 10 wellness destinations in the Asia-Pacific region.
- As per the **Ministry of Tourism** estimates, **507,244 foreign nationals** visited India in 2025 specifically for medical treatment.
  - ♦ It shows that **medical tourism** constitutes approximately **5.5%** of total **Foreign Tourist Arrivals (FTAs)**.
- **Leading Markets:** Bangladesh followed by Iraq, Uzbekistan, Somalia, Turkmenistan, Oman, and Kenya.
- **Popular destinations** for medical tourism in India include cities like **Delhi, Mumbai, Chennai, Bangalore, and Hyderabad**.
- Patients primarily travel to India for specialised treatments such as: **Cardiac surgery, Orthopaedic procedures, Cancer treatment, Organ transplants, AYUSH-based wellness therapies** etc.



### Factors Responsible for the Growth of Medical Tourism in India

- **Cost-Effective Treatment:** India offers medical procedures at a fraction of the cost compared to countries like the US or Europe.
- **High-Quality Healthcare:** India has a well-established healthcare infrastructure with internationally accredited hospitals and skilled medical professionals.
  - ♦ India has **69,364 hospitals** (43,486 private hospitals, and 25,778 public hospitals) with **1.2 million registered doctors**.

### COST ANALYSIS OF MAJOR TREATMENTS IN INDIA COMPARED TO EMERGING NATIONS OF MEDICAL TOURISM (IN LAKH)

#### HEART BYPASS



#### HEART VALVE REPLACEMENT



- **Availability of Advanced Medical Technology:** Indian hospitals are equipped with state-of-the-art medical technology and cutting-edge treatments, particularly in fields like cardiology, oncology, and orthopedics.
- **Shorter Wait Times:** Medical tourists can access timely treatment, often avoiding long wait times common in some Western healthcare systems.
- **Government Support and Policies:** The Indian government has implemented policies that encourage medical tourism, including medical visa facilitation and promoting the sector internationally.
- **Strengthening AYUSH-led Medical Value Travel:** India possesses a unique advantage in wellness tourism through its centuries-old traditional systems of medicine collectively known as AYUSH — **Ayurveda, Yoga, Naturopathy, Unani, Siddha and Homeopathy.**

#### Government Initiatives to Strengthen Medical Tourism

- **National Medical & Wellness Tourism Promotion Board (NMWTB):** Constituted by the Ministry of Tourism in 2015, chaired by the Union Minister for Tourism. It promotes and facilitates medical and wellness tourism in India.

- **Strengthening AYUSH Ecosystem:**
  - ♦ The establishment of three new **All India Institutes of Ayurveda** has been proposed to enhance education, research, and clinical services in Ayurveda.
  - ♦ Upgradation of the **WHO Global Traditional Medicine Centre in Jamnagar** for evidence-based research and global collaboration.
- **Visa Reforms:**
  - ♦ **e-Medical Visa and e-Medical Attendant Visa** extended to **172 countries.**
  - ♦ Introduction of **e-AYUSH Visa** for traditional treatment seekers.
- **Digital Support:** Revamped **Medical Value Travel Portal** offering end-to-end services (planning, booking, payments, follow-up care).
- **Heal in India Initiative:** The initiative aims to position India as a global hub for integrated healthcare services. It has two key pillars:
  - ♦ **Medical Tourism:** Focuses on curative services such as surgeries and advanced treatment.
  - ♦ **Wellness Tourism:** Focuses on preventive healthcare and holistic healing through traditional systems.

#### Challenges in Medical Tourism in India

- **Strong competition** from Malaysia, Thailand and Singapore.
- Most of the medical care is **not covered by insurance** and it makes medical value travel (MVT) less attractive.
- **The MVT facilitators are not well organized** and accredited. Many unprofessional agents exploit the medical value traveller.
- **Lack of Regulations:** There are no comprehensive regulations to govern the MVT sector, which leaves the sector unorganised and lacks monitoring of the quality of services.
- **Promotion of MVT:** Individual Hospitals are carrying out their publicity but there is no effective campaign to establish India as a brand for medical value travel.

#### Way Ahead

- Medical and wellness tourism represents a high-potential sector linking **healthcare, economy, and soft power.**
- With strategic policy support, quality assurance, and global branding, India can emerge as a **leading hub for affordable, holistic, and world-class** healthcare services.

Source: PIB

## FDI NORMS EASED UNDER FOREIGN EXCHANGE MANAGEMENT ACT (FEMA)

### Context

- The Government of India has amended rules under the **Foreign Exchange Management Act (FEMA)** to ease **Foreign Direct Investment (FDI)** norms for foreign companies with limited **Chinese shareholding**.

### About

- Earlier Framework:** The **Department for Promotion of Industry and Internal Trade** mandated that any level of investment from bordering countries required prior government approval, even if the shareholding was minimal.
- The revised policy provides** that restrictions will now apply only where there is significant **beneficial ownership** rather than any minimal shareholding.
  - The concept of “beneficial owner” is defined under the **Prevention of Money Laundering Act (PMLA), 2002**. It is defined as a person or entity having more than 10% ownership, control, or entitlement to profits in a company.

### Key Provisions of Amendment

- Automatic Route for Limited Chinese Stake:** Foreign companies with up to **10% Chinese or Hong Kong shareholding** are now allowed to invest in India under the automatic route, subject to sectoral conditions.
  - This change applies only to sectors where FDI is already permitted under the automatic route.
- Exclusion of Bordering Country Entities:** The relaxed norms do not apply to entities incorporated in China, Hong Kong, or any country sharing a land border with India.
  - Such entities will continue to require prior government approval for investments.
- Investments by multilateral institutions** where India is a member will not be treated as investments from any specific country.
  - Investments that fall under the relaxed category will still be **subject to reporting requirements** prescribed by the **Reserve Bank of India**.

### Foreign Exchange Management Act, 1999

- The Foreign Exchange Management Act, 1999 (FEMA)** is a law enacted by the Government of India to **regulate foreign exchange transactions** and facilitate external trade and payments.

- It was enacted to replace the **Foreign Exchange Regulation Act (FERA), 1973**.
- It provides the **legal framework for foreign exchange management** in India, including FDI, external borrowings, and cross-border payments.
- The Reserve Bank of India** is the main authority responsible for implementing and regulating FEMA provisions.

### Recent Trends in FDI Inflows

- Growth in Total FDI:** India's total FDI inflows, including reinvested earnings, have increased to **USD 88.29 billion** during **April–February 2025–26**.
- Investment Facilitation:** Invest India has facilitated the grounding of 60 investment projects worth over USD 6.1 billion during 2025–26.
- Major Investment Sources:** Around **42%** of the total **grounded investment** value originates from **European countries**, indicating strong engagement with developed economies.
- Top FDI Source Countries:** Singapore, United States, Mauritius, UAE etc.
- Sectoral Distribution of Investments:**
  - Dominant Sectors:** Pharmaceuticals, biotechnology, and food processing sectors.
  - Sunrise Sectors:** Electronics System Design and Manufacturing (ESDM), Aerospace and defence and Automobiles and electric vehicles (EVs).

### What is Foreign Direct Investment (FDI) ?

- It refers to **investments made by foreign entities** (individuals or companies) in the business interests of another country, typically in the form of **ownership or control of enterprises**.
- At present, **FDI is prohibited** in lottery, gambling and betting, chit funds, Nidhi company, real estate business, and manufacturing of cigars, cheroots, cigarillos and cigarettes using tobacco.

### Routes for FDI in India

- Automatic Route:** No prior approval is required.
  - Investors need to inform the Reserve Bank of India (RBI) after making the investment.
  - Most sectors, such as manufacturing and software, fall under this route.
- Government Approval Route:** Requires prior approval from the concerned Ministry or Department.
  - Sectors such as telecom, media, pharmaceuticals, and insurance fall under this route.

### Way Ahead

- India should continue to ensure policy **stability, transparency, and investor-friendly regulations**.
- Strengthening institutional mechanisms for **investment facilitation and dispute resolution** will improve investor confidence.
- Greater focus on **high-technology sectors and sustainable industries** can enhance long-term economic growth.

Source: TH

## AGRICULTURAL ENGINEERING FOR FUTURE-READY INDIAN FARMING

### Context

- Indian agriculture is increasingly shaped by climate variability, and rising input costs, making **agricultural engineering** a crucial driver of efficiency, sustainability, and resilience in the sector.

### What is Agricultural Engineering?

- Agricultural engineering involves the **application of engineering principles**, scientific knowledge, and technological innovations **to improve agricultural productivity** and sustainability.
- It is **distinct from agronomy (which deals with crop science)** in that its focus is on the systems, tools, and infrastructure that enable farming rather than the biology of crops themselves.
- It operates across **four broad domains**: farm mechanisation, soil and water conservation, post-harvest engineering, and precision/digital agriculture.

### Role of Agricultural Engineering in Modernising Indian Agriculture

- **Enhancing Farm Productivity**: Use of tractors, **seed drills, planters, harvesters, and laser land levellers** improves operational efficiency.
  - ♦ Farm mechanisation boosts productivity by 12–15%, reduces cultivation costs by 20%, and cuts sowing labour by 60–70% (NITI Aayog).
- **Water Resource Management**: Technologies such as **drip irrigation, sprinkler systems, and fertigation** ensure optimal water usage.
  - ♦ **Moisture sensors and automated irrigation systems** prevent overuse and improve crop health.
- **Strengthening Soil Management**: Engineering solutions such as bunding, terracing, drainage systems, and erosion control preserve soil fertility.

- **Reducing Post-Harvest Losses**: India loses agricultural produce worth over 1.5 lakh crore every year due to inefficiencies in storage, transportation, processing, and supply chain management.
  - ♦ Engineering solutions like cold chains can cut post-harvest wastage by up to 75%.
- **Promoting Precision and Smart Agriculture**: Use of drones, sensors, GPS-based machinery, and satellite data enables real-time farm monitoring.
  - ♦ Precision technologies improve fertiliser efficiency by 12–15% and reduce pesticide use by ~20% (ICAR, Economic Survey 2024–25).
- **Climate Resilience**: Precision irrigation, weather-indexed sensors, and drone-based crop monitoring help farmers adapt to erratic rainfall and heat stress.
  - ♦ **Conservation tillage equipment (zero-till drills, Happy Seeders)** reduces soil erosion, retains soil moisture, and curbs stubble burning — a triple environmental dividend.
  - ♦ **Advances in biotechnology**, including climate-resilient crop varieties, **genome editing, and biocontrol solutions**, complement precision agriculture by enhancing productivity, sustainability, and resilience.

### Challenges in Adoption of Agricultural Engineering

- **High Capital Costs**: Advanced machinery and smart technologies involve high initial investments, making them inaccessible for small and marginal farmers.
  - ♦ **Limited access to institutional credit and inadequate subsidy** coverage further restrict adoption.
- **Status of Agriculture Mechanization**: India's farm mechanisation level stands at approximately 40–45%, far behind the **US (95%), Brazil (75%), and China (57%)**.
  - ♦ As of 2024, India's overall farm **mechanisation stands at 47%**, with the highest mechanisation seen in seed-bed preparation (70%), while harvesting and threshing lag at 34%.
  - ♦ **Mechanisation is highly uneven** — it remains concentrated in Punjab, Haryana and other Green Revolution states
- **Low Technical Awareness**: Farmers often **lack the technical knowledge** required to operate and maintain modern equipment.
  - ♦ **Weak agricultural extension systems** limit the dissemination of best practices and innovations at the grassroots level.

- **Fragmented Landholdings:** About 84% of holdings are below 1 hectare — making individual machinery ownership economically unviable and CHC-based rental the only realistic model for most farmers.
- **Lack of land consolidation** hinders the efficient use of high-capacity machinery and precision technologies.
- **Infrastructural and Institutional Gaps:** Inadequate rural infrastructure, including storage facilities, cold chains, rural roads, and reliable electricity, constrains the benefits of technological adoption.
  - ♦ **Weak market linkages and supply chain inefficiencies** limit the full realisation of gains from improved production.

### Key Government Policies and Schemes

- **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY):** Promotes “More Crop Per Drop” — integrates drip, sprinkler, and micro-irrigation engineering into a national mission for water use efficiency.
- **Namo Drone Didi:** Targets deployment of 14,500 drones to women SHGs by 2025–26, primarily for pesticide and fertiliser spraying, with subsidies of up to 8 lakh or 80% cost — whichever is less.
- **PM Dhan-Dhaanya Krishi Yojana (Budget 2025–26):** Focuses mechanisation, irrigation, and post-harvest support on 100 low-productivity districts.
- **FARMS App:** The government’s FARMS (Farm Machinery Solutions) mobile app digitises CHC booking and connects farmers to over 26,000 service providers, reducing search costs and idle time.
- **Agricultural Engineering Directorates:** A Parliamentary Committee has recommended establishing Directorates of Agricultural Engineering in each state to implement mechanisation policy; currently such directorates exist only in Madhya Pradesh and Tamil Nadu.

### Way Ahead

- **Promote inclusive mechanisation** through **Expand Custom Hiring Centres (CHCs)** and **equipment rental models**. Encourage **Farmer Producer Organisations (FPOs)** to collectively own and manage farm equipment.
- **Last-Mile Delivery of Technology:** Improve agricultural extension services through digital platforms, mobile-based advisories, and on-field demonstrations.
  - ♦ Deploy trained “**agri-tech facilitators**” at the village level to assist farmers in using modern equipment.

- **Smallholder-Centric Innovations:** Promote development of **low-cost, small-scale, and region-specific** machinery suited for fragmented landholdings.
- **Institutional Support:** Ensure better convergence of schemes such as **Sub-Mission on Agricultural Mechanisation, Pradhan Mantri Krishi Sinchayee Yojana**, and **PM-KUSUM** for holistic farm development.

Source: TH

## FIRE SAFETY WEEK

### Context

- Union Ministry of Health & Family Welfare, in collaboration with all States/UTs is going to observe a **pan-India ‘Fire Safety Week’** from 4th to 10th May 2026 to **raise awareness** on the importance of prevention and mitigation of fire hazards.

### Fire Services in India

- **Fire Service is a State subject** and has been included as a Municipal function in the **XII Schedule** of the Constitution of India under Article 243(W).
  - ♦ As a result, there is **variation in the legal and institutional framework** across different states.
- **The National Building Code (NBC), 2016**, issued by the Bureau of Indian Standards, serves as the most comprehensive document on fire safety.
  - ♦ The Code deals specifically with fire and life safety and lays down detailed technical guidelines for building design, construction, and fire protection systems.
- **At the state level, individual Fire Service Acts** govern implementation and enforcement.
  - ♦ These laws empower fire departments to conduct inspections, issue No Objection Certificates (NOCs), and take action against violations.
- **The Disaster Management Act, 2005**, implemented by the National Disaster Management Authority, integrates fire incidents into the broader disaster management framework and strengthens preparedness and response mechanisms.
  - ♦ **Sector-specific laws** such as the Factories Act, 1948, Explosives Act, 1884, and Petroleum Act, 1934 regulate fire safety in industrial and hazardous environments.
- **Special provisions are made for high-rise buildings**, including the installation of fire lifts, refuge areas, and pressurized staircases to facilitate safe evacuation and firefighting operations.

### Institutional Framework

- **At the central level**, the Directorate General of Fire Services, Civil Defence & Home Guards functions under the **Ministry of Home Affairs** and is responsible for policy formulation, training, and modernization of fire services.
- **At the state level**, fire departments are responsible for the implementation of fire safety regulations, conducting inspections, issuing certifications, and responding to emergencies.

### Fire Safety Certification (NOC)

- Fire safety compliance is ensured through the issuance of a **Fire Safety Certificate or No Objection Certificate (NOC)**.
  - ♦ This certification is **mandatory** for high-rise buildings, commercial establishments, hospitals, schools, and other public buildings.
- The process involves submission of building plans, inspection by the fire department, verification of compliance with safety norms, and issuance of the certificate.
- **Periodic renewal** is required to ensure continued compliance.

### Challenges

- Despite a comprehensive framework, **fire safety in India faces several challenges**.
  - ♦ These include weak enforcement of building codes, the prevalence of unauthorized constructions, lack of regular inspections, inadequate firefighting infrastructure, and low levels of public awareness regarding fire safety practices.

### Way Forward

- There is a need to move towards a **uniform national fire safety law** to ensure consistency across states.
- **Strengthening enforcement mechanisms**, leveraging technology such as smart fire detection systems, and conducting regular safety audits and mock drills are essential steps.
- In addition, **improving the capacity of fire services** and enhancing public awareness can significantly reduce fire-related risks and improve overall safety.

Source: PIB

## NEWS IN SHORT

### ANDAMAN SETS TWO GUINNESS WORLD RECORDS

#### Context

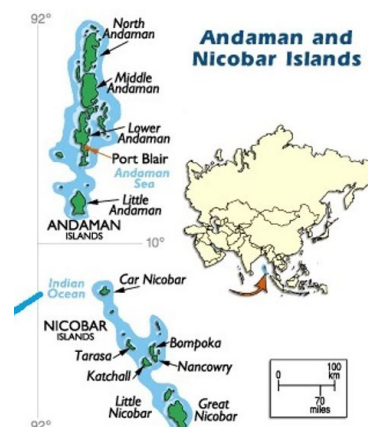
- The **Andaman and Nicobar Islands** created another Guinness World Record with the formation of the **tallest human stack underwater at Swaraj Dweep**, formerly known as **Havelock Island**.

#### About

- The feat comes a day after the Union Territory administration achieved a landmark by **unfurling the world's largest underwater national flag**, measuring approximately 60 by 40 metres.
- **Both the Guinness World Records** are expected to draw national and international attention and will boost the profile of the Andaman and Nicobar Islands as a hub for scuba diving and eco-tourism.

#### Andaman and Nicobar Islands

- **Location:** The islands are located 1,300 km southeast of the Indian mainland in the Bay of Bengal.
  - ♦ It extends from 6° 45' N to 13° 41' N and from 92° 12' E to 93° 57' E.
- This archipelago is composed of more than 500 big and small islands, which are divided into two distinct groups of islands – **The Andaman Islands and the Nicobar Islands**.
- **Duncan Passage** separates **South Andaman from Little Andaman**.
- **Ten Degree Channel** separates the **Andaman Islands from the Nicobar Islands**.
- **Six Degree Channel** separates the **Nicobar Islands from Sumatra (Indonesia)**.



### Facts Related to Andaman and Nicobar Islands

- The Southernmost Island is Great Nicobar whose **southernmost tip is only 150 km away from Sumatra, Indonesia.**
- The highest point is **Saddle Peak** in North Andaman (732 metre), **Mount Thullier** in Great Nicobar (642 metre).
- **Pandanus or Nicobar Breadfruit** is a rare fruit found in the Andaman and Nicobar islands.
- **Barren Island of the Andaman & Nicobar** Island group is the only active volcano not just in India but the whole of South Asia.
- **Indira Point in Great Nicobar** is the Southernmost point of India.
- **Great Nicobar Biosphere Reserve** declared in 1989 & recognised as UNESCO Man and Biosphere Reserve in 2013.
- The islands host one of the world's last uncontacted tribes, the **Sentinelese.**

Source: TH

## LIPULEKH PASS

### In News

- Nepal has objected to India's plan to conduct the **Kailash Mansarovar Yatra** through the Lipulekh pass, which Nepal considers disputed territory.



### Lipulekh Pass

- It is a high-altitude Himalayan pass in Pithoragarh district, Uttarakhand (India).
- It is located at an elevation of about 5,334 metres in the Kumaon region.
- It serves as a strategic **tri-junction connecting India, China (Tibet), and Nepal.**
- It is accessed from India through Dharchula.
- It is strategically and culturally important as a traditional route for Indian pilgrims on the **Kailash Mansarovar Yatra.**
- It also has historical commercial value, as it became the first India–China border trade post when trade opened in 1992.

### What is the Dispute?

- The tension between India and Nepal over the Lipulekh Pass is a complex boundary dispute rooted in the **1816 Treaty of Sugauli.**
- The Treaty was signed between the British East India Company and the Kingdom of Nepal and established the **Kali River (Mahakali) as Nepal's western border.**
- Nepal claims the river originates at Limpiyadhura, which would **place the Lipulekh and Kalapani regions within its territory.**
- Conversely, India maintains that the river begins at a lower point **near Kalapani** keeping the pass a strategic tri-junction between India, Nepal, and China within its **state of Uttarakhand.**

Source: TH

## APNOEA TEST

### Context

- The Supreme Court is examining the plea alleging **apnoea test is inconclusive to assess brain death.**

### About

- The apnoea test is a critical component in the **determination of brain death.**
- It assesses **whether the patient can initiate spontaneous breathing** when **carbon dioxide (CO<sub>2</sub>) levels rise.**
  - ♦ It is conducted **to confirm absence of respiratory drive** from the brainstem (specifically the medulla), which is essential in diagnosing brain death.
- Normally, **rising arterial CO<sub>2</sub> stimulates the respiratory centers** in the brainstem **to trigger breathing.**
- If no breathing occurs despite elevated CO<sub>2</sub>, it suggests loss of brainstem function.
- **Brain death** is the irreversible and complete loss of all functions of the brain, including the brainstem.
  - ♦ A person who is brain dead has no consciousness, no brainstem reflexes, and no ability to breathe independently, and is legally considered dead in many countries, including India.

Source: TH

## CELL BROADCAST ALERT SYSTEM

### In News

- India has launched the **SACHET emergency alert system** using indigenous cell broadcast technology to send instant disaster warnings.

### Cell Broadcast

- It is a **one-to-many mobile messaging** system that sends short alerts to all phones in a specific geographic area at the same time.
  - ♦ Unlike SMS, it does not target individual numbers, so it can deliver messages instantly even during network congestion.
- It was developed in the early **1990s by the European Telecommunications Standards Institute (ETSI)** and first demonstrated in 1997 in Paris, it is now widely used in over 30 countries.
- Cell Broadcast is used to send fast, reliable emergency alerts to people in specific areas during disasters like earthquakes, floods, cyclones, storms, heatwaves, and industrial accidents such as gas leaks or chemical incidents.
  - ♦ The primary objective is to shift **India's disaster management from a reactive to a proactive.**

### Advantages of cell broadcast system

- Cell Broadcast **does not use personal data and does not require phone numbers**, apps, or subscriptions.
- It delivers loud, attention-grabbing alerts that override normal phone activity, including silent or Do Not Disturb modes, and the message stays on screen until acknowledged.
- It is used very sparingly for life-threatening emergencies such as earthquakes, flash floods, landslides, dam breaks, and other major disasters, and is only sent to people in the affected area.

Source :IE

## FUGITIVE ECONOMIC OFFENDERS

### Context

- The Enforcement Directorate (ED) has declared 21 individuals as **Fugitive Economic Offenders (FEOs)**.

### What is a Fugitive Economic Offender (FEO)?

- Fugitives are individuals who are **accused or convicted of a crime** and **deliberately evade the legal process** by fleeing from the jurisdiction of the country where the offence was committed.
- They escape to avoid arrest, trial, conviction, or punishment by law enforcement authorities and their return requires a **legally recognised international mechanism**, known as extradition.
- Under the Fugitive Economic Offenders Act, 2018, they are defined as an individual against whom a court in India has issued an arrest warrant for a scheduled offence involving **₹100 crore or more**.

### Key Features of the Fugitive Economic Offenders Act, 2018

- **Confiscation of Property:** The Act empowers authorities to attach and confiscate properties of the offender located **both in India and abroad**.
  - ♦ The law also **covers benami properties and assets** indirectly controlled by the offender.
- **Bar on Civil Claims:** The Act disallows declared FEOs from initiating or defending any civil claims in Indian courts.
- **Special Court Mechanism:** The Act provides for adjudication of cases through special courts established under the Prevention of **Money Laundering Act, 2002**.

### Directorate of Enforcement (ED)

- **Origin:** It was established in **1956** with the formation of an **'Enforcement Unit'** under the aegis of the **Department of Economic Affairs** and handles Exchange Control Laws violations under **Foreign Exchange Regulation Act, 1947 (FERA 1947)**.
  - ♦ It was renamed as the **Enforcement Directorate in 1957**, with administrative control later shifting to the **Department of Revenue**.
- It is a **multi-disciplinary organization** mandated with **investigation of the offence of money laundering and violations of foreign exchange laws**.
- **The statutory functions of the Directorate** include enforcement of following Acts:
  - ♦ **The Prevention of Money Laundering Act, 2002 (PMLA),**
  - ♦ **The Foreign Exchange Management Act, 1999 (FEMA),**
  - ♦ **The Fugitive Economic Offenders Act, 2018 (FEOA).**

Source: IE

## UPI COMPLETES 10 GLORIOUS YEARS

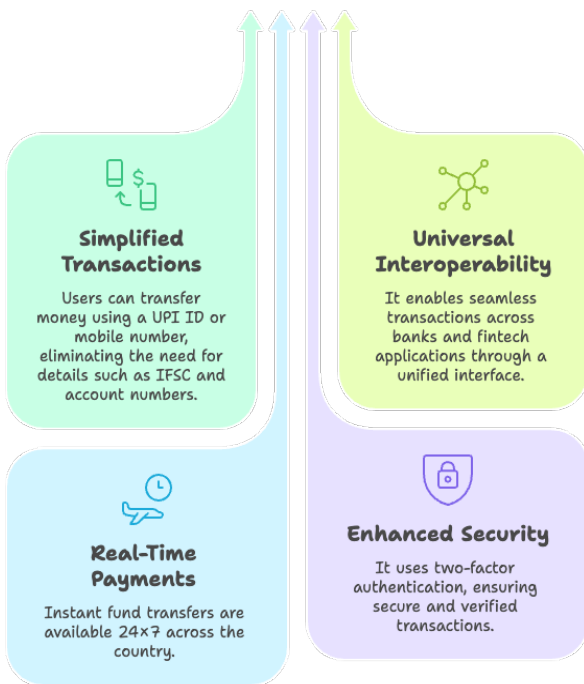
### Context

- The Unified Payments Interface has completed 10 years since its launch in April 2016.

### About UPI

- UPI is a real-time payment system that enables users to link multiple bank accounts into a single mobile application, allowing seamless fund transfers and merchant payments.

### Key Features of UPI



- **Singapore:** Linked with PayNow for seamless cross-border transfers.
- **France:** Accepted at merchant points, especially for Indian tourists.
- **Bhutan, Nepal, Sri Lanka, Mauritius, and Qatar:** Integrated with local payment systems for real-time transactions.

#### National Payments Corporation of India

- The NPCI is an umbrella organisation for retail payments and settlement systems in India.
- It was established as an initiative of the **Reserve Bank of India and the Indian Banks' Association** under the **Payment and Settlement Systems Act, 2007**.
- It operates as a not-for-profit company under **Section 8 of the Companies Act, 2013**.
- Key products include **Immediate Payment Service (IMPS), National Automated Clearing House (NACH), UPI, RuPay, and Aadhaar Enabled Payment System (AePS)**.

Source: PIB

- It was launched by the **National Payments Corporation of India** under the regulatory oversight of the **Reserve Bank of India**.
- The system integrates multiple banking features into a single interoperable platform, enabling instant transactions across banks and applications.

### GALAXEYE LAUNCHES MISSION DRISHTI

#### Context

- Indian space start-up GalaxEye has launched Mission Drishti, the world's first OptoSAR satellite, aboard SpaceX's Falcon 9 rocket from California in the United States.

#### Achievements of UPI

- **Transaction Growth:** Annual transactions increased from 2 crore in FY 2016–17 to 24,162 crore in FY 2025–26.
  - ♦ In 2025, UPI processed around 22,000 crore transactions, with a daily average of about 60 crore transactions.
- **Bank Participation:** The number of banks onboarded rose from 44 to 703, covering public, private, small finance, payments, and cooperative banks.
- **Global Leadership:** UPI accounts for around 49% of global real-time payment transactions (2024), as recognised by the **International Monetary Fund**.
  - ♦ UPI has been operationalised internationally, enabling cross-border payments and merchant acceptance in countries such as:
    - **United Arab Emirates:** Widely accepted at merchant locations and used by the Indian diaspora.

#### About

- **Mission Drishti** is an **Earth observation satellite** Weighing **190 kilograms**.
- It is the first satellite globally to integrate **Electro-Optical (EO) and Synthetic Aperture Radar (SAR) sensors** into a single operational platform, enabling all-weather, day-and-night imaging capabilities.
  - ♦ The satellite carries both a **multispectral camera and a SAR imager** for enhanced data analysis.
- Mission Drishti provides **high-resolution imaging, with future satellites** aiming for **sub-metre resolution**.
- **Significance:** It is a dual-use satellite, supporting both civilian and defence applications.
  - ♦ **Key applications include** agriculture monitoring, disaster management, maritime surveillance, and infrastructure mapping.

Source: AIR

## NAVAL ANTI-SHIP MISSILE – SHORT RANGE (NASM-SR)

### Context

- India successfully carried out the maiden launch of a Naval Anti-Ship Missile – Short Range (NASM-SR) from a Sea King helicopter off the Odisha coast in the Bay of Bengal.

### About the Test

- Two missiles were fired in quick succession from the same platform, validating operational salvo capability.
- All test parameters were confirmed using **radar, electro-optical systems, and telemetry instruments** deployed at the Integrated Test Range (ITR), Chandipur.

### About NASM-SR

### Key Features of NASM-SR



#### Propulsion

Solid-propellant system with an ejectable booster for launch and a long-burn sustainer for cruise phase.



#### Range and Flight Profile

Approximately 55 km range with a subsonic sea-skimming trajectory to evade radar detection



#### Guidance and Navigation

Uses a fibre-optic gyroscope-based Inertial Navigation System, radio altimeter, and Imaging Infra-Red (IIR) seeker for precise targeting.



#### Connectivity

Equipped with a high-bandwidth two-way data link enabling lock-on-after-launch and in-flight retargeting.



#### Control System

Features electro-mechanical actuators and jet vane control for high manoeuvrability.

Made with Napkin

- The Naval Anti-Ship Missile – Short Range is an **indigenously developed, air-launched anti-ship missile** designed for helicopter-based maritime strike operations.

- It is India's first indigenous helicopter-launched anti-ship missile, developed to replace legacy systems such as the **British-origin Sea Eagle missile**.
- It aimed to provide the Indian Navy with a **high-precision, indigenous strike capability against maritime targets**, strengthening defence self-reliance.
- The system has been developed by the Research Centre Imarat under the Defence Research and Development Organisation, in collaboration with other labs.
  - All critical subsystems, including seeker, avionics, navigation, control systems, and data link, are indigenously developed.

### Operational Capabilities

- Salvo Launch Capability:** Ability to launch multiple missiles in rapid succession from a single platform, enhancing strike saturation in combat scenarios.
- Waterline Hit Capability:** Precisely targets the ship's hull at the waterline, maximising flooding and structural damage for effective neutralisation.

Source: TH

## USE OF PROSOPIS JULIFLORA

### In News

- Prosopis juliflora is being repurposed for a bio-methanol project that converts biomass into clean fuel.

### Prosopis juliflora

- Prosopis juliflora is a **leguminous tree highly resistant to drought and salinity**
- It is an Mexican-origin and known as gando baval in Gujarat, vilayati keekar in north India and velikathan in Tamil
- It was **first introduced by the British in the 1920s to 'green' Delhi** and by the Gujarat forest department in 1961 to halt the encroaching salt desert in the Rann.

### Use for bio-methanol project

- A bio-methanol pilot project at Kandla (Deendayal) Port in Gujarat is converting the **invasive shrub Prosopis juliflora** into clean fuel as part of India's green port and net-zero goals under the Harit Sagar Guidelines (2023) and Maritime India Vision 2030.

- The ₹100 crore project, set for completion by March 2027, will produce about 5 tonnes of methanol per day from biomass.
- The process involves turning biomass into syngas through gasification, then converting it into **methanol using catalytic reactions**.
  - ♦ The fuel can be used in port operations and shipping, with potential cost advantages over synthetic alternatives like e-methanol.

**Importance**

- Methanol made from renewable feedstocks can cut a vessel's CO<sub>2</sub> emissions by up to 95% and NO<sub>x</sub> (nitrous oxides) by up to 80% while eliminating sulphur oxides and particulate matter.
- It also supports local biomass collection, reduces environmental damage from invasive species, and promotes sustainable port development.

Source :TH

