

# CURRENT Pulse



**MONTHLY**  
**MAGAZINE**

**MAY 01/2026 TO**

# Citizenship (Amendment) Rules, 2026

Ministry of Home Affairs Notified the Citizenship (Amendment) Rules, 2026 It aims to streamline processes concerning Overseas Citizen of India (OCI) cardholders and tightening passport norms for minors.



## Key Highlights

- **Dual Passport Ban for Minors:** A new proviso mandates that a **minor child cannot** at any time hold the passport of any other country while also holding the Indian passport.
  - Under the **2009 rules**, parents **registering** the birth of a **child born outside India** at an Indian consulate had to declare that the child **did not hold any other country's passport**.
- **e-OCI:** OCI status can now be issued in an electronic format (e-OCI) alongside traditional physical cards.
- **Mandatory Online OCI Applications:** OCI processes, including registration, are now completely online via a designated portal ([ociservices.gov.in](https://ociservices.gov.in)).
- **Digital Renunciation:** Streamlines **renunciation and cancellation** procedures of OCI, including mandatory surrender of physical cards and digital acknowledgment.
- **Fast Track Immigration (FTI) Consent:** OCI applicants may now **consent** to share **biometric data** for automatic registration under the **Fast Track Immigration Programme**.
- **Appellate Mechanism:** Revisions against OCI-related orders will now be handled by an authority **one rank higher** than the original deciding authority.

## About the Overseas Citizen of India (OCI) scheme

- Introduced via the **Citizenship (Amendment) Act, 2005** of the Citizenship Act, 1955.
  - In 2015, the Person of Indian Origin (PIO) card scheme was merged with it.
- **Eligibility:**
  - Who were citizens of India on 26th January, 1950 or there after or were eligible to become citizens of India on 26th January, 1950
  - **Exceptions:** Who is or had been a citizen of **Pakistan, Bangladesh** or such other country as the government may specify.
- **Benefits:**
  - **Multiple entry, multi-purpose lifelong visa** to visit India.
  - Exemption from reporting to Police authorities for any length of stay.
  - **Parity with NRIs** in financial, economic and educational fields **except** in the acquisition of agricultural or plantation properties.
- **Does not confer political rights** such as voting or holding constitutional posts.
- OCI is a privilege, not an entitlement, and is **liable to cancellation for violations of Indian law**.

# e-Court Mission

**Chief Justice of India declares Sikkim to be the first paperless state judiciary in the country.**



- A fully paperless judiciary is a system in which **all legal processes are done electronically** rather than through physical paper, using measures such as digital files, e-filing, online hearings, digital case tracking etc.
- Such digital transformation of courts is being undertaken under e-Courts Mission Mode Project.

## **e-Court Mission Mode Project**

- Pan-India initiative to **computerise and digitise the judiciary** for delivering efficient and accessible justice services.
- **Launch:** Launched in **2007** under the National e-Governance Plan (NeGP).
- **Implementing Authority:** Department of Justice under the guidance of the e-Committee of the Supreme Court of India.

# Four Parliamentary Committees reconstitutes

Lok Sabha Speaker reconstitutes four Parliamentary Committees for 2026–27 Parliamentary Committees are panels of Members of Parliament formed to scrutinise the functioning of the government and to uphold executive accountability.



- **Two types:**
  - **Standing Committees (Permanent and Regular):** Includes Financial Committees and 24 Departmentally Related Standing Committees (DRSCs).
  - **Ad hoc Committees** (Constituted for specific purpose and cease to exist on finishing their task): Includes Select and Joint Committees on Bills.

## Role of Parliamentary Committees

- **Continuous legislative oversight:** Act as a vigilant mechanism to monitor executive actions beyond the limited time of Parliament sessions.
- **Detailed scrutiny of policies and laws:** Enable clause-by-clause examination of bills, ensuring informed decision-making and reducing executive arbitrariness.
- **Performance evaluation of government bodies:** Committees such as the Committee on Public Undertakings assess efficiency and functioning of PSUs.

## Issues with Parliamentary Committees

- **Non-binding recommendations:** Committee reports are advisory in nature.
- **Short tenure and frequent reconstitution:** Most committees like DRSCs, have a tenure of only one year.
- **Delay in constitution of committees:** Disrupt their functioning and reduce efficiency.
- **Bypassing of committees:** Important laws (e.g., abrogation of Article 370, Chief Election Commissioner and Other Election Commissioners Bill, 2023) were passed without committee examination.
- **Low attendance and absenteeism:** Reduces effectiveness and depth of discussions.
- **Others:** Absence of expert advisers (Venkatachaliah Commission).

# 10 Years of UPI

**Demonstrating extraordinary scale and momentum, UPI has emerged as backbone of India's digital payments ecosystem.**

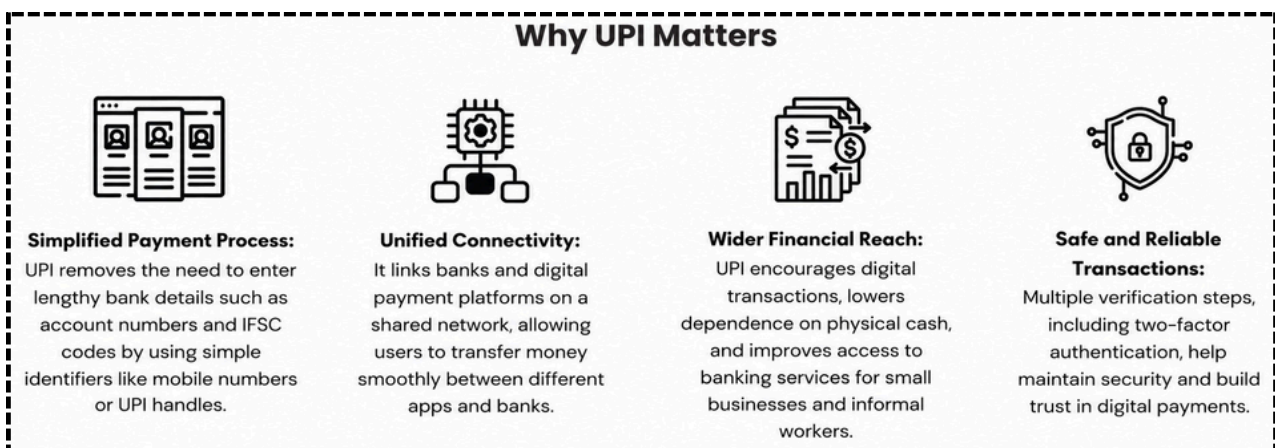


## About UPI

- **Launched:** April 2016 by National Payments Corporation of India (NPCI) under Regulatory Oversight of Reserve Bank of India (RBI).
- **Meaning:** System that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.

## Key Achievements of UPI

- **Annual Transaction Volume:** From 2 crore in FY 2016-17 to **24,162 crore in FY 2025-26**.
  - In 2025, it processed approximately 22,000 crore transactions, with a **daily average of about 60 crore transactions**.
- **Banks Onboarded on UPI:** Increased from **44 banks in FY 2016-17** to **703 banks by FY 2025-26** covering public sector, private, small finance, payments, cooperatives, etc.
- **Global Reach:** UPI accounts for nearly **49 % of world's real-time payment transaction volume (2024)**, a feat recognized by IMF.
  - Operationalised in Countries including **UAE, Singapore, France, Bhutan, Nepal, Sri Lanka, Mauritius, Qatar**.



## National Payments Corporation of India (NPCI)

- **About:** Umbrella organisation for **operating retail payments and settlement systems** in India.
- **Initiative of:** Reserve Bank of India (RBI) and Indian Banks' Association (IBA).
- **Legal Framework:** Payment and Settlement Systems Act, 2007.
- **Nature:** "Not for Profit" Company under Section 8 of Companies Act 2013.
- **Key Products offered by NPCI:** Immediate Payment Service (IMPS); National Automated Clearing House (NACH); Unified Payments Interface (UPI); RuPay; Aadhaar enabled Payment System (AePS); etc.

# FDI flows in india

**Reserve Bank of India (RBI) Points to Moderated Net FDI Despite Robust Inflows** As per RBI, gross FDI amounted to \$88.3 billion, while net FDI inflows were \$6.3 billion (April 2025- February 2026).



## About Foreign Direct Investment (FDI)

- **Meaning:** Investment through **equity instruments** by a person resident outside India in an unlisted Indian company; or in **10% or more of the post issue paid-up equity capital** on a **fully diluted basis** of a listed Indian company.
- **Regulation:** Consolidated FDI Policy (2020); Foreign Exchange Management (Non-Debt Instruments) Rules, 2019.
- **Gross and Net FDI**
  - **Gross FDI:** Total investment made by foreign entities directly into productive assets of India.
  - **Net FDI:** Difference between inward FDI flows and outward FDI flows (Repatriation by foreign firms + Outward FDI by Indian firms).

## Key Reasons for Lower Net FDI

- **Rising Repatriation:** Including **disinvestment by foreign investors limiting net inflows**; repatriation is a sign of **mature market** where investors can enter/exit smoothly.
- **Higher Overseas Direct Investment (ODI):** Overseas **expansion of domestic firms** and their integration into **global value chains**; **stronger corporate balance sheets, liberalised ODI framework (2022)**.
- **Geopolitical Headwinds:** Geopolitical strife and tightening financial conditions have cooled greenfield project announcements globally.

## Key Measures to Increase FDI in India

- **Sectoral Reforms:** Increased FDI caps in Sectors like Defence, Insurance, Pension, Coal Mining, Civil Aviation, etc.
  - Almost **90% of FDI is through automatic route**.
- **Improving Business Environment:** Business Reforms Action Plan (BRAP) 2024 rankings; Logistics Ease Across Different States (LEADS) 2024; Jan Vishwas (Amendment of Provisions) Act, 2023, etc.
- **Global Partnerships:** India-EU Free Trade Agreement (FTA); India-Oman Comprehensive Economic Partnership Agreement (CEPA); etc.

# FDI in Insurance Sector



Finance Ministry notifies FDI easing for foreign firms with up to 10% Chinese stake under FEMA It allows overseas entities having a Chinese shareholding of up to 10% to invest in India under the automatic route.

- In 2020, India had imposed curbs on FDI from nations with which it shares land borders.

## Other Change in FDI Rules:

- **100% FDI in Insurance:** In private insurance companies and intermediaries, such as brokers, without needing prior government approval (automatic route).
  - Foreign investment in the **Life Insurance Corporation of India (LIC)** remains strictly capped at **20%**.
- These changes were officially implemented through the **Foreign Exchange Management (Second Amendment) Rules, 2026**.
- **Significance:** Enhanced FDI inflows, ease of doing business, etc.

## Regulatory Framework for FDI in India

- It is done through the **Foreign Exchange Management Act (FEMA), 1999**.
  - **Administered by:** Reserve Bank of India.
  - **Nodal Body:** The Enforcement Directorate under Ministry of Finance.
  - **Objective of FEMA:**
    - Regulate and update foreign exchange laws.
    - Facilitate external trade, payments, and foreign investment.
    - Develop and maintain a stable foreign exchange market in India under Government policy.
- **Entry Routes for FDI in India:**
  - **Automatic route:** Does not require the prior approval of the Government.
  - **Government Route:** Foreign investment received under this route shall be in accordance with the conditions stipulated by the Government in its approval.

# Mission SAKSHAM

Reserve Bank of India (RBI) launched Mission SAKSHAM, a mission-mode, sector-wide, all-India capacity-building training initiative for UCBs (Urban Co-operative Banks).



- UCBs are subset of cooperative banks operating primarily in urban and semi-urban areas.

## About Mission SAKSHAM

- It aims to conduct a large number of training programmes (in-person and e-learning courses) for UCBs.
- Covers Various Target groups including Board Members, Senior Management, Heads of Risk, Compliance and Audit functions, and employees working in IT functions and other critical areas.
- Designed in consultation with Umbrella Organisation of UCBs and National / State Cooperative Federations.

# IS-PCMR

Ministry of Mines approved 58 companies under Incentive Scheme for Promotion of Critical Mineral Recycling (IS-PCMR as eligible for participation).



**Incentive Scheme for Promotion of Critical Mineral Recycling**

## About IS-PCMR

- Notified on October 2025, scheme is a part of National Critical Mineral Mission (NCMM).
- **Ministry:** Ministry of Mines
- **Aim:** Develop domestic recycling capacity for critical minerals reducing import dependence, and supporting clean energy and advanced manufacturing sectors.
- **Tenure:** 6 years (from FY 2025-26 till FY 2030-31).
- **Financial Outlay:** ₹1,500 crore.
- **Eligible Feedstock:** E-waste, Lithium Ion Battery (LIB) scrap, and scrap other than e-waste & LIB scrap e.g. catalytic convertors in end-of-life vehicles.

# Windfall Tax

Centre cuts windfall tax on diesel & jet fuel exports in line with the price fluctuations in the international market due to the West Asia war.



## About Windfall Tax

- It is a **government levy on extraordinary profits** earned by companies or individuals due to **unexpected circumstances**.
- This occurs when **global events**, such as geopolitical tensions or commodity **price surges**, lead to **windfall gains for certain sectors** (E.g. oil and gas).
- **Objective:** To capture a portion of these unexpected gains to fund public projects, reduce deficits, or redistribute wealth.

# Gig workers

Karnataka operationalised a grievance redressal mechanism for gig workers and Telangana becomes fifth state to adopt gig workers legislation, following Karnataka, Rajasthan, Bihar and Jharkhand.



## About Gig workers

- **Definition:** The Code on Social Security, 2020, defines a gig worker as a person who works outside a traditional employer-employee relationship.
- **Types:** Platform and Non platform-based workers.
  - **Platform workers** are those whose work is based on online apps or digital platforms. E.g., Ola, Zomato, Urban Company, etc.
  - **Non-platform gig workers** are generally casual wage workers and own account workers in the conventional sectors, working part-time or full time.

# Annual report of Directorate of Enforcement (ED)



**Assets attached in money laundering cases rose 23-fold between 2005-14 and 2014-24.**

- Money Laundering covers any process or activity connected with the proceeds of crime and is a **process** that typically follows three stages to finally release laundered funds into the legal financial system:
- **Placement** (i.e. moving the funds from direct association with the crime)
- **Layering** (i.e. disguising the trail to foil pursuit)
- **Integration** (i.e. making the money available to the criminal from what seem to be legitimate sources)

## Other Key findings of Annual Report

- **Performance under Prevention of Money-Laundering Act, 2002 (PMLA): ED maintained a formidable conviction rate** in money laundering cases is approx. 93–94%.
- **Properties worth ₹2,178.34 crore** have been confiscated under the **Fugitive Economic Offenders Act, 2018**.

## Impediments faced by ED in completion of PMLA trials

- **Requirement of prosecution sanction** under Section 197 CrPC (now Section 218 BNSS).
- **Limited geographical spread** of Special Courts, which are predominantly located in metropolitan and Tier-I cities.
- **Complexity of financial investigations** which requires detailed forensic analysis that takes time to record and prove during trial.
- **Requests to foreign jurisdictions face delays** due to legal complexities and some countries' reluctance or refusal to share information.

## Directorate of Enforcement (ED)

- **Genesis:** It was established on **1st May 1956** as "Enforcement Unit" under the Department of Economic Affairs for enforcing **Foreign Exchange Regulation Act, 1947 (FERA)**.
  - Presently, it operates under the **Department of Revenue, Ministry of Finance**.
- **HQ:** New Delhi.
- **ED is entrusted** with the implementation of the following legislations:
  - The Foreign Exchange Regulation Act, 1973
  - The Foreign Exchange Management Act, 1999
  - The Prevention of Money Laundering Act, 2002
  - Fugitive Economic Offenders Act, 2018

# Critical Minerals Imports of India

A recent study by Institute for Energy Economics and Financial Analysis highlights that India's critical mineral imports remain heavily concentrated in a few countries.



## Highlights of report

- **Key Mineral Suppliers of India:**
  - **Cobalt:** Finland
  - **Copper:** Tanzania, Japan
  - **Lithium:** Ireland, Chile, China
  - **Graphite:** China
  - **Nickel:** Australia, Belgium
- **Import Dependence:** India is **100% import-dependent** for lithium, cobalt, and nickel.
- Chile has emerged as **India's largest critical mineral supplier (FY19–FY25)**, mainly due to **copper ore** and **lithium-linked imports**.
- **China's Dominance:** In global **graphite** production, **cobalt** processing, and battery supply chains, creating strategic vulnerabilities.

# Fugitive Economic Offender (FEO)

The Enforcement Directorate (ED) has declared 21 people as fugitive economic offenders (FEOs) over the past seven years, according to its annual report.



## About FEO:

- **Meaning:** FEO is an individual against whom an arrest warrant has been issued for committing scheduled economic offenses exceeding ₹100 crore, who has left India to avoid prosecution or refuses to return to face trial.
- It is defined under the **Fugitive Economic Offenders Act, 2018**.
- Some of the **offences listed in the act** are:
  - Counterfeiting government stamps or currency.
  - Cheque dishonour.
  - Money laundering.
  - Transactions defrauding creditors.

# IMF Working Paper on MSMEs



It compared the productivity of MSMEs in states that have undertaken digitalisation reforms.

- States that implemented more of these reforms recorded **higher total factor productivity**.
  - **Total Factor Productivity** is a measure of an economy's ability to generate income from inputs- to do more with less.

## Significance of MSMEs

- **Economic:** Contribute ~30% to India's GDP and account for ~35% of the country's manufacturing output.
- **Employment Generation:** responsible for ~60% of total employment in India.
- **Export Promotion:** account for ~45% of India's total exports (in 2023-24).
- **Rural Revitalization:** Agri-based and rural MSMEs strengthen village economies and curb distress-driven migration by creating local opportunities in agro-processing.
- **Women Empowerment:** Women-led MSMEs drive gender-inclusive growth and social mobility.

## Government Initiatives for MSMEs:

- **PM Vishwakarma Scheme:** to enhance the quality and reach of products and services by artisans and craftspeople, integrating them into domestic and global value chains.
- **Prime Minister's Employment Generation Programme (PMEGP):** to provide employment opportunities through establishment of micro-enterprises in the non-farm sector.
- **Scheme of Fund for Regeneration of Traditional Industries (SFURTI):** to organize traditional artisans into collectives or clusters.
- **Public Procurement Policy for Micro and Small Enterprises:** mandates that 25% of annual procurement by Central Ministries and Central Public Sector Enterprises (CPSEs) must be sourced from MSEs.

# Key Takeaways on Santa Marta Conference

Key Takeaways from First Conference On Transitioning Away From Fossil Fuels, co-hosted by Colombia and the Netherlands in Santa Marta, Columbia.



## Key Takeaways

- **Institutional continuity:** Countries agreed to convene **second conference** in **2027**, co-hosted by **Tuvalu and Ireland**.
- **New coordination architecture:** Bring together stakeholders working on different aspects of transition, while linking 30th Conference of Parties to UNFCCC or COP30 processes.
- **Workstreams Launched:** Three tracks on **transition roadmaps, finance reforms, and producer–consumer coordination**.
- **Integration with global climate processes:** Conference outcomes to feed into **COP30 Presidency roadmap**, contribute to **second Global Stocktake** under Paris Agreement.
- **Science Panel for the Global Energy Transition: Launched** to guide countries with **evidence-based pathways** aligned with **1.5°C target**.

# Tanzania

Recently, 5<sup>th</sup> India–Tanzania Joint Trade Committee Meeting was held to strengthen bilateral economic cooperation.

**Tanzania (Capital: Dodoma)**

## Political features

- **Location:** Largest East African country situated just south of Equator.
- **Bordering Countries:** Kenya and Uganda to North; Burundi, Democratic Republic of Congo and Rwanda to the West; Zambia, Malawi and Mozambique to the South.
- **Bordering water bodies:** Lake Victoria in North; Indian Ocean in the East; Lake Tanganyika in West; and Lake Nyasa in Southwest.

## Geographical features

- **Major lakes:** Lake Tanganyika (World's second deepest lake).
- **Highest Peak:** Mountain Kilimanjaro (Dormant volcano and highest mountain in Africa).
- **Major Rivers:** Ruvuma, Rufiji etc.
- **Islands:** Zanzibar, Pemba and Mafia.



# ILO Article 24

Tea plantation workers in West Bengal invoked Article 24 of the International Labour Organisation (ILO) Constitution, alleging labour rights violations and poor working conditions in tea gardens.



- **Article 24** allows workers' or employers' organisations to file a representation against a member state for non-compliance with ratified labour conventions.

## About International Labour Organisation (ILO)

- **Established:** 1919 under the Treaty of Versailles
- **Objective:** Promote labour rights, decent work and social justice
- **Headquarters:** Geneva, Switzerland
- **Members:** 187 member states (**India** is a founding member)
- **Other key information:**
  - **Tripartite structure** involving governments, employers and workers.
  - **First specialised agency** of the United Nations (1946)
  - **Awarded the Nobel Peace Prize (1969)** for promoting social justice and workers' rights.

# Asian Development Bank

ADB launches \$70 billion plan for energy, digital infrastructure in Asia-Pacific



- It includes the **Pan Asia Power Grid Initiative** and the **Asia-Pacific Digital Highway**, connecting economies through energy and technology.

## About Asian Development Bank (ADB)

- **Overview:** It is a **multilateral development bank** that supports sustainable, inclusive, and resilient growth across the Asia-Pacific.
- **Present Members:** From 31 members at its establishment in 1966 to **69 members**, of which 50 are from within Asia and the Pacific and 19 outside.
- **Key Shareholders:** Japan and the USA (each with 15.6% of total shares), China, India, and Australia. (As of 31 December 2024)
- **HQ:** Manila, Philippines.

# Super El Niño

Forecasts of a potential “super” El Niño in late 2026 have raised concerns over intensified heatwaves, droughts, floods, and extreme weather events.



## About Super El Niño

- An exceptionally strong El Niño event in which sea surface temperatures in the central and eastern equatorial Pacific rise by more than 2°C above normal for a sustained period.
- **El Niño** is a warm phase of ENSO (**El Niño–Southern Oscillation**) marked by abnormal warming of the central and eastern equatorial Pacific Ocean, often weakening the Indian monsoon.

# Prosopis juliflora

**Prosopis juliflora, to be used as feedstock for India's first green methanol production plant, designed to fuel ocean-going ships.**



## About Prosopis juliflora

- **Leguminous tree highly resistant to drought and salinity**, recognized as one of the **world's most dominant invasive species**.
- Native to **Mexico**, first introduced by British in 1920s to 'green' Delhi and by Gujarat forest department in 1961.
- **Ecological Impacts:**
  - It is a **Phreatophyte**, a deep-rooted plant that absorbs water from the **phreatic zone below water table**, exacerbating **hydrological drought**.
  - Reduces **native plant diversity**, posing a serious threat to **Phyto diversity**.

# Whitley Award

**Barkha Subba and Parveen Shaikh won the Whitley Awards for protecting the Himalayan salamander and Indian skimmer habitats.**



## About Whitley Award

- Given by the Whitley Fund for Nature, a UK-based nature conservation charity.
- **Purpose:** Supports **conservationists** in protecting wildlife and ecosystems.
- **Recognition:** Known as the **Green Oscars**, awarded each year.

## About Himalayan salamander

- It is a rare, **semi-aquatic amphibian** found in the **Eastern Himalaya**.
  - Endemic to India, Nepal and Bhutan, also found in Myanmar, Thailand, etc.
- Classified as **vulnerable** by IUCN.
- Salamanders return to their natal site to breed and lay eggs, a process known as philopatry.

## About Indian Skimmer

- It is one of the three **bird species** that belong to the **skimmer genus Rynchops**.
- Classified as **Endangered** by IUCN.
- India is home to more than 90% of the global population, especially in **Chambal River**.
- Known for their **bright orange bills**, they skim the surface of rivers by inches to catch fish. They nest on sandbars, mid river islands that appear seasonally

# Microplastic Pollution from Landfills



A recent study by Council of Scientific & Industrial Research-National Environmental Engineering Research Institute (CSIR-NEERI) warns that India's decades-old garbage dumps are emerging as major sources of microplastic pollution.

- **Microplastics** are synthetic plastic particles **smaller than 5 mm** formed from the breakdown of larger plastics or manufactured directly for industrial use.
  - **Types:**
    - **Primary:** Intentionally manufactured small plastics (e.g., **microbeads**, industrial pellets).
    - **Secondary:** Generated from **degradation** of larger plastic waste due to sunlight, heat, and physical abrasion.

## Key Findings of the Study

- **Dispersion:** **Landfill leachate** and **seasonal winds** transport microplastics into groundwater, farmlands (soil), urban areas, and coastal ecosystems.
  - These tiny, toxic particles pose a direct threat to **local agriculture, drinking water, food webs, and human health.**
- **Primary Culprits:** **Polyethylene** and **polypropylene** are the most frequently identified plastics, which dangerously pollute soils and compost used for growing food.
- **Policy Gap:** Existing initiatives such as the Swachh Bharat Mission **lack dedicated mechanisms for monitoring microplastic emissions** during landfill remediation.
- **Governance Deficit:** Absence of **India-specific standardised monitoring frameworks** hinders effective regulation and evidence-based waste management.

## Challenges of Landfills Management in India

- **Waste Management Deficit:** Poor waste segregation, inadequate landfill infrastructure, etc. due to **weak financial and technological capacities of Municipal bodies** hinder scientific waste processing.
- **Urban Sustainability Challenge:** Rapid urbanisation and **rising municipal waste generation** (nearly **1.62 lakh tonnes** daily) are placing immense pressure on existing landfill capacities.

## Initiatives to deal with Legacy Landfills in India

- **Swachh Bharat Mission:** Focuses on scientific waste management **and legacy landfill remediation under SBM-U 2.0.**
  - Under the **Dumpsite Remediation Accelerator Programme**, **2,479 legacy dumpsites** have been identified and **over 61% of legacy waste** has already been processed.
- **Waste Management Rules:** Solid Waste Management Rules (2026), Plastic Waste Management Rules (2016), and E-Waste Management Rules (2022) promote segregation, recycling, and **Extended Producer Responsibility (EPR).**
- **GOBARdhan Schem:** Converts biodegradable waste into biogas and organic manure to reduce landfill burden.
- **Legacy Waste Biomining:** Municipal bodies are reclaiming old dumpsites through biomining and bioremediation.
- **Single-Use Plastic Ban (2022):** Prohibits identified single-use plastic items to curb plastic pollution.

# E-Waste Management in India

At the Paryavaran NITI Manthan, policymakers flagged gaps in Extended Producer Responsibility (EPR) implementation as India loses recoverable e-waste materials worth nearly ₹51,000 crore.



## Issues related to E-Waste Management in India

- **Weak Enforcement:** Allows spurious and non-operational recyclers to distort EPR markets through fraudulent certification.
- **Informalization:** India's formal recycling rate is 10%, compared to global average (~22%), and USA (56%).
- **Narrow focus:** EPR coverage in E-waste recycling is limited to Gold, Copper, Iron, and Aluminum.
- **Other issues:** Low skills; accessibility of advanced recycling processes; collection inefficiencies; low consumer awareness etc.

## Government Measures for E-waste management

- E-Waste (Management) Rules, 2022: Strengthened EPR framework for producers and recyclers.
  - EPR E-Waste portal & Trading Platform: Developed by CPCB for registration, tracking and monitoring of e-waste, along with EPR certificate trading mechanisms.
- Battery Waste Management Rules (BWMR), 2022: Mandates collection, recycling, and refurbishment targets, prohibiting landfill disposal and incineration.
- National Critical Mineral Mission (NCMM): Aims to develop domestic recycling capacity for critical minerals from lithium-ion batteries, e-waste and industrial scrap.

## Way Forward

- GST-linked verification: To improve traceability and reduce discrepancies in recycling claims.
- Expanding EPR coverage: To other high-value metals and critical minerals.
- Promote Advanced Recycling Technologies: Like hydrometallurgy, AI-based material recovery systems etc.
- Other measures: Increase authorised collection centres; integrate informal workers through training, certification and financial incentives; etc.

## Status of India's E-Waste

- India is 3rd largest e-waste generator globally.
- E-waste generation increased from ~2.76 MMT (2020) to ~6.19 MMT (2024)
  - Projected to reach 14 MMT by 2030.

# Bongos

Four mountain bongos arrived in Kenya on their way to their native forests after years in the care of a zoo in the Czech Republic.



## About Bongo Antelope (*Tragelaphus eurycerus*)

- **Characteristics:**
  - World's largest forest antelope.
  - Recognised by its **reddish-brown body with white stripes and long spiral horns.**
  - **Two subspecies:** Western Bongo and Eastern (Mountain) Bongo.
- **Habitat:** Dense rainforests and forest-savanna ecosystems, in Central and East African forests.
- **IUCN Status:** Western Bongo (Near Threatened); Eastern Bongo (Critically Endangered).
- **Threats:** Habitat loss and poaching.

# Atacama Desert

Light pollution threatens world's darkest skies in Atacama Desert impacting Astronomical Observations.



## About Atacama Desert

- **Location:** Northern Chile, South America.
  - **Coastal non-polar hyper arid desert** running North to South between **Pacific Ocean (west) and Andes Range (east).**
- **Aridity:** Caused by **Humboldt Current (cold ocean current)** flowing off Pacific Coast.
- **Features:** salt pans, alluvial fans, dunes, and volcanic cones, supports astronomical observations due to clear skies.
- **Major Astronomical Observatories in Atacama:** Atacama Large Millimeter Array; Paranal Observatory, etc.

# Vehicle-to-Everything (V2X) Communication



TRAI releases Consultation Paper on Regulatory Framework for Vehicle-to-Everything (V2X) Communication It identifies Cellular-V2X (C-V2X) as the preferred technology, leveraging existing 4G and 5G networks.

- V2X relies on two main wireless technologies: **Dedicated Short-Range Communication (DSRC)** and **C-V2X**.
  - DSRC uses **Wi-Fi** whereas **C-V2X** is a more comprehensive standard, leveraging **cellular networks**.

## About V2X Communication

- V2X refers to a **communication system** where a **vehicle exchanges real-time information (E.g. position, speed)** with other vehicles, infrastructure, pedestrians, and networks using short-range and/ or direct communications.
- It is a core component of **Intelligent Transport Systems** and connected mobility.

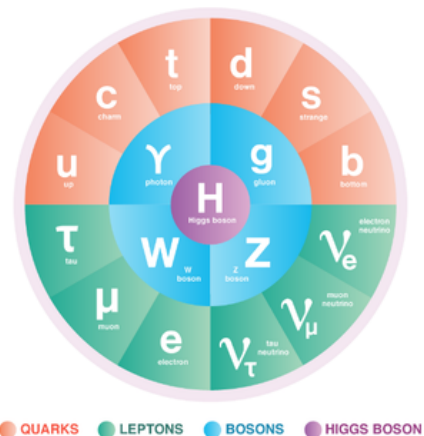
## Significance of V2X

- **Road Safety:** Enables safety applications like collision avoidance, intersection management, and emergency vehicle warning systems, reducing accidents and fatalities.
  - **SDG 3.6** aims to **halve** global road traffic deaths and injuries **by 2030**.
  - E.g. **Forward Collision Warning System (USA)** showed a 9% decrease in rate of forward collision conflicts.
- **Traffic Efficiency:** Optimizes traffic flow and reduces congestion through smart signal coordination.
- **Autonomous Vehicle Support:** Enhances decision-making for self-driving systems with external data inputs.
- **Environmental Benefits:** Lowers fuel consumption and emissions contributing to UN SDGs.
- **5G & Smart City Integration:** Enables low-latency communication for connected urban mobility systems.

## Challenges of V2X

- **Standardization:** Lack of unified communication protocols hinders interoperability and large-scale adoption.
- **Security & Privacy:** Vulnerability to cyberattacks necessitates strong encryption and data protection mechanisms.
- **Infrastructure Investment:** High costs of upgrading traffic systems and deploying roadside units.
- **Regulatory & Legal Issues:** Unclear laws on liability, data ownership, and insurance.

# Standard Model of Particle Physics



New study finds the Standard Model of Particle Physics remains accurate, with no discrepancy.

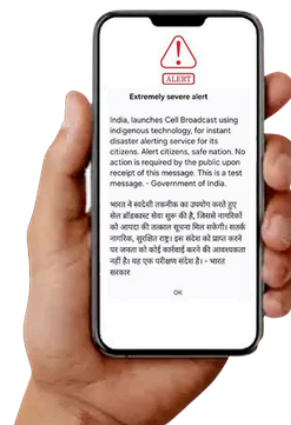
- Refined theoretical calculations have resolved the **muon** (subatomic particle similar to electron but heavier) "anomaly" which challenged the Standard Model.

## About Standard Model of Particle Physics

- **Basic building blocks of matter:** The Standard Model **classifies** all visible matter using **quarks** (which build protons and neutrons) and **leptons** (such as electrons).
- **Fundamental Forces:** It describes **how three of nature's forces** (electromagnetic, strong nuclear, and weak nuclear) **govern subatomic behavior**.
- **Force-carrying particles:** It explains **interactions** through **bosons** (which act as force carriers), such as photons (electromagnetism), W and Z bosons (weak force), and gluons (strong force).

# Cell Broadcast System

Ministry of Communications launched Cell Broadcast System (CBS).



## About CBS

- It is a **telecom-enabled public warning system** that enables authorities to **broadcast simultaneous, geo-targeted alerts** to mobile devices within a defined area.
  - It is integrated with the CAP-based **SACHET platform**.
- It is an **indigenous technology** developed by the **Centre for Development of Telematics (C-DOT)** under the Department of Telecommunications (DoT), in collaboration with the National Disaster Management Authority (NDMA) and the Ministry of Home Affairs (MHA)
- It overcomes the limitations of traditional SMS-based systems, ensuring that critical information can be disseminated quickly and efficiently to large populations within targeted areas.

# Satellite Mission Drishti Launched

World's First OptoSAR Satellite Mission Drishti Launched Developed by Indian Space Start-up GalaxEye, launched aboard SpaceX's Falcon 9 rocket, it is India's largest privately built Earth Observation satellite.



## About Mission Drishti

- **Uses OptoSAR:** It is the first to combine Multispectral Imaging (MSI) and Synthetic Aperture Radar (SAR) on a single platform.
- **Orbit:** Sun-synchronous Low Earth Orbit (LEO).
  - LEO orbits around Earth at an altitude of about 160 km to 2,000 km.
- **Capability:** All-weather, day-night, intuitive imaging capabilities.
  - It will promote space-based surveillance.
- **Resolution:** Highest among Indian private players.

## About OptoSAR

- It is an end-to-end system of hardware and software designed to work in perfect harmony.
- **Technology Used:** SyncFusion Stack
- **Addresses Limitations of Earlier Satellites:**
  - **Optical sensors:** Deliver clear, intuitive images, but are limited by clouds and darkness.
  - **SAR:** Can see through cloud cover and operate day and night, but imagery is harder to interpret.

## Achievements of Indian Space Start-ups

- **Agnikul Cosmos:** Built the world's first 3-D printed rocket engine.
- **Skyroot:** Tested India's first privately built rocket.
- **InspeCity:** Develops satellite life-extension technologies and serves as India's first fully vertically integrated platform for in-orbit servicing.

# Emerging Defence Technologies



**Defence Minister pushes for edge in emerging high-tech technologies** At North Tech Symposium, Defence Minister stressed the urgent need for India to accelerate innovation in cutting-edge defence technologies in emerging domains.

## Emerging domains of Defense Technology

- **Directed Energy Weapons (DEWs):** Ranged weapons that use concentrated **electromagnetic energy** like lasers, microwaves, or particle beams, rather than kinetic energy.
- **Hypersonic weapons Systems:** Include Hypersonic Glide Vehicles (HGVs) and Hypersonic Cruise Missiles (HCMs) operating at speeds exceeding Mach 5 and altering their flight paths mid-course which makes their interception extremely difficult.
  - E.g., Russia's Oreshnik Hypersonic missile.
- **Artificial Intelligence (AI):** For cyber defence (detecting anomalies and countering intrusions), predictive maintenance (assessing aircraft component health to reduce downtime), and sophisticated training simulations.
- **Quantum Technologies:**
  - **Quantum computers** to optimize complex military logistics and supply chains.
  - **Quantum Key Distribution (QKD)** to enable secure, un-hackable communications with instant detection of interception.
  - **Quantum sensors** to enhance detection of submarines, sea mines, stealth vehicles, and underground bunkers.

## Government Initiatives for emerging Defence Technology

- **iDEX (Innovations for Defence Excellence):** To foster innovation & indigenisation in defence and aerospace.
- **ADITI (Acing Development of Innovative Technologies with iDEX):** To develop 30 critical deep-tech and strategic technologies to reduce import dependence.
- **Technology Development Fund (TDF) Scheme:** It funds industries, MSMEs, startups, and academic institutions to develop indigenous defence and dual-use technologies.
- **Institutional Framework for AI:** Through Defence AI Council (DAIC) and Defence AI Project Agency (DAIPA).
- **Hypersonic Weapons Development:** E.g., 'Dhvani' Hypersonic Glide Vehicle (indigenous model).

# Space Warfare



**Dual-use Satellites Blurring Lines of Modern Space War**  
Cyber-attacks impacting satellite networks and GPS spoofing incidents brought to focus the issues concerning dual use satellites and modern space warfare.

## Space in Modern Warfare

- **Meaning:** Refers to **military conflict** conducted into or from outer space, aimed at disrupting or destroying satellites and other space assets.
  - It involves **Kinetic** (Anti- satellite weapons) and **Non-kinetic weapons** (cyber warfare and electromagnetic pulses (EMPs)).

## Consequences of Space Warfare

- **Swiftiness and Scale:** Space amplifies weapon platforms by **increasing velocities** for missile trajectories, thus, enhancing speed and accuracy, potentially escalating conflicts.
- **Military Actions:** Impair military operations like distant **Drone operations**, **Anti-Access and Area Denial (A2/AD)**, and **Manned Unmanned Teaming (MUMT) missions**, etc.
- **Debris:** A minuscule fragment of wreckage from an obliterated satellite can harm spacecraft like International Space Station.
- **Disruption of Essential Services:** Including GPS Systems, Banking and power grids causing blackouts, etc.

## Key Measures Preventing Warfare in Space

- **Outer Space Treaty (1967):** Prohibits deployment of weapons of mass destruction into space.
- **The Liability Convention (1972):** Expands upon Article 7 of Outer Space Treaty, establishing absolute liability for launching states for damages caused.
- **The Moon Agreement (1984):** Moon and other celestial bodies be used **exclusively for peaceful purposes**.
- **Key Indian Initiatives:** **Defence Space Agency (DSA)** to protect Indian interests in outer space; **Guidelines for Space Cyber Security** by Indian Computer Emergency Response Team (CERT-In), etc.

## Space in Contemporary Warfare: Key Dimensions



**Space as a Key Strategic Frontier:** Outer space has emerged as a critical strategic domain. It underpins navigation, secure communication, remote operations, surveillance, and information warfare.



**Expansion of Anti-Satellite (ASAT) Capabilities:** Several nations, including China, the United States, Russia, and India, have developed and demonstrated ASAT technology. India carried out its ASAT mission through Mission Shakti in 2019.



**Military and Civilian Utility of Satellites:** Satellites have both civilian and defence applications. They are vital for missile defence, reconnaissance, intelligence gathering, and robust communication networks.

# Sodium and Fluoride-Ion Batteries



Alternatives 'Beyond-Lithium' Batteries Emerge amid Rising Sectoral Demands Battery alternatives like Sodium and Fluoride ion batteries offer huge potential apart from lithium ion batteries.

## About Sodium-Ion Batteries

- **Meaning:** Function similarly to lithium-ion batteries but **use sodium- ions (Na<sup>+</sup>) as charge carriers**.
  - **Rechargeable battery** that generates electricity by moving ions between two electrodes: a positive electrode (cathode) and a negative electrode (anode).
- **Benefits Offered:**
  - **Availability:** Sodium being abundant, inexpensive, and globally available.
  - **Safer:** Lower risk of catching fire compared to Lithium batteries when operated in extreme conditions.
  - **Transportation and storage:** Typically safer compared to lithium.

## About Fluoride-Ion Batteries

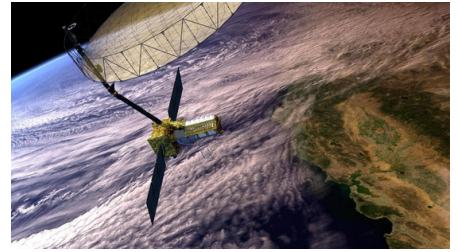
- **Meaning:** Rechargeable system in which fluoride ions (anions) serve as **mobile charge carriers between electrodes during cycling**.
- **Benefits Offered:**
  - **High Energy Densities:** Could deliver more than 2000Wh/kg (compared 500 Wh/kg for Lithium ion batteries).
  - **Availability:** Fluorine is **far more abundant than lithium** with a larger supply chain.

## Lithium-Ion Batteries

- **About:** **Rechargeable battery**, widely used in **portable electronics and electrified transportation**.
  - **Anode and cathode** store lithium, **electrolyte** carries positively charged lithium ions from anode to cathode and vice versa through separator.
- **Benefits:** **Higher energy densities** compared to lead-acid batteries (75 Wh/kg) and sodium ion batteries (100-160 Wh/kg); low maintenance; low self-discharge rate (1.5-2% per month); does not contain toxic lead or cadmium.
- **Constraints:** High import dependence and supply chain disruptions issues(depends on scarce lithium, graphite, cobalt, nickel), slow charging rate, etc.

# NISAR

NASA's NISAR satellite observations revealed rapid land subsidence in Mexico City due to excessive groundwater extraction.

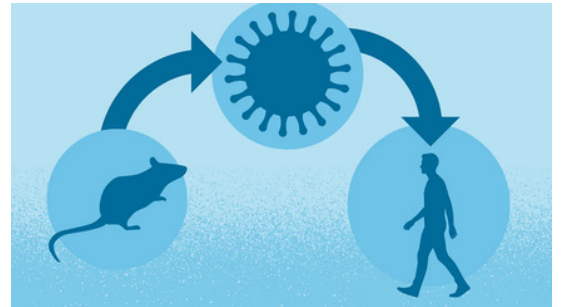


## About NISAR (NASA-ISRO Synthetic Aperture Radar) Satellite

- **Nature:** First joint Earth observation satellite mission between ISRO and NASA.
- **Launch Vehicle:** GSLV-F16 (GSLV Mk-II)
- **Orbit:** Sun-synchronous polar orbit
- **Mission Life:** 5 years
- **Dual Bands:** First satellite to use both L-band and S-band Synthetic Aperture Radar (SAR) from a single platform **Unique Feature.**
- **Imaging Capability:**
  - Fully polarimetric and interferometric data
  - ~240 km swath coverage
  - Revisits Earth every 12 days
- **Technique Used:** Advanced SweepSAR technology for high-resolution wide-swath imaging.

# Hantavirus

Hantavirus outbreak has trapped 150 people on Dutch flagged cruise ship MV Hondius leaving 3 persons dead.



## About Hantavirus

- Zoonotic viruses carried by rodents (rats and mice) that can cause severe disease in humans.
- **Transmission:** People usually get infected through contact with infected rodents or their urine, droppings or saliva.
- It causes 2 types of syndromes:
  - **Hantavirus Cardiopulmonary Syndrome (HCPS):** A rapidly progressive condition affecting the lungs and heart.
  - **Haemorrhagic fever with renal syndrome (HFRS).**
- There is **no specific cure** available.

# Brain-Eating Amoeba

Scientists warn that rising temperatures due to climate change can spread the risk of disease-causing amoeba, particularly, brain-eating amoeba.



## About Brain-Eating Amoeba

- Lives in **soil and warm freshwater lakes, rivers, ponds, and hot springs** around the world.
- Enters the **body through the nose**, and attacks the brain tissues.
  - Can cause an infection called **Primary Amebic Meningoencephalitis (PAM).**
  - PAM is a **rare, fulminant infection of central nervous system**, that is always fatal.

# Girmitiyas

External Affairs Minister begins official visit to Jamaica, Suriname, Trinidad and Tobago



## About Girmitiyas

- Girmitiyas were **Indian indentured labourers** who migrated to British colonies in the mid-to-late 19th century.
  - They filled the labour shortage caused by the **British Slavery Abolition Act of 1833**.
  - The term **Girmit** is a **mispronunciation of Agreement**, referring to their migration contracts.
- **Distribution:** Mauritius, Fiji, West Indies, Mauritius, South Africa, Caribbean (mostly Trinidad and Tobago, Guyana, Suriname, and Jamaica).
- **Source Regions:** Mostly from the **eastern United Provinces** and **Bihar**.
- **Significance:** Deepen bilateral ties, enhance Soft power diplomacy etc.

# Project 17A Ships



**Mahendragiri, the sixth ship of Nilgiri-class (Project 17A) and fourth ship of the class built at Mazagon Dock Shipbuilders Limited (MDSL), was delivered to the Indian Navy.**

- Other P17A ships are Dunagiri, Taragiri, Udaygiri, Himgiri, Nilgiri.

## About Project 17A

- Project 17A frigates are versatile **multi-mission platforms**, designed by the **Warship Design Bureau (WDB)** and overseen by the Warship Overseeing Team (Mumbai).
- P17A ships are fitted with an advanced weapon and sensor suite as compared to the P17 (Shivalik-class) and include **anti-surface, anti-air, and anti-submarine warfare systems**.
- These ships are configured with **Combined Diesel or Gas (CODOG) propulsion plants**, comprising a diesel engine and a gas turbine.

# Provisions for acid attack Survivors



**Supreme Court has expanded definition of “acid attack victims” under Rights of Persons with Disabilities Act (RPwD), 2016 by including forcible acid ingestion victims and victims with internal injuries (even without visible disfigurement).**

- SC has also suggested a shift in **Burden of Proof** on acid attack accused.
- RPwD Act, 2016 ensures that all PwDs can lead their lives with dignity, without discrimination and with equal opportunities.

## Legal provisions for acid attack survivors in India

- **Section 124, Bharatiya Nyaya Sanhita (BNS, 2023):** Acid attack causing injury/deformity is cognizable, and non-bailable offence with punishment up to **10 years to life and fine**.
- **Section 397, Bharatiya Nagrik Suraksha Sanhita (BNSS):** Free, immediate treatment in all hospitals; police intimation mandatory
- **Victim compensation scheme:** Under Sec 396 Bharatiya Nagrik Suraksha Sanhita (BNSS).
- **Prime Minister's National Relief Fund (PMNRF) Assistance:** Up to ₹1 lakh aid and recognised for welfare schemes.
- **Landmark Judgments:**
  - **Laxmi case:** Regulated acid sale
  - **Parivartan Kendra:** Action against illegal suppliers