

DAILY CURRENT AFFAIRS (DCA)

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PM MODI VISIT TO SRI LANKA

Context

- Prime Minister Modi, during his visit to Sri Lanka, held a significant meeting with Sri Lankan President Anura Dissanayake in Colombo.

Key Outcomes of the Meeting

- PM Modi was conferred '**Mithra Vibhushana**' the country's highest civilian honour medal by the Government of Sri Lanka.
- **Energy Cooperation:** Both the nations inked an agreement to develop **Trincomalee** as an energy hub and jointly inaugurated the **Sampur solar power project**, aimed at boosting Sri Lanka's clean energy capacity.
 - ♦ **A grid interconnectivity deal** was also signed, opening the door for Sri Lanka to potentially export electricity to India in the future.
- **Railway Connectivity:** An upgraded northern railway line between **Maho and Omanthai**, enhancing connectivity between the **North Central and Northern Provinces** was jointly inaugurated, along with an upgraded railway signalling system at **Anuradhapura** railway station.
- **Comprehensive MoU on defence cooperation:** The umbrella agreement consolidates various existing defence-related understandings into a coherent framework, enabling structured dialogue.

India and Sri Lanka Relations

- **Trade Relations: India-Sri Lanka Free Trade Agreement (ISFTA)** in 2000 contributed significantly towards the expansion of trade between the two countries.
 - ♦ India has traditionally been among **Sri Lanka's largest trade partners** and Sri Lanka remains among the largest trade partners of India in the SAARC.
 - ♦ India is also one of the largest contributors to **Foreign Direct Investment** in Sri Lanka.
- **Cultural relations:** The Cultural Cooperation Agreement signed in **1977** forms the basis for periodic Cultural Exchange Programmes between the two countries.
 - ♦ The Buddhist and Tamil links enhance people-to-people connect and soft power.
- **Tourism:** India has traditionally been Sri Lanka's top inbound tourism market, followed by China.

- ♦ As per latest data from the Sri Lanka Tourism Development Authority, India is the largest source for tourists in **2023**.
- **Maritime Security and Defence Cooperation:** In 2011, a decision was taken to establish the **Colombo Security Conclave** which aims to further promote maritime security in the Indian Ocean Region.
 - ♦ India and Sri Lanka conduct a joint Military exercise named '**Mitra Shakti**', Trilateral Maritime Exercise "**Dosti**", and a Naval exercise named **SLINEX**.
- **Multilateral Forum Collaboration:** India and Sri Lanka are member nations of the **South Asian Association for Regional Cooperation (SAARC)**, South Asia Co-operative Environment Programme, South Asian Economic Union and **BIMSTEC**, working to enhance cultural and commercial ties.

Areas of Concern

- **The Fishermen Issue:** Sri Lanka's proximity to Indian territorial waters has often blurred the line for fishermen on both sides in pursuit of fish stock.
- **Rise of China:** China's increasing strategic investments in vital maritime ports in the IOR has been an area of concern.
 - ♦ Strategic infrastructure projects like **Hambantota Port**, leased to China for 99 years.
- **Trade and Economic Imbalances:** CEPA (Comprehensive Economic Partnership Agreement) talks stalled.
- **Slow Progress in Development Projects:** Indian-funded projects like Jaffna Cultural Centre, Trincomalee Oil Tank Farm, and housing schemes face bureaucratic delays.
- **Internal Instability in Sri Lanka:** 2022 economic crisis led to massive unrest which caused a spillover effect on the Tamil Nadu coast and refugee inflow.

Way Ahead

- India-Sri Lanka relations, rooted in geography and history, must now evolve through shared economic prosperity, strategic cooperation, and people-centric development.
- The strengthened ties between both the nations will ensure mutual growth and regional stability in line with **India's Neighbourhood First and SAGAR visions**.

Source: TH

NEW POLICY ON FOREIGN FUNDS

In News

- The Ministry of Home Affairs (MHA) announced that foreign funds obtained through the prior permission route under the **Foreign Contribution (Regulation) Act, 2010, will now be valid for four years.**

Foreign Contribution (Regulation) Act (FCRA)

- The FCRA, first enacted in **1976 and amended in 2010 and 2020**, requires NGOs to register if they wish to receive foreign donations for social, educational, religious, economic, and cultural purposes.
- Besides NGOs, the FCRA also applies to groups and associations receiving foreign contributions, all of which must register under the Act. Registration is valid for five years and can be renewed.
 - They must file annual returns, similar to income tax filings.
- In **2015**, the Ministry of Home Affairs (MHA) introduced rules requiring NGOs to ensure foreign donations **don't affect India's sovereignty, integrity, communal harmony, or foreign relations.**

Exemptions

- Certain individuals and entities, including members of the legislature, political parties, government officials, judges, and media persons, are prohibited from receiving foreign contributions.
 - A 2017 amendment allowed political parties to receive funds from foreign companies with Indian subsidiaries or those with more than 50% Indian ownership.

When is a registration suspended or cancelled?

- FCRA registration can be suspended for up to 180 days if accounts are found in violation. During this time, the organization cannot accept new donations or use more than 25% of existing funds without MHA approval.
 - If an organization's registration is canceled, it cannot reapply or receive prior permission for three years.

Key Highlight of the new policy

- Foreign funds received through **prior permission will now be valid for four years from the date of approval**, instead of the previous policy where

the spending window remained open until the funds were fully utilized.

- Violation of Time Limit:** Not adhering to the new time limit will be considered a violation of the Foreign Contribution (Regulation) Act, and punitive actions could be taken.
- Existing Approved Applications:** If an organization already has prior permission and the approved project or activity still has more than three years left as of April 7, 2025, then the time limits (three years to receive funds and four years to use them) will start from April 7, 2025, instead of the original approval date.
- Eligibility for Prior Permission:** If an NGO is not eligible for FCRA registration, it can still apply for prior permission to receive specific funds for projects, provided it is registered under statutes like the Societies Registration Act, 1860, Indian Trusts Act, 1882, or Section 25 of the Companies Act, 1956.

Significance of FCRA

- Protects National Security:** Prevents misuse of foreign funds for activities against India's sovereignty and integrity.
- Regulates Foreign Funding:** Controls and monitors foreign contributions to individuals, NGOs, and associations.
- Promotes Transparency:** Ensures proper accounting and reporting of foreign funds received and utilized.
- Prevents Political Influence:** Prohibits political parties and candidates from accepting foreign donations.
- Prevents Money Laundering:** Reduces the risk of illegal activities and financial crimes through foreign channels.

Source :TH

PRADHAN MANTRI MUDRA YOJANA COMPLETES 10 YEARS

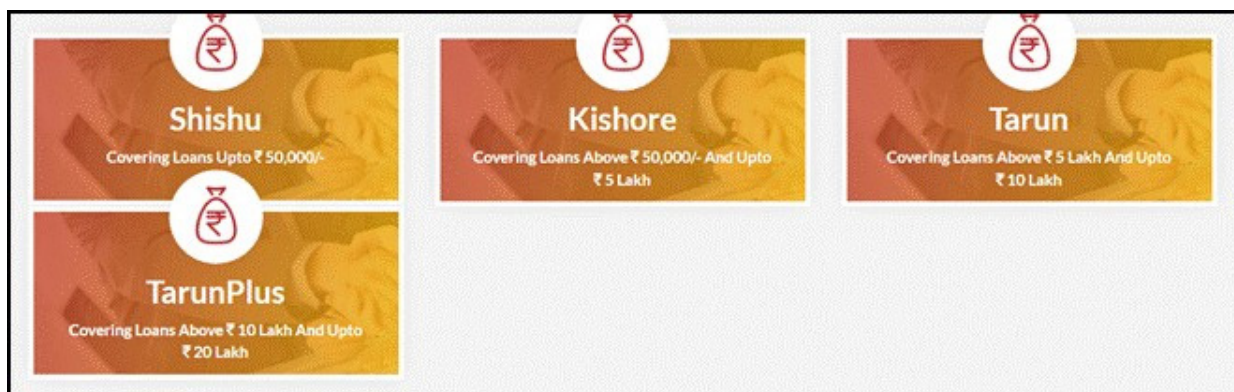
In News

- On 8 April 2025, India marked 10 years of the Pradhan Mantri MUDRA Yojana (PMMY).

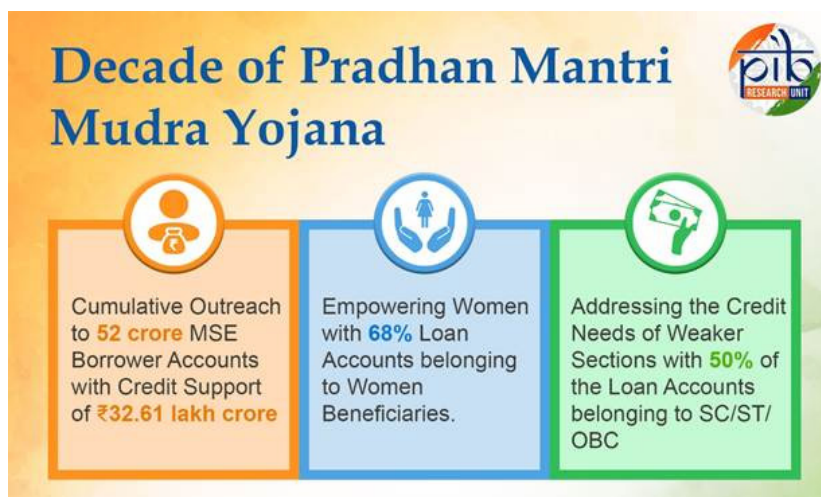
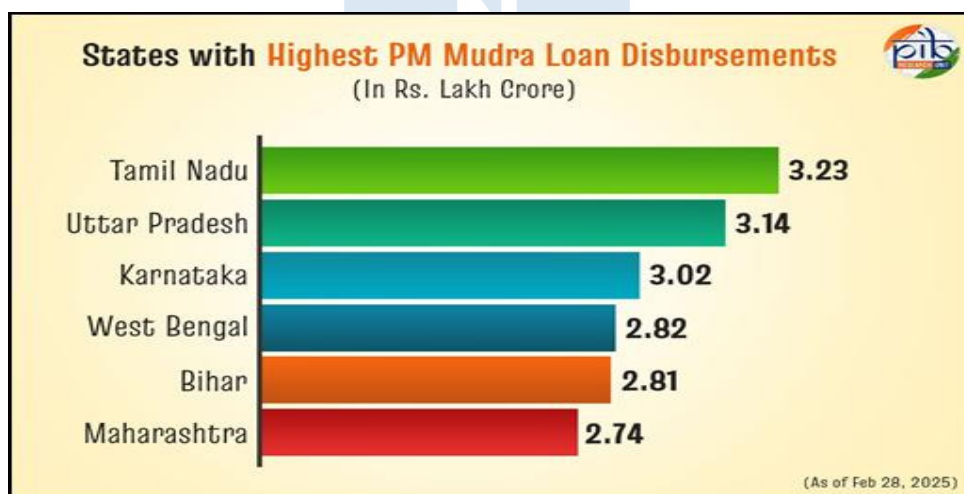
About the Scheme

- Launched:** April 2015
- Objective:** To provide collateral-free institutional credit to non-corporate, non-farm micro and small enterprises.

- **Tagline:** Funding the Unfunded
- **Implementation:** Through MUDRA (Micro Units Development and Refinance Agency).
- **Target:** Small businesses in manufacturing, trading, processing, and services—a major employment segment after agriculture.
- **Loan Categories under PMMY:**
 - ♦ Collateral-free credit up to **20 lakh** is provided by Member Lending Institutions (MLIs) i.e. Scheduled Commercial Banks (SCBs), Regional Rural Banks (RRBs), Non-Banking Financial Companies (NBFCs) and Micro Finance Institutions (MFIs).

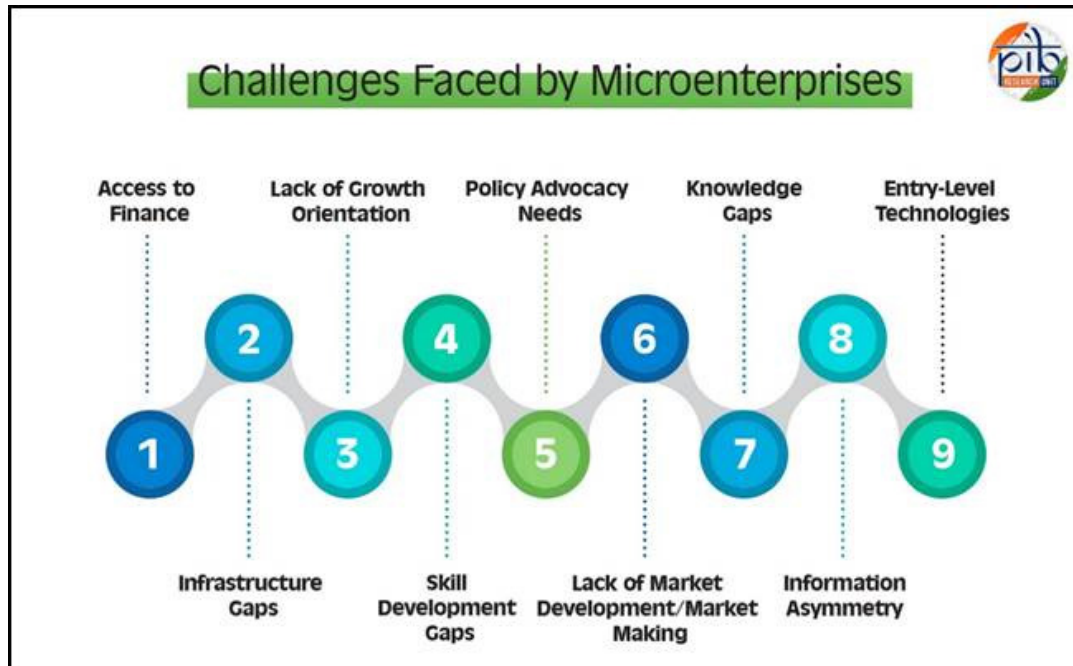


- Achievements (As of FY25)
 - ♦ Loans sanctioned: Over 52 crore
 - ♦ Loan value: ₹32.61 lakh crore



Need For Funding the Unfunded (MSME)

- Micro enterprises constitute a major economic segment in India and provide large employment after agriculture. This segment includes micro units engaged in manufacturing, processing, trading and services sector.
- It provides employment to nearly **10 crore people**. Many of these units are proprietary/ single ownership or Own Account enterprises and many a time referred to as the Non-Corporate Small Business sector.



International Recognition

- IMF has praised PMMY across multiple reports:
 - ♦ **2017:** Helped women-led businesses access credit.
 - ♦ **2019:** Recognized its role in refinancing MSMEs.
 - ♦ **2023:** Highlighted over 2.8 million women-owned MSMEs.
 - ♦ **2024:** Acknowledged PMMY as key to formalisation and self-employment.

Significance

Women Empowerment	1.	68% of beneficiaries are women
	2.	Per woman disbursement CAGR: 13%
	3.	Enhanced economic independence and labour force participation
Marginalised Communities	1.	50% of Mudra accounts are SC/ST/OBCs
	2.	11% Mudra accounts belong to minority communities
	3.	Bridges financial exclusion and promotes inclusive growth
Boost to MSME Credit	1.	MSME credit rose from ₹8.51 lakh crore (FY14) to ₹27.25 lakh crore (FY24)
	2.	Projected to cross ₹30 lakh crore in FY25
	3.	MSME share in total bank credit increased from 15.8% to ~20%
Job Creation	1.	Supports self-employment and entrepreneurship
	2.	Generates jobs in tier-2/3 cities and rural areas

Challenges

- Risk of NPAs (Non-Performing Assets) in some sectors.
- Need for better credit appraisal and training of borrowers.
- Require complementary ecosystems (e.g., market access, digital literacy).

Conclusion

- In ten years, Pradhan Mantri Mudra Yojana has consistently demonstrated the power of financial inclusion and the strength of grassroots innovation.

Source: PIB

UNHRC ADOPTS RESOLUTION LINKING PLASTIC POLLUTION, OCEAN PROTECTION, AND HUMAN RIGHTS

Context

- Recently, the **United Nations Human Rights Council (UNHRC)** has adopted a resolution **recognizing the critical connection between plastic pollution, ocean protection, and the human right** to a clean, healthy, and sustainable environment.

Key Highlights of the Resolution

- **Interconnected Crises:** Plastic pollution, climate change, and biodiversity loss collectively threaten the health of the planet and the rights of future generations.
- **Impact on Vulnerable Communities:** Coastal communities and small island developing states are disproportionately affected by ocean degradation and natural disasters.
 - ♦ The resolution calls for a human rights-based approach to ocean governance, emphasizing inclusion and protection for at-risk populations.
- **Building on Previous UN Actions:** The resolution **strengthens the Human Rights Council Recognition (2021)** and the **UN General Assembly Resolution (2022)** affirming the **right to a healthy environment**.
 - ♦ It was strongly influenced by a report from the **UN Special Rapporteur on the Right to a Healthy Environment**.

Scale of Plastic Pollution

- **Global Impact:** According to estimates, **over 11 million metric tons** of plastic find their way into the oceans annually.
 - ♦ If left unchecked, this figure **could triple by 2040**, causing irreparable damage to marine ecosystems.
- A significant portion of ocean plastic pollution originates from **single-use plastics**, including packaging and disposable items.
- Plastic debris damages coral reefs, entangles marine species, and disrupts habitats.

Global Implications and Future Actions

- **Influence on Upcoming Conferences:** The resolution sets a strong precedent ahead of two major events:
 - ♦ UN Ocean Conference in Nice, France (June, 2025).
 - ♦ Final negotiations for a global treaty to end plastic pollution in Geneva (August, 2025).
- **Strengthening International Agreements:** Observers believe this resolution will push human rights considerations to the forefront of future international agreements on ocean and plastic pollution governance.
- **Integrating SDGs:** Integrate **SDG 14 (Life Below Water)** with SDGs on poverty, gender, health, and climate justice.
- **Call for Action:** The resolution urges governments, industries, and civil society to integrate human rights obligations into environmental policies and treaties.

Human Right to a Healthy Environment in India

- **Constitutional Provisions:**
 - ♦ **Article 21 (Right to Life):** The right to a healthy environment is derived from Article 21, which guarantees the right to life and personal liberty.
 - ♦ **Directive Principles of State Policy (DPSP):**
 - **Article 48A:** It directs the state to protect and improve the environment and safeguard forests and wildlife.
 - **Article 51A(g):** It imposes a duty on every citizen to protect and improve the natural environment, including forests, lakes, rivers, and wildlife.

Judicial Activism:

- ♦ **MC Mehta v. Union of India** and **Subhash Kumar v. State of Bihar**: Supreme Court of India reinforced the right to a clean environment as a **Fundamental Right**.
- ♦ Principles such as polluter pays, precautionary principle, and sustainable development have been **upheld by Courts in India**.

Source: DTE

IRON INSIDE THE SUN IS MORE OPAQUE THAN EXPECTED

Context

- Recent research suggests that solar models have long underestimated iron's opacity and its impact on the Sun's temperature profile.

Why is Opacity?

- Opacity refers to a **material's ability to absorb light**; the higher the opacity, the more light it absorbs.
- In the context of stellar interiors, opacity determines how energy moves from the core to the surface.
- In 2015 a study suggested that the opacity of iron inside the Sun could be 30–400% higher than theoretical predictions.

Why is Iron's Opacity Important in the Sun?

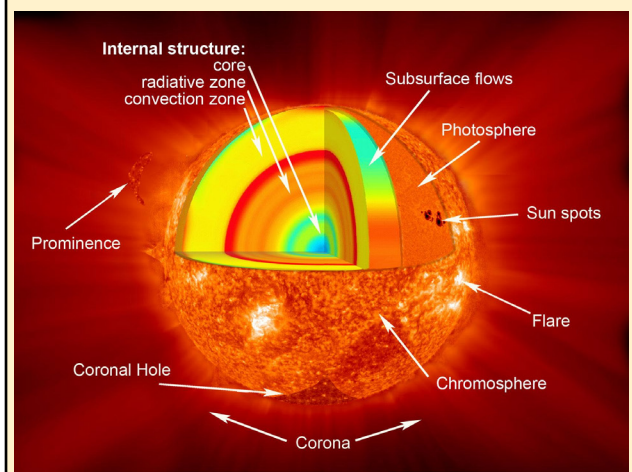
- The opacity of elements like iron plays a crucial role in determining a star's **temperature gradient**, **energy transport mechanisms**, and its **seismic properties** (such as sound wave propagation).
- Many astrophysical models use the Sun as a reference to understand distant stars.
 - ♦ Thus, errors in solar modeling can cascade into errors across cosmological simulations, affecting theories on **star formation, galactic evolution, and the universe's structure**.
- Further the updated opacity values could improve predictions about;
 - ♦ Solar neutrino emissions
 - ♦ Sunspot cycles and flares
 - ♦ Stellar aging processes
 - ♦ Energy balance in other stars

Concluding remarks

- The mystery of iron's underestimated opacity underscores how even small inaccuracies in scientific models can have large-scale ramifications, especially in astrophysics.
- As we enhance our ability to simulate extreme conditions and gather more precise data, we inch closer to refining our understanding of not just the Sun, but the very machinery of the universe.

Internal Structure of Sun

- **Core:** The Sun's energy originates in its core through nuclear fusion reactions. With extremely high temperatures and pressures, the core fuses hydrogen into helium, releasing energy.
- **Radiative Zone:** Surrounding the core, energy is transported outward via radiation.
- **Convection Zone:** Here, heated material rises, cools at the surface, and sinks again, forming convection currents. This movement carries energy toward the Sun's surface.
- **Photosphere:** It has no solid surface but appears as a bright disk due to high gas density blocking deeper visibility.
- **Chromosphere:** Located above the photosphere, this layer is less dense and usually visible only during solar eclipses or with special filters.
- **Corona:** The outermost and most extended part of the Sun's atmosphere. It consists of very hot, low-density plasma and is visible during total solar eclipses.



Source: TH

DIGITAL THREAT REPORT 2024

Context

- Computer Emergency Response Team (CERT-In) and SISA launched the **first Digital Threat Report 2024** to support **cybersecurity in the Banking, Financial Services and Insurance (BFSI) sector**.

About

- The report **offers insights into current and emerging cyber threats**, vulnerabilities, and adversarial tactics affecting BFSI.
- The findings offer a holistic understanding of the current cybersecurity landscape and guide organizations in preparing for future threats.

About SISA

- SISA is a global forensics-driven cybersecurity solutions** company for the digital payments industry, trusted by leading organizations for securing their businesses.
- SISA applies the power of forensic intelligence and advanced technology to **offer true security to over 2,000 customers across over 40 countries**.

Major Highlights

- Sophistication of Cyberattacks:** Over the past year, cyberattacks have grown more advanced, leveraging new techniques and persistent methods.
- Rise in Social Engineering:** Business Email Compromise (BEC) and advanced phishing campaigns are more precise, often fueled by data from the dark web.
- Bypassing Traditional Defenses:** Cyberattacks now effectively neutralize multifactor authentication using stolen credentials and session cookies.
- Supply Chain Breaches:** Trust in third-party vendors and open-source repositories has led to an increase in supply chain breaches, exposing vulnerabilities at scale.
- AI-Driven Threats:** Artificial intelligence is transforming cybersecurity, both driving innovation and empowering attackers to conduct highly personalized, evasive, large-scale attacks.
- Future Threats:** AI-driven threats are expected to challenge existing defense mechanisms, requiring organizations to rethink their approach to threat detection and response.

Mitigation Strategies

- Multi-Factor Authentication (MFA):** Enable MFA for VPNs, webmail, and accounts accessing critical systems.
- Regular Updates:** Ensure all operating systems and applications are updated regularly. Use virtual patching to protect legacy systems and networks.
- Data Protection:** Enforce data protection, backup, and recovery measures. Encrypt data at rest to safeguard against breaches and exfiltration.
- Network Segmentation:** Implement network segmentation into security zones. Separate administrative networks from business processes using physical controls and VLANs.



Conclusion

- There is a need for **unified technology, compliance, and threat intelligence** to safeguard financial transactions.
- The report provides **actionable steps based on audits and incident analysis** to close control gaps, strengthen defenses, and build adaptive strategies.
- It advocates for a proactive, intelligence-driven cybersecurity strategy for financial institutions.

What is Cybercrime?

- Cybercrime refers to criminal activities that involve the **use of computers, networks, and digital technologies**.
- Cybercriminals employ **various techniques and tools** to exploit vulnerabilities in networks, and they may target individuals, organizations, or even governments.

Common types of Cybercrime include

- **Hacking:** Unauthorized access to computer systems or networks to steal, alter, or destroy data.
- **Phishing:** Deceptive attempts to acquire sensitive information, such as usernames, passwords, and financial details, by posing as a trustworthy entity.
- **Malware:** Malicious software designed to disrupt, damage, or gain unauthorized access to computer systems. This includes viruses, worms, trojans, ransomware, and spyware.
- **Identity Theft:** Stealing and using someone's personal information, such as social security numbers or credit card details, for fraudulent purposes.
- **Cyber Espionage:** Covert activities aimed at gaining unauthorized access to sensitive information for political, economic, or military purposes.
- **Cyberbullying:** Using digital platforms to harass, threaten, or intimidate individuals.
- **Online Fraud:** Engaging in fraudulent activities, such as online scams and financial fraud, to deceive and exploit victims for monetary gain.

Cyber Security Initiatives

- **Cyber Fraud Mitigation Centre (CFMC):** Aims to enable immediate action against online financial crimes.
 - ♦ Acts as a centralized response system for digital financial frauds. Promotes **"Cooperative Federalism"** in cybercrime law enforcement.

- **'Cyber Commandos' Program:** Establishment of a special wing of trained personnel in States and Union Territories
- **Central Police Organizations (CPOs):** Enhances technical capacity of police and security forces in cyber investigations and digital forensics.
- **Samanvay Platform:** A web-based module designed to serve as a one-stop portal for all cybercrime data. Facilitate data repository, analytics, mapping, sharing, and investigation.
- **Cyber Suspect Registry:** Created using inputs from the National Cybercrime Reporting Portal (NCRP). Strengthens fraud risk management in the financial sector.

Source: PIB

NEWS IN SHORT

DOKRA ART

In News

- PM Modi gifted a **Dokra Brass Peacock Boat** with a Tribal Rider to the Thai Prime Minister.

About Dokra Art

- The art form is over 4,000 years old, dating back to the **Indus Valley Civilization (e.g., the famous Dancing Girl sculpture from Mohenjo-daro)**.
- The name "Dhokra" or "Dokra" is believed to have originated from the **Dhokra Damar tribes of West Bengal**.
- The unique and defining feature of Dokra art is its reliance on the **lost wax casting technique**.
- Due to the lost wax technique where the mold is used only once and then broken, each **Dokra artifact** is inherently unique.
- **Geographical Indication (GI) Tag** was given for Dokra of Bankura in West Bengal (granted in 2008).



Source: DD News

GAZA STRIP

Context

- Israel has established control over more than 50% of the territory within the Gaza Strip, Since resuming its military campaign against Hamas.

About

- Location:** The Gaza Strip is a small territory located on the **eastern coast** of the **Mediterranean Sea**.
- It borders **Israel** to the north and east and **Egypt** to the southwest, covering about **365 square kilometers**.
- Conflict zone:** It has been the site of repeated conflicts between Israel and Hamas, including wars in 2008, 2012, 2014, and most recently in 2023–2024.
- Humanitarian crisis:** Due to the blockade and ongoing conflicts, Gaza faces high unemployment, limited access to clean water, electricity, and healthcare, and widespread poverty.



Source: TH

PALNA SCHEME UNDER MISSION SHAKTI

In Context

- The Palna Scheme addresses the childcare needs of working mothers by providing quality crèche facilities, enabling them to pursue employment without compromising their children's care.
 - It formalizes unpaid care work and supports **Sustainable Development Goal 8 on decent work and economic growth**.

Palna Scheme

About:

- In 2022, erstwhile **National Creche Scheme** was reorganized and renamed as Palna Scheme under the **sub scheme 'Samarthya' of 'Mission Shakti'**.
- Palna is a **Centrally Sponsored Scheme** ensuring the participation of State/ UT government to ensure better day-to-day monitoring and proper implementation of scheme, and is implemented with a funding ratio of **60:40 between Centre and State Governments and UTs with legislature** except North East & Special Category States where ratio is **90:10. For UTs without a legislature, 100% funding is provided by the central government**.
- Objectives:**
 - To provide quality crèche facilities in a safe and secure environment for children (from ages 6 months–6 years), nutritional support, health and cognitive development of children, growth monitoring & immunization.
 - Crèche facilities under Palna are provided to all mothers, irrespective of their employment status.



Source: PIB

JUDICIAL COOPERATION BETWEEN INDIA AND NEPAL

In News

- Supreme Court of Nepal and the Supreme Court of India Sign a Memorandum of Understanding in the field of Judicial Cooperation.

About the MoU

- It aims to promote information exchange, judicial interactions, and training programs for judges and officials.

- It emphasizes the use of technology to improve court procedures, reduce backlogs, and enhance services.
 - ♦ A Joint Working Group will be established to develop plans for furthering the cooperation.
- It aims to foster judicial exchanges, joint research, training, seminars, and visits.

Do you know?

- Chief Justice of India, Sanjiv Khanna, described the MoU as a new milestone in the relationship between the two countries' judiciaries.
- Chief Justice Khanna has highlighted the reciprocal influence between Nepalese and Indian judicial decisions like decriminalization of **Section 377 of the Indian Penal Code** and Nepal's adoption of Indian constitutional principles like the Basic Structure Doctrine.

Source :TH

NEW RULES TO GET EQUIVALENCE CERTIFICATES FOR FOREIGN DEGREES

Context

- The University Grants Commission (UGC) has notified a new regulation to streamline the recognition and grant of equivalence degrees to academic qualifications obtained from foreign educational institutions.

What is an Equivalence Certificate?

- An equivalence certificate is a document issued to validate that a **foreign academic qualification (certificate, diploma, or degree) is comparable to an Indian qualification** of similar level and purpose.
- This certificate is essential for pursuing higher education or employment in India.

What are the conditions for granting equivalence?

- The degree must be from a foreign institution **recognised under the laws of its home country.**
- The academic programme must have **entry-level requirements** similar to corresponding programmes in India. This includes credit systems, thesis work, or internships.
- The candidate must have pursued the programme according to the **academic standards and norms** laid down by the foreign institution.

- Qualifications obtained from **off-shore campuses** will also be considered, provided:
 - ♦ The academic programme complies with the regulations of both the host country (where the campus is located) and the country of origin of the institution.

Source: IE

NATIONAL MISSION ON POWER ELECTRONICS TECHNOLOGY (NAMPET)

Context

- **The Ministry of Electronics and Information Technology (MeitY)**, announced the signing of ToT/MoA/MoU among industries for the **commercialization of NaMPET-developed technologies.**
 - ♦ Emphasized the **need for indigenous technology in the Power Electronics sector.**

About

- **Wireless Charger for EVs:** The charger can charge a 4.8kWh onboard battery in 3 hours with 89.4% efficiency.
- **Indigenous Propulsion System for Electric Locomotives:** MoA signed for the indigenization of a 3-phase electric locomotive propulsion system.
 - ♦ Aims for full electrification of Indian Railways by 2030 with enhanced locomotive performance and reliability.
- **LVDC Systems Collaboration:** MoU signed between C-DAC and Kerala Development and Innovation Strategic Council (K-DISC).
 - ♦ Expected to save 20-30% energy and contribute to Kerala's Carbon Neutrality Roadmap 2050.

About NaMPET:

- **National Mission on Power Electronics Technology (NaMPET):** A mission-mode programme by MeitY focused on the **development, deployment, and commercialization of Power Electronics technologies.**
- **Main Areas:** Includes Microgrids, Green Energy, e-mobility ecosystem, Smart Power Quality Centre, High Voltage Power Electronics, and technology outreach for startups.

- **Implemented by C-DAC:** Led by C-DAC, Thiruvananthapuram with participation from academia, R&D organizations, and industries.

Source: PIB

BIOMASS MISSION

In News

- The European Space Agency's (ESA) Biomass mission will be launched on April 29, 2025.

Need

- Forests store large amounts of carbon, absorbing 16 billion metric tonnes of CO₂ annually and holding 861 gigatonnes of carbon.
 - ♦ In 2023, tropical forests lost 3.7 million hectares, contributing 6% of global CO₂ emissions.
- Understanding forest biomass and carbon storage is vital for measuring climate change impacts.

Do you know?

- Biomass is the seventh mission in the Earth Explorer programme, designed to provide data on various Earth systems (interior, cryosphere, atmosphere, etc.).
 - ♦ Previous missions include GOCE (2009-2013) and the recent EarthCARE (2024).

Biomass mission

- It will be placed in a sun-synchronous orbit (SSO) at an altitude of 666 km.
- It will map the **world's forests to better understand** their role in the carbon cycle.
- It will use a **synthetic aperture radar (SAR) operating** in the P-band frequency to penetrate forest canopies and assess carbon storage and forest biomass.
 - ♦ It is the first satellite to use this technology.
- It is part of **ESA's Earth Explorer programme**, designed to provide vital data on Earth's systems.
- It aims to address gaps in forest biomass and height data, crucial for measuring forests' impact on the environment.
- It will also observe ice sheet movement in Antarctica and create 3D models of terrains with dense vegetation.

Source: IE

MILITARY SPACE DOCTRINE

In News

- India is developing a **"military space doctrine"** and a **national military space policy**.

About the Military space doctrine

- It is part of the government's strategy to address emerging challenges, particularly as China possesses advanced capabilities to disrupt satellite signals through jammers and anti-satellite technologies.
 - ♦ There is a need for developing a **"space culture"** that includes original research, doctrine, strategy, and space laws.
- The Defence Space Agency (DSA) is working on the military space doctrine, which is expected to be released in two to three months, outlining how space will be utilized by the armed forces.
- The national military space policy will define the roles of various military sub-organizations in defense space operations.

Do you know?

- Chief of Defence Staff (CDS) General Anil Chauhan announced plans to launch 52 spy satellites for Intelligence, Surveillance, and Reconnaissance (ISR) in collaboration with ISRO and the industry, a project worth over 26,000 crore.
- Additionally, the DSA is working on improving satellite communication and regional navigation systems like NavIC.
- India's space sector is at an inflection point, with aims to increase its share in global space commerce from 2% to 10% by 2032 and 25% by 2047.

Source :TH

BREAKTHROUGH PRIZE 2025

In News

- The **2025 Breakthrough Prizes** recognized top scientists in Life Sciences, Mathematics, and Fundamental Physics.

Breakthrough Prize

- The awards were established in **2013 by Mark Zuckerberg and his wife Priscilla Chan**, former Google chief Sergey Brin, genomics company 23&Me founder Anne Wojcicki, and tech investor couple Yuri and Julia Milner.

- It is also known as the “**Oscars of Science**,” and recognizes top scientists annually in **Life Sciences, Fundamental Physics, and Mathematics**, with each prize valued at \$3 million.
- **Life Sciences** awards were given for breakthroughs in weight-loss drugs, Multiple Sclerosis treatment, and gene-editing technologies.
- Dennis Gaitsgory won the **Mathematics** prize for his work on the Langlands conjecture.

Latest Winners

- **The Fundamental Physics prize** went to 13,508 physicists across four CERN collaborations for their work on the Higgs boson and particle research.

Source: IE

