

DAILY CURRENT AFFAIRS (DCA)

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WOMEN'S ROLE IN INDIA'S INCLUSIVE GROWTH

Context

- Recently **NITI Aayog** launched the report titled "From Borrowers to Builders: Women's Role in India's Financial Growth Story."

The report sheds light on the role of women entrepreneurs in shaping India's economic landscape.

Key Findings

- Steady Rise in Women Borrowers:** Women seeking credit grew three times between 2019 and 2024, reflecting increased demand among female borrowers.
- Women Borrower Demographics:** About 60% of women borrowers availing credit are from semi-urban or rural areas.
 - Women under **30 years** of age account for only **27%** of retail credit uptake by women, compared to **40%** for men.
- Credit Supply Trends:** Women's participation in credit origination has seen notable growth in recent years. Since 2019, the share of Women in Business Loans and Gold Loans has increased by **14%** and **6%** respectively.
 - By **2024**, **42%** of loans availed by women were for personal finance, a slight increase from 39% in 2019.
 - The majority of loans availed by women continue to be against gold – **36%** of all loans availed by women in **2024** were gold loans vs. 19% of loans availed in 2019.

- Rise in Credit Monitoring and Awareness:** As of December 2024, **27 million** women borrowers in India have monitored their credit information report and score with CIBIL.

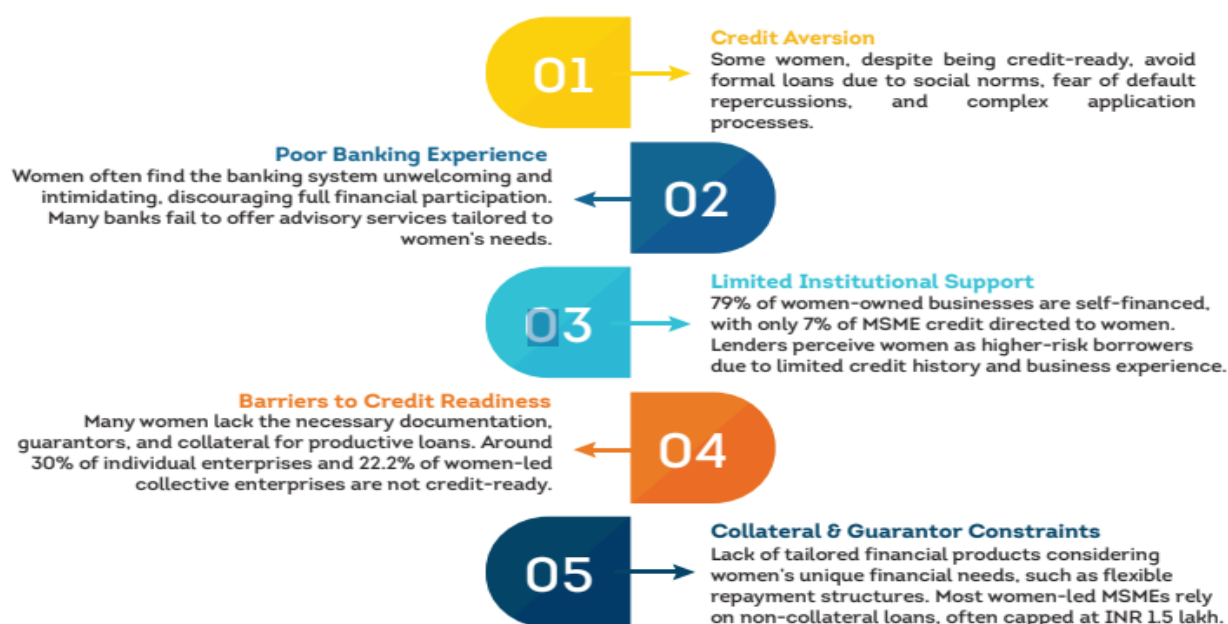
Significance

- Economic Growth:** Women constitute nearly half of India's population but contribute only **18%** to the GDP.
 - Encouraging women entrepreneurs can increase India's GDP by **27%**, as per IMF estimates.
- Employment Generation:** MSMEs owned by women play a crucial role in job creation and skill development at local levels.
- Social Empowerment:** It promotes gender equality by demonstrating women's ability to lead and manage enterprises successfully.

Government Initiatives

- The National Rural Livelihood Mission** has enabled **9 million** women **Self Help Groups (SHGs)** to improve their livelihoods through access to formal banking.
- NITI Aayog's Women Entrepreneurship Platform (WEP)** brings together public and private sector partners to create a supportive ecosystem for women entrepreneurs.
- The PM SVANidhi Yojana** supported 30.6 lakh women street vendors with 5,939.7 crore in working capital loans as of December 2024.
- Pradhan Mantri Mudra Yojana (PMMY):** In FY 2023-24, loans totaling INR 2.22 lakh crore were disbursed to 4.24 crore women entrepreneurs.

Challenges faced by Women Business Borrowers



Conclusion

- NITI Aayog reinforced that encouraging women entrepreneurs can create employment opportunities for **150 to 170 million** people while driving greater participation of women in the workforce.
- By ensuring easier access to credit, mentorship, and support systems, India can unlock the full potential of women-led enterprises.

Source: AIR

SC CALLS FOR STRENGTHENING OF TRIBUNALS

In Context

- The Supreme Court stressed the need to **strengthen tribunals** highlighting issues in staff appointments, service conditions, and judicial tenure while reviewing the **Tribunal Reforms Act, 2021**.

What are Tribunals?

- Tribunals are **quasi-judicial bodies** established to resolve disputes in specialized areas, ensuring faster and expert adjudication. The **42nd Amendment Act (1976) added Part XIV-A to the Constitution**, introducing:
 - ♦ **Article 323A:** Allows Parliament to set up Administrative Tribunals for public service matters.
 - ♦ **Article 323B:** Empowers Parliament and state legislatures to establish tribunals for taxation, land reforms, industry, and elections.

Key Issues Affecting Tribunals

- **Lack of Judicial Independence:** Executive control over appointments, short tenure, and interference dilute tribunals' autonomy.
 - ♦ **Example:** The Supreme Court struck down certain provisions of the Tribunal Reforms Act, 2021, which restricted judicial dominance in selection committees.
- **Case Backlogs:** Heavy pendency due to vacancies and slow disposal of cases.
 - ♦ **Example:** Armed Forces Tribunal (AFT) has 18,829 cases pending (2021).
- **Staffing and Infrastructure Deficiencies:** Lack of human resources, inadequate facilities, and poor service conditions.
 - ♦ **Example:** NCLT staff recruitment on a contractual basis raised concerns over security and efficiency in handling sensitive cases.

- **Overlapping Jurisdiction:** Tribunals and regular courts often handle similar cases, leading to confusion.

- ♦ **Example:** The Supreme Court has observed frequent conflicts between NCLT and High Courts in corporate law matters.

Way Forward

- **Enhancing Judicial Independence:** Ensure tribunals have judicial dominance in appointments and protection from executive interference.
- **Setting up a National Tribunals Commission (NTC):** A centralized body to oversee tribunal administration, appointments, and working conditions.
- **Filling Vacancies & Infrastructure Development:** Expedite appointments and provide better facilities for tribunal members.
- **Jurisdiction Clarity:** Clearly define the scope of tribunal cases to avoid conflicts with regular courts.

Source: HT

SUCCESS OF NATIONAL HEALTH MISSION (NHM)

Context

- The Union Health Minister recently chaired the ninth meeting of the **Mission Steering Group (MSG)** of the **National Health Mission (NHM)**.

Do you know?

- The Mission Steering Group is the highest policy-making and steering institution under the NHM, providing broad policy direction and governance for the health sector.
- The MSG plays a critical role in shaping policies and strategies that drive the nation's healthcare initiatives. It is fully empowered to approve financial norms for all schemes and components.

National Health Mission (NHM)

- The **National Rural Health Mission (NRHM)** was launched in April 2005 to provide accessible, affordable, and quality health services to the poorest households in remote rural areas.
- In May 2013, the **National Health Mission (NHM)** was approved by the Cabinet, incorporating the **National Urban Health Mission (NUHM)** as a sub-mission alongside NRHM.

Achievements under NHM

- India achieved the National Health Policy target of **Maternal Mortality Ratio (MMR) 100 deaths per 1 lakh live births**, with an 83% decline in MMR from 1990 to 2020, surpassing the global decline rate.
- India saw a **69% reduction in Infant Mortality Rate (IMR)** and a 75% decline in Under-5 Mortality Rate, both outperforming the global averages.
- Total Fertility Rate (TFR) decreased** from 3.4 in 1992-93 to 2.0 in 2019-21.
- Out-of-pocket expenditure** decreased from 69.4% in 2004-05 to 39.4% in 2021-22, while government health expenditure increased from 22.5% to 48%.
- The number of healthy human resources under NHM increased from 23,000 in 2006-07 to 5.23 lakh in 2023-24.

Health Achievements

- WHO certification:** India eliminated maternal and neonatal tetanus in 2015 and Trachoma as a public health problem in 2024.
- Ayushman Arogya Mandirs:** Over 1.76 lakh Ayushman Arogya Mandirs are operational, with increased footfall and wellness sessions.
- Screening and Teleconsultations:** Non-communicable diseases (NCD) screenings grew from 10.94 crore in 2019-20 to 109.55 crore in 2023-24.
 - Teleconsultations increased from 0.26 crore in 2019-20 to 11.83 crore in 2023-24.
- Tuberculosis (TB):** The National TB Elimination Program saw an 18% reduction in TB incidence and a 21% decrease in mortality.
- National Dialysis Program:** Covered all states/UTs, providing services to 26.97 lakh patients across 748 districts.
- Sickle Cell Anaemia:** Over 5 crore people screened, 1.84 lakh diagnosed, and 2.24 crore sickle cell cards distributed.
- Malaria and Kala-azar:** India achieved a 79.3% reduction in malaria cases and a 85.2% reduction in malaria deaths. The Kala-azar elimination target was met in 2023.

Source: PIB

INDIA'S AGRICULTURE EXPORTS

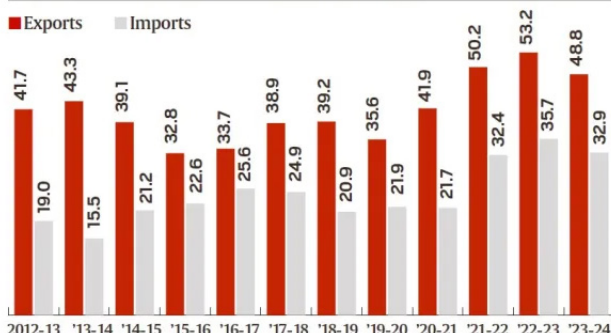
Context

- India's agriculture exports have risen **6.5%**, from **\$35.2 billion** in April-December 2023 to **\$37.5 billion** in April-December 2024.

Narrowing Agricultural Surplus of India

- India is a **net agri-commodities exporter**, with the value of its outward shipments consistently exceeding imports.
- However, the trade surplus, which peaked at **\$27.7 billion in 2013-14**, shrunk to **\$16 billion in 2023-24**.

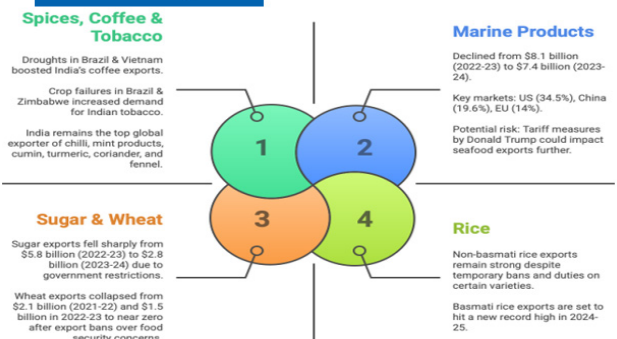
AGRI EXPORTS & IMPORTS (\$ MN), 2012-13 TO 2023-24



- The **UN Food and Agriculture Organization's (FAO) food price index** (2014-16=100) dropped from 119.1 to 96.4 points between 2013-14 and 2019-20.

- Low world prices made India's agricultural exports less cost competitive, and its farmers more vulnerable to cheaper imports.

Drivers of Exports



India's agricultural Imports

- India's agricultural imports are dominated by two commodities: **Edible oils and pulses**.
 - Pulses:** Imports fell from **\$4.2 billion in 2016-17** to an average of \$1.7 billion (2018-23) due to higher domestic production but surged past **\$5 billion in 2023-24** due to a poor crop.

- ♦ **Edible Oils:** Spending in 2024-25 is set to be the highest after 2021-22 (\$19 billion) and 2022-23 (\$20.8 billion), when the Ukraine war drove up global prices.
- ♦ **Cotton:** Once a major exporter, **India became a net importer in 2024**. Exports (\$575.7 million) fell 8.1% (April-Dec), while imports (\$918.7 million) surged 84.2%.

TOP IMPORTS (\$MN)

	2022-23	2023-24	Apr-Dec 2023	Apr-Dec 2024
Vegetable oils	20,837.7	14,871.66	11,638.03	13,518.96
Pulses	1,943.89	3,746.78	2,467.93	3,789.75
Fresh fruits	2,483.95	2,734.97	2,032.64	2,230.2
Cashew	1,805.67	1,431.39	1,193.04	1,414.36
Spices	1,336.65	1,455.57	1,123.81	1,220.61
Raw cotton	1,438.69	598.66	498.81	918.69
Natural rubber	937.6	739.18	554.15	875.7
TOTAL	35,686.2	32,870.03	24,641.45	29,251.41

Source: Department of Commerce

Reasons for Narrowing Agriculture Surplus of India

- ♦ **Trade & Export Policies:** Frequent restrictions (such as bans on rice and sugar exports) have impacted India's credibility in global markets, leading to a decline in agricultural exports.
- ♦ **Supply Chain Disruptions:** The COVID-19 pandemic and the Russia-Ukraine war disrupted global trade, affecting both supply and demand for Indian agricultural products.
- ♦ **High input costs** (fertilizers, fuel, logistics) have reduced profit margins for Indian exporters.
- ♦ **Climate Variability:** Pulses are often grown in rainfed areas where they are highly susceptible to climate variability which lead to yield fluctuations and lower production.
 - ♦ The **El Niño-induced patchy monsoon and winter rain** that caused a decline in domestic pulses production in 2023-24.

Way Ahead

- ♦ **Diversifying Export Markets:** Reduce dependence on key markets like the US and China by exploring new destinations for marine products and other exports.
- ♦ **Building Climate Resilience:** Strengthen irrigation infrastructure and climate-resilient farming to reduce vulnerability to poor harvests and import fluctuations.
- ♦ **Export Competitiveness:** Invest in agricultural R&D to improve productivity and reduce production costs.
 - ♦ Strengthen value-added processing to make exports more competitive.
- ♦ **Trade Policies:** Leverage trade agreements to secure better market access for Indian farm products.

Source: IE

IMF RAISED CONCERNS RELATED TO NBFCs

Context

- ♦ The International Monetary Fund (IMF) has raised concerns about **potential financial instability in India** due to the concentrated exposure of **Non-Banking Financial Companies (NBFCs)** to the power and infrastructure sector.

Major Highlights

- ♦ The IMF report titled **"India Financial System Stability Assessment"** focuses on power sector loans.
 - ♦ The IMF studied banks' resilience in a potential stagflation scenario, where growth slows and inflation rises.
- ♦ **Dependence on bank borrowings** for financing increased since fiscal 2019.
 - ♦ In fiscal 2024, **63% of power sector loans** were from the top three Infrastructure Financing Companies (IFCs), a type of NBFC.
 - ♦ This share increased from 55% in 2019-20.
- ♦ **Concerns:** It raises concerns about **financial instability in India due to NBFCs'** high exposure to the power and infrastructure sectors.
 - ♦ High exposure to the power sector, which faces structural challenges, increases financial instability risks.
 - ♦ NBFCs are interconnected with banks, corporate bond markets, and mutual funds, which could amplify stress if vulnerabilities arise.
- ♦ **Stress tests showed** public sector banks (PSBs) may struggle to maintain a **capital adequacy ratio (CAR) of 9% during stagflation**.
 - ♦ RBI mandates a CAR of 12% for PSBs and 9% for scheduled commercial banks.
- ♦ **Regulatory Concerns:** State-owned NBFCs are exempt from large exposure limits, raising regulatory concerns.
- ♦ **Recommendations:**
 - ♦ Strengthening liquidity regulations for NBFCs, especially those with significant infrastructure exposure.
 - ♦ Closer monitoring of NBFCs' lending patterns and improved risk management frameworks to prevent financial disruptions.
 - ♦ State-owned NBFCs should face the same regulatory standards as private NBFCs to ensure fairness.
 - ♦ Emphasized the need for better data sharing on NBFC credit and exposure.
 - ♦ Prioritizing financial stability over developmental motives for banks.

What are Non-Banking Financial Corporation (NBFCs)?

- **Definition:** A company registered under the **Companies Act, 1956**, engaged in loans, advances, and acquisition of shares/stocks/bonds/debentures/securities issued by government or local authorities, or other marketable securities.
- **Exclusions:** Does not include institutions primarily involved in:
 - ♦ Agriculture activities;
 - ♦ Industrial activities;
 - ♦ Sale/purchase of goods (except securities);
 - ♦ Provision of services;
 - ♦ Sale/purchase/construction of immovable property.
- **Residuary Non-Banking Company:** A company whose principal business is receiving deposits under any scheme or arrangement (lump sum or installments) is also classified as a non-banking financial company (NBFC).
- **NBFC Key Functions:**
 - ♦ Provide financial products to individuals and businesses.
 - ♦ Fund infrastructure and development projects.
 - ♦ Offer investments in securities.
- **Regulatory Oversight:** The functions of NBFCs are managed by both the **Ministry of Corporate Affairs and the Reserve Bank of India (RBI)**.

What is the difference between banks & NBFCs?

- NBFCs lend and make investments and hence their activities are akin to that of banks; however there are a few differences as given below:
 - ♦ NBFC cannot accept demand deposits;
 - ♦ NBFCs do not form part of the payment and settlement system and cannot issue cheques drawn on itself;
 - ♦ Deposit insurance facility of Deposit Insurance and Credit Guarantee Corporation is not available to depositors of NBFCs, unlike in case of banks.

Source: TH

DESIGNING INDIA'S AI SAFETY INSTITUTE

In News

- Union Minister Ashwini Vaishnaw announced India will launch an indigenous AI model and establish an AI Safety Institute (AISi) under the **IndiaAI Mission** to ensure safe and trusted AI development.

Global Scenarios

- Countries like the U.K., U.S., Singapore, and Japan have set up AI Safety Institutes (AISIs) to address AI risks, with a focus on global collaboration and technical understanding.
 - U.K.'s AISI launched the open-source platform 'Inspect' for evaluating AI models.
 - U.S.'s AISI formed an inter-departmental taskforce to address AI risks related to national security and public safety.
 - Singapore's AISI focuses on safe model design and rigorous testing.

India's AI Safety Institute

- The AISI will operate under the Safe and Trusted Pillar and will focus on addressing AI risks.
- India's AISI will collaborate with academics, startups, industry, and government to address India's socioeconomic, linguistic, and technological challenges.
- India's AISI will develop indigenous tools and frameworks that prioritize responsible AI while ensuring interoperability with global AI safety networks.
- India's collaboration with MeitY and UNESCO will help identify gaps in AI ethics and development.

Need

- The Bletchley Declaration from the U.K. AI Safety Summit highlights global threats like cybersecurity and disinformation.
- India's vibrant startup ecosystem, like Karya, is tackling issues like unrepresentative data and multilingual AI development for inclusivity.
- The **Economic Survey 2024-25** highlighted that India's workforce in low-skill and low-value-added services remains vulnerable to AI disruptions.
 - ♦ It recommended creating "robust institutions" to help workers transition to medium-and high-skilled jobs, where AI can augment rather than replace them.

Importance

- India's AI Safety Institute can champion local concerns, such as bias, discrimination, social exclusion, gendered risks, and individual privacy.
- It can influence global discussions on AI risks, mitigations, red-teaming, and standardization.

- It is a key step in creating a standardized AI safety taxonomy for consistent understanding and communication among stakeholders.
- India can position itself as a unifying voice for the global majority in AI governance, building on its leadership in G20 and the Global Partnership on AI (GPAI).

Suggestions and Way Forward

- India's AISI needs to strike a balance between local relevance and global alignment by adopting international standards while adapting them to India's context.
- India's AISI should help create a global framework to share information about AI models and their potential impacts, promoting transparency.
- India can lead AI safety efforts in the Global South by co-developing AI safety frameworks and evaluation metrics to address local challenges.

Do you know?

- IndiaAI Mission was launched on March 7th, 2024 to enhance India's global leadership in AI and ensure its benefits reach all sectors of society.
- The Mission has introduced 7 key pillars to strengthen India's AI ecosystem.
- It emphasizes developing indigenous technical tools, guidelines, frameworks, and standards that address India's unique challenges and opportunities, including its social, cultural, linguistic, and economic diversity.

Source :TH

NEWS IN SHORT

GUM ARABIC (ACACIA GUM)

In News

- Smuggling of **arabic gum (Acacia Gum)** from war-torn Sudan is disrupting global supply chains.
 - ♦ Sudan produces **80% of the world's supply followed by Chad, Nigeria, and other Sahelian nations.**

About Gum Arabic (Acacia Gum)

- It is a natural exudate obtained from **Acacia trees**, primarily **Acacia senegal and Acacia seyal**. It is a complex polysaccharide with excellent **emulsifying, stabilizing, and thickening properties.**

Uses:

- ♦ **Food Industry:** Acts as an emulsifier, stabilizer, and thickener in soft drinks, baked goods, and confectionery.
- ♦ **Cosmetics:** Used in skincare products and lipsticks for texture and stability.
- ♦ **Pharmaceuticals:** Found in syrups, capsules, and tablet coatings.

Source: TH

WALLACE LINE

Context

- The Wallace Line is a crucial concept in biogeography, explaining the striking differences in species distribution across continents.

What is the Wallace line?

- The Wallace Line, first identified by British naturalist **Alfred Russel Wallace** in the late 19th century, is an **imaginary boundary** that separates the distinct biogeographic regions of **Asia and Wallacea** (a transitional zone between Asia and Australia).
- On the **western side** of the line, species are primarily of **Asiatic origin**, whereas on the **eastern side**, species exhibit **characteristics of both Asian and Australian** descent.
 - ♦ This stark contrast in fauna occurs despite the relatively short distances around (35 kilometers) between these regions.

Geographic extent of the Wallace Line

- It runs through the **Lombok Strait** between Bali and Lombok.
- It runs through the **Makassar Strait** between Borneo and Sulawesi.
- It extends eastward, south of **Mindanao Island**, into the **Philippine Sea**.

Findings on Sulawesi Island

- In 1876, it was noted that the island had affinities with **Africa, India, Java, Maluku Islands, New Guinea, and the Philippines**.
 - ♦ Also there is a unique mix of species from both **Asia and Australia**.
- **Examples of Sulawesi's Unique Fauna**
 - ♦ **Asian species:** Tarsiers (family Tarsiidae), Lowland anoa (Bubalus depressicornis) and Mountain anoa (Bubalus quarlesi).
 - ♦ **Australian species:** Dwarf cuscus (Strigocuscus celebensis).



Source: TH

THORIUM RESERVES

Context

- China's geologists have found one million tonnes of thorium **in the Mongolia region of China.**

Thorium's Potential

- Thorium generates **200 times more energy than uranium** and is safer with no risk of meltdown, no need for water cooling, and minimal radioactive waste.
- Thorium molten-salt reactors (TMSRs)** are seen as a game-changer for global energy production.

China's Energy Projects

- China has approved the world's first TMSR power plant, set to generate 10 megawatts by 2029.
- The country is exploring thorium-powered ships and lunar reactors for future moon bases.

India's Thorium Reserves

- India has one of the largest reserves of thorium in the world.
- Major thorium deposits** are found with large reserves in **Kerala, Odisha, Tamil Nadu, and Andhra Pradesh.**
 - Together, **Kerala and Odisha account for over 70%** of India's thorium.
- India has been developing a **three-stage nuclear program**, with thorium-based reactors being a critical part of the third stage.
- Challenges:** Extracting thorium from ores requires high amounts of energy and creates significant waste.
 - While India has large thorium reserves, extracting it for nuclear energy use has faced challenges, including the need for advanced reactor technology and economic viability.

Source: BT

REAL ESTATE REGULATORY AUTHORITY (RERA)

In News

- The Supreme Court expressed disappointment over the **functioning of the Real Estate Regulatory Authority (RERA)** describing it as a "rehabilitation centre for former bureaucrats."

About

- Land and Colonization** is a **State subject**, but to protect homebuyers and ensure transparency in the real estate sector, Parliament enacted the **Real Estate (Regulation and Development) Act, 2016 (RERA).**
- It is a landmark legislation aimed at reforming **India's real estate sector.**
- It established the Real Estate Regulatory Authority for regulation and promotion of the Real Estate sector.

Key Provisions of RERA

- Establishment of Regulatory Authorities:**
 - State Real Estate Regulatory Authority (RERA)**
 - Registers real estate projects and maintains a **public database.**
 - Protects interests** of buyers, promoters, and agents.
 - Ensures **compliance** with regulations.
 - Promotes **affordable and sustainable housing.**
 - Real Estate Appellate Tribunal**
 - Handles **appeals against RERA decisions.**
 - Ensures **speedy dispute resolution.**
- Financial Safeguards:**
 - Escrow Account Mandate:**
 - 70% of buyers' funds** must be deposited in an **escrow account**, used **only for construction.**
 - Advance Payment Cap:**
 - Developers cannot take **more than 10% of the total cost** as advance without a written agreement.
- Protection for Homebuyers:**
 - Defined Carpet Area:**
 - Buyers will be charged based on **net usable floor area**, not super built-up area.
 - Timely Project Completion:**
 - Developers must complete projects **on time**, failing which penalties apply.

- ♦ **Structural Defect Liability:**
 - Developers are **liable for five years** to fix any structural defects.
- **Penal Provisions & Legal Compliance:**
 - ♦ **Equal penal interest for delays** from both developers and buyers.
 - ♦ **Imprisonment:**
 - Up to **3 years for developers** violating RERA provisions.
 - Up to **1 year for agents and buyers** for non-compliance with tribunal orders.

Source: TH

RISE IN INDIA'S R&D SPENDING

Context

- India's Gross Expenditure on Research and Development (GERD) has more than doubled in the past decade, rising from **₹60,196 crore in 2013-14** to **₹1,27,381 crore**.

DISHA Program: Driver of Technological Growth

- **The DISHA Program**, an initiative aimed at Developing Innovations, Successful Harnessing, and Adoption, is a step towards building a knowledge-based economy where research-driven solutions transform industries.
 - ♦ The program is designed to support faculty members and students working on disruptive technologies across disciplines, ensuring that India remains at the forefront of global innovation.
- **Anusandhan National Research Foundation (ANRF)**, seeks to create a unified research ecosystem bridging science, humanities, and social sciences.

Other Government Initiatives to Boost R&D

- **National Research Foundation (NRF):** Aims to enhance research funding and collaboration between academia and industry.
- **Atal Innovation Mission (AIM):** Encourages startups, entrepreneurship, and innovation among students and professionals.
- **Production-Linked Incentive (PLI) Scheme:** Supports high-tech manufacturing through incentives for R&D-driven industries.
- **Startup India and Make in India:** These initiatives foster innovation by providing funding and policy support for startups.

Challenges in India's R&D Ecosystem

- **Private Sector Participation:** The private sector contributes only about 36% of GERD, whereas in developed nations, it exceeds 60-70%.

- **Insufficient Funding:** Despite growth, India's GERD as a percentage of **GDP (~0.7%)** remains lower than countries like **China (2.4%)** and the **US (3.1%)**.
- **Limited University-Industry Collaboration:** Weak links between academia and industry hinder commercialization of research.

Source: AIR

SOLAR MAXIMUM

Context

- NASA has launched the **Polarimeter to Unify the Corona and Heliosphere (PUNCH)** Mission, aligning with the solar maximum phase of the Sun's cycle.

What is the solar cycle?

- The Sun, like a bar magnet, possesses a magnetic field with north and south poles.
- This magnetic field is generated by the movement of electrically charged particles within the Sun.
- Approximately every **11 years**, the **Sun's magnetic field completely flips**, switching its north and south poles—a phenomenon known as the **solar cycle**.

Solar Maximum

- Solar maximum is the peak **phase of the Sun's 11-year cycle**, characterized by heightened solar activity.
- During this period, the Sun emits more **energy, radiation, and light** and experiences an increased number of **sunspots**.
 - ♦ The transition occurs when the Sun's magnetic field undergoes a complete flip.
- **Duration:** Solar Maximum lasts between one and two years. The time between two solar maxima can vary from 9 to 13 years.

Impacts of Solar Maximum on Earth

- **Solar Flares and Coronal Mass Ejections (CMEs):** The release of magnetic energy leads to massive solar storms that send bursts of radiation and particles into space.
- **Damage to Power Grids:** Intense geomagnetic storms can disrupt electrical infrastructure, leading to power outages.
- **Satellite Malfunctions:** Increased solar radiation affects satellite operations, potentially causing communication and navigation failures.

PUNCH Mission

- PUNCH is a NASA Small Explorer (SMEX) mission to better understand how the mass and energy of the Sun's corona become the solar wind that fills the solar system.
- The mission consists of a constellation of four small satellites in Sun-synchronous, low Earth orbit that together will produce deep-field, continuous, 3D images of the solar corona.

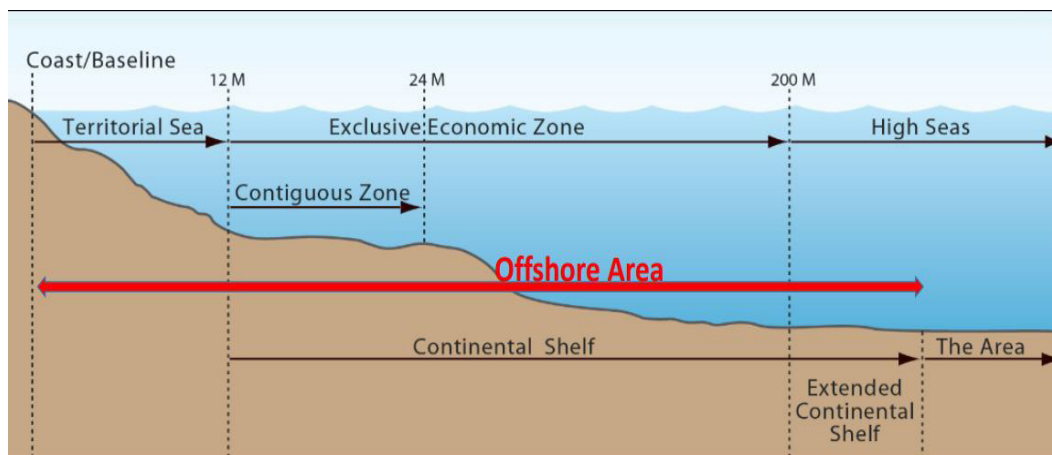
Source: IE

OFFSHORE MINING**Context**

- The Kerala Assembly unanimously passed a resolution, opposing the Central government's plans to permit offshore mining along the Kerala coast.

About

- **2023 Amendment:** Amendments to the Offshore Areas Mineral (Development and Regulation) Act, 2002, allows the Union Ministry of Mines to auction deep-sea mineral blocks.

Offshore Mining

- **Offshore mining** is the process of retrieving mineral deposits from the deep seabed, at a depth of more than **200 metres**.
- **Types of Resources:**
 - ♦ **Oil and Gas:** Extracted from offshore oil rigs or platforms.
 - ♦ **Minerals:** Includes precious metals, polymetallic nodules, and other rare minerals found on or beneath the seafloor.
 - ♦ **Sand and Gravel:** Used for construction and other purposes.

Concerns

- **Disruption of Habitats:** Mining robots destroy the ocean floor, harming over 5,000 species and fragile ecosystems.
- **Sediment Plumes:** Sediment clouds smother marine life, disrupt feeding, and reduce water quality.
- **Technical Challenges:** Deep-sea mining technology is underdeveloped; equipment repair is difficult due to extreme pressure.
- **Ethical Considerations:** Companies (SAP, BMW, Google, etc.) oppose using seafloor materials, citing environmental concerns.

United Nations Convention on the Law of the Sea (UNCLOS)

- **UNCLOS** was adopted in **1982**, and came into force in **1994**.
- It lays down a **comprehensive regime of law and order in the world's oceans** and seas establishing rules governing all uses of the oceans and their resources.
- It establishes the **International Seabed Authority** to regulate mining and related activities on the ocean floor beyond national jurisdiction.

The International Seabed Authority (ISA)

- The International Seabed Authority (ISA) is an autonomous international organization established under
 - ♦ The **1982** United Nations Convention on the Law of the Sea (UNCLOS) and
 - ♦ The **1994** Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea.
- All States Parties to UNCLOS are members of ISA.
 - ♦ As of May 2023, ISA has **169 Members (India is also a member)**, including **168 Member States and the European Union**.
- **Headquarters:** Kingston, Jamaica

Source: TH

VANTARA

In News

- Prime Minister Narendra Modi inaugurated Vantara.

Vantara

- It is a unique wildlife conservation, rescue, and rehabilitation initiative in Jamnagar, Gujarat.
- It is the **world's largest wildlife rehabilitation centre**.

- It is home to over 1.5 lakh rescued, endangered, and threatened animals, offering them a home away from home and a second chance at life.
- **Awards and Recognition :** The Central government awarded Vantara the prestigious 'Prani Mitra' National Award under the 'Corporate' category, recognizing the exceptional contributions of the Radhe Krishna Temple Elephant Welfare Trust (RKTEWT) for elephant rescue, treatment, and care.

Source :TH

