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Sovereign Green Bonds in India

News: Sovereign Green Bonds (SGRBs) are in the news because India has struggled to generate strong investor demand for them despite their potential to fund the country's green transition.

About Green Bonds

- Green bonds are **debt instruments** issued by governments, corporations, or multilateral banks to raise capital for projects that **reduce emissions** or **enhance climate resilience** (e.g., solar farms, electric mobility, afforestation).
- These bonds typically offer **lower yields** (interest rates) than conventional bonds, allowing issuers to raise funds at a **lower cost** (greenium).
- Investors in green bonds are usually **long-term, impact-focused investors** looking for stable returns and compliance with **green financing mandates**.

About Sovereign Green Bonds (SGRBs)

- **SGRBs are green bonds issued by sovereign entities**, such as the **Government of India**, to fund large-scale sustainability projects.
- India's **SGRB framework**, established in 2022, defines "green projects" as initiatives that:
 - Enhance **energy efficiency**
 - Reduce **carbon emissions**
 - Promote **climate resilience**
 - Improve **natural ecosystems**

Why is Investor Demand Weak?

1. **Low Greenium (Cost Savings) in India:** Globally, green bonds enjoy a greenium of 7-8 basis points, making them attractive for issuers. In India, the greenium is only 2-3 basis points, offering little cost advantage over conventional bonds.
2. **Liquidity Constraints:** Small issue sizes and investors holding bonds until maturity reduce secondary market trading, making them less attractive.
3. **Lack of Impact Investment Ecosystem:** India has a limited ecosystem of social impact funds and responsible investing mandates, which are key drivers of green bond demand in advanced markets.
4. **Delayed Transparency & Reporting:** Investors rely on post-issuance allocation and impact reports to assess the effectiveness of funds. India has not yet published the 2023-24 allocation report, leading to investor uncertainty.

Potential Solutions to Boost Demand

1. Combining green and social projects in bond offerings (as seen in other emerging markets) could attract wider investor interest.
2. **Improving Transparency & Reporting**
 - Faster publication of allocation and impact reports can enhance investor trust.
 - Clearer data can help investors screen SGRBs for inclusion in their portfolios.
3. **Enhancing Liquidity:** Increasing issue sizes and promoting active secondary market trading can make SGRBs more appealing.
4. **Strengthening Green Finance Ecosystem:** Encouraging social impact funds and responsible investment mandates can boost demand for green bonds.
5. **Multilateral Bank Partnerships:** Partnering with global development banks (e.g., World Bank) to enhance credit ratings can help attract foreign investors.

COMPACT Initiative

News: US President Donald Trump and Indian Prime Minister Narendra Modi launched the **US-India COMPACT** (Catalyzing Opportunities for Military Partnership, Accelerated Commerce & Technology) for the 21st Century.

About COMPACT Initiative

- The US-India COMPACT (Catalyzing Opportunities for Military Partnership, Accelerated Commerce & Technology) initiative aims to enhance defence collaboration, facilitate technology transfer, and boost bilateral trade while strengthening strategic ties between the two nations.

Key Objectives of the Initiative

1. **Strengthening Defence Relations:** The initiative marks a significant expansion of US-India defence cooperation, with plans to sign a 10-year Framework for the US-India Major Defence Partnership within the year.
2. **Advanced Defence Procurements:** India is set to increase military purchases worth billions of dollars, including advanced weaponry and military platforms such as the Javelin Anti-Tank Guided Missiles, Stryker Infantry Combat Vehicles, and additional P-8I Maritime Patrol aircraft.
3. **Potential F-35 Deal:** While discussions on acquiring the F-35 stealth fighter jets are in the early stages, this move signals a major step towards advanced aerial defence capabilities for India.
4. **Technology Transfer & Joint Production:** The two nations have agreed to expand defence co-production and explore joint development in areas such as autonomous systems, missile defence, maritime security, and undersea warfare technologies.
5. **Interoperability & Logistics:** The initiative will enhance maintenance, repair, and supply-chain cooperation, ensuring smoother operational capabilities for US-origin defence equipment in India.

Strategic Significance

- The US-India COMPACT aligns with broader geopolitical objectives.
- It is a key driving force behind the agreement is countering China's growing influence in the Indo-Pacific region.
- The initiative reinforces regional security by enhancing India's military preparedness and deepening strategic cooperation.

F-35 Lightning II stealth fighters

News: The potential sale of F-35 stealth fighters to India signals a major shift in India's defence strategy, as it would be a significant enhancement to its air power.

About the F-35 Lightning II stealth fighter

- The F-35 Lightning II stealthy, multirole fighter jets are designed for a wide range of tactical missions.
- The aircraft comes in three variants: the F-35A (conventional take-off and landing for the Air Force), F-35B (short take-off and vertical landing for the Marine Corps), and F-35C (carrier-based variant for the U.S. Navy).

Features of the aircraft

- The F-35 is known for its **advanced stealth capabilities**, allowing it to evade detection by enemy radar systems.
- This makes it a crucial asset for modern air forces, enabling them to conduct operations in contested environments with a reduced risk of being targeted by enemy defences.

- It is considered one of the **most advanced fighter jets globally**, with over 990 aircraft delivered to date.
- The F-35 also incorporates **cutting-edge sensor systems**, such as the AN/APG-81 AESA radar, which provides superior situational awareness, and the Distributed Aperture System (DAS) for enhanced detection of threats in all directions.
- Its **advanced avionics and sensor fusion capabilities** allow the pilot to receive and process information from various sensors and platforms, making decisions quickly and accurately.
- The aircraft is equipped with **advanced weaponry**, including precision-guided bombs and missiles, making it highly effective in both air-to-air and air-to-ground combat.
- One of the standout features of the F-35 is its **interoperability with other NATO forces and allied air forces**, which makes it a powerful addition to coalition operations.

Anamudi Shola National Park

News: Anamudi Shola National Park is in the news due to the Kerala Water Authority's (KWA) plan to construct a check dam across the Silandhi River in Vattavada, which requires the use of 0.0442 hectares of forest land from the park.

About Anamudi Shola National Park



Figure 1. Source: Brainly.in

- It is situated in the **Idukki district of Kerala**, near the town of **Munnar**. It is located within the **Eravikulam National Park complex**.
- It is part of the **Western Ghats mountain range**, which is a UNESCO World Heritage site.
- It covers an area of **approximately 7.5 square kilometers**.
- It acts as a critical watershed area for several rivers in the region, **including the Periyar and Pambar rivers**.
- The park is an essential component of the Western Ghats ecosystem, known for its unique biodiversity. It acts as a **crucial habitat for endemic and endangered species**.
- **Flora:** The park is home to diverse vegetation, including **tropical montane forests, grasslands, and shola forests**.
- **Fauna:** The park supports various species of mammals, birds, reptiles, and amphibians, including **endangered species such as the Nilgiri tahr and the lion-tailed macaque**.
- **Threats:** It has been threatened by human activities such as **encroachment, illegal logging, and land conversion**. It is **vulnerable to climate change**,

which may impact its biodiversity.

Adjusted Gross Revenue (AGR)

News: The Supreme Court has delivered a significant setback to major telecom operators, including Vodafone Idea (Vi) and Bharti Airtel, by rejecting their review petitions seeking corrections in the Department of Telecommunications' (DoT) calculations of Adjusted Gross Revenue (AGR) dues.

About Adjusted Gross Revenue (AGR)

- **Adjusted Gross Revenue (AGR)** refers to the total revenue earned by telecom operators in India after deducting certain charges and expenses, as defined by the Department of Telecommunications (DoT).
- It is crucial in determining the license fees and spectrum usage charges (SUC) that telecom companies must pay to the government.
- 1. **Gross Revenue (GR):** This includes all revenues earned by telecom companies from various sources, such as telecom services, licensing, and other income.
- 2. **Deductions:** Certain revenue components, such as interconnection charges, roaming charges, and PSTN-related expenses, may be deducted to arrive at AGR.
- 3. **AGR = Gross Revenue – Permitted Deductions**

Why is AGR Important?

- **Regulatory Compliance:** Telecom operators must pay a percentage of their AGR as license fees and spectrum charges to the government.
- **Legal Disputes:** The definition of AGR has been a major legal issue in India, leading to disputes between telecom operators and the government. The Supreme Court of India ruled in favor of the government's broader definition, including non-core revenue in AGR, increasing the dues of telecom companies.
- **Financial Impact:** High AGR dues have put financial pressure on telecom operators, affecting their profitability and sustainability.

Project Waterworth

News: Meta has announced Project Waterworth which is its most ambitious subsea cable project.

About Project Waterworth

- **Aim:** The project aims to enhance global internet connectivity using AI and machine learning.
- **Focus:** It will focus on better cable deployment and maintenance for a more reliable internet.
- It will be the world's longest and highest-capacity subsea cable. AI and machine learning will help predict and prevent disruptions.
- The cable will cover 50,000 km across five continents.

Benefits of Project Waterworth

- It will improve global digital infrastructure for faster and more reliable internet.
- It will strengthen international digital communication across continents.
- It helps to support AI innovation and high-speed digital services.
- It will boost economic growth and digital inclusion in connected regions.

Exercise Komodo

News: Recently, Indian Navy participated in the International Fleet Review (IFR) 2025 and the Multilateral Naval Exercise Komodo in Indonesia.

About Exercise Komodo

- Exercise Komodo is a multilateral naval exercise hosted by Indonesia.
- It focuses on enhancing maritime security cooperation among participating navies.
- **Objectives**
 - Strengthen maritime interoperability among regional and global navies.
 - Enhance coordination in humanitarian assistance and disaster relief (HADR) operations.
 - Promote maritime security through collaborative efforts and shared strategies.
- The Indian Navy is participating with INS Shardul and P8I Long-Range Maritime Surveillance aircraft.
- Indian naval forces will take part in tactical floor games, symposiums, and multinational activities.
- This engagement reinforces India's commitment to regional security and maritime cooperation.
- **Activities During Exercise Komodo:**
 - Naval maneuvers and interoperability drills with other countries.
 - Search and rescue exercises for better coordination during emergencies.
 - Disaster response simulations to improve regional HADR capabilities.
 - Environmental conservation activities, such as coral & mangrove plantation and beach cleaning.
- **Significance of the Exercise:**
 - Strengthens regional security cooperation in the Indo-Pacific.
 - Enhances India-Indonesia naval relations and broader multilateral maritime ties.
 - Supports the vision of Security and Growth for All in the Region (SAGAR).
 - Encourages peaceful and rules-based maritime operations.

Loggerhead Turtles

News: Recently, it has been found that Loggerhead turtles can learn and remember the magnetic signature of a location. They perform a 'turtle dance' when in an area associated with food, indicating recognition of the magnetic signature. This behaviour provides evidence that turtles use the Earth's geomagnetic field for navigation.

About Loggerhead Turtle

- The loggerhead turtle is a species of sea turtle found in oceans around the world.
- It is scientifically known as *Caretta caretta*.
- It is recognized for its large head and powerful jaws, which help it crush hard-shelled prey.
- It is a migratory species, travelling thousands of kilometres between feeding and nesting sites.
- **Habitat & Distribution:**
 - They are found in the Atlantic, Pacific, and Indian Oceans, as well as the Mediterranean Sea.
 - They prefer coastal areas, bays, and estuaries but can also be found in open oceans.
 - Nesting occurs mainly on sandy beaches in regions like Florida, Oman, and Greece.
- **Diet & Feeding Habits:**
 - Omnivorous but primarily consumes crustaceans, molluscs, jellyfish, and fish.

- Uses its strong jaws to crush hard-shelled prey like crabs and conchs.
- **Navigation & Migration**
 - Uses Earth's geomagnetic field to navigate long distances.
 - Returns to the same feeding and nesting sites despite seasonal migrations.
 - Recent research confirms loggerheads use two distinct magnetoreception mechanisms: a magnetic map for location recognition and a magnetic compass for direction.
- **Conservation Status:**
 - Listed as Vulnerable by the IUCN Red List
- **Threats:**
 - Habitat destruction (coastal development, pollution).
 - Bycatch in fishing gear.
 - Climate change affecting nesting beaches and sex ratios.
 - Marine debris ingestion, especially plastics.
- **Conservation Efforts**
 - Protected under international agreements such as CITES and the U.S. Endangered Species Act.
 - Conservation programs focus on reducing bycatch, protecting nesting beaches, and raising public awareness.
 - Use of turtle-excluder devices (TEDs) in fishing nets to prevent accidental captures.

TrailGuard AI

News: TrailGuard AI has recently made headlines due to its remarkable success in reducing poaching at Odisha's Similipal Tiger Reserve.

About TrailGuard AI

- TrailGuard AI is an advanced, AI-powered surveillance system designed for conservation and anti-poaching efforts.
- It uses artificial intelligence and real-time image transmission to detect human and animal movement in protected forest areas, enabling swift action against poachers and illegal activities.
- TrailGuard AI consists of two compact components:
 - **Camera Unit** – The size of a pen, strategically hidden in vegetation.
 - **Battery/Communication Unit** – The size of a notepad, connected to the camera via a two-meter cable.
- These AI-enabled cameras operate in a low-power mode but activate upon detecting movement. The built-in AI model classifies objects into categories such as humans, animals, and vehicles. If a potential threat, such as a poacher, is detected, the camera transmits the image to a central control room within 30-40 seconds using cellular networks.

Key Features and Advantages

- **Real-Time Alerts:** Provides instant updates to enforcement teams.
- **Compact and Concealed Design:** Harder for poachers to detect and disable.
- **Extended Battery Life:** Operates for **six months to a year** without frequent maintenance.
- **Cost-Effective:** Priced at **₹50,000-53,000 per unit**, making it more affordable than other live transmission technologies.
- **Enhances Human-Wildlife Conflict Monitoring:** Helps track movement patterns of elephants and tigers, mitigating risks to nearby communities.

Gulf of Eilat

News: A recent study highlights the resilience of Gulf of Eilat coral reefs, which faced a 3,000-year growth hiatus due to a likely sea-level drop from global cooling. Despite this, they recovered as coral species reemerged from deeper waters.

About the Gulf of Eilat

- The Gulf of Eilat (also known as the Gulf of Aqaba) is a **northeastern extension of the Red Sea**, bordered by Israel, Egypt, Jordan, and Saudi Arabia.
- It is known for its **rich marine biodiversity, stunning coral reefs, and clear waters**, making it a key site for marine research, tourism, and conservation efforts.
- The Gulf of Eilat stretches approximately 180 km (112 miles) long and 15-25 km (9-16 miles) wide.
- It is characterized by **steep, deep waters, reaching depths of over 1,800 meters (5,900 feet)**. The region is part of the Great Rift Valley.
- The warm, nutrient-poor waters of the Gulf support some of the world's most resilient coral reefs.
- Unlike other reefs that are highly sensitive to rising ocean temperatures, corals in the Gulf of Eilat have shown **exceptional resistance to bleaching**, possibly due to genetic adaptation from migration through the Red Sea.
- **Biodiversity:** The coral reefs in the Gulf of Eilat are home to over 250 species of corals and 1,200 species of fish, making it a biodiversity hotspot.
- These reefs provide habitat for species such as: Lionfish, Clownfish, Giant moray eels, Dolphins and sea turtles
- **Environmental Threats and Conservation:** Coastal development, Pollution and overfishing, Climate change and ocean acidification.

Rarest of Rare Doctrine

News: Recently, two separate murder cases resulted in contrasting verdicts, shedding light on how Indian courts interpret and apply the 'rarest of rare' doctrine while awarding the death penalty.



About Rarest of Rare Doctrine

1. The Doctrine of Rarest of Rare is a principle adopted in India to guide courts in deciding between the death penalty and life imprisonment.
2. It was first discussed in **Jagmohan Singh vs. State of U.P. (1972)**, where the Supreme Court upheld the constitutionality of the death penalty.
3. The court ruled that capital punishment is constitutional under **Article 21 (right to life) and does not violate Article 14 (equality before the law) or Article 19 (fundamental rights)**.
4. The Supreme Court formally established the 'rarest of rare' doctrine in **Bachan Singh vs. State of Punjab (1980)** in which it held that the death penalty should only be imposed in exceptional cases. However, it did not clearly define what qualifies as 'rarest of rare'.
5. The Supreme Court laid down a **five-factor framework** for determining when a case qualifies as 'rarest of rare':
 - a) **Manner of murder** – If committed in an extremely brutal, grotesque, or revolting way that shocks society.
 - b) **Motive of murder** – When the crime is committed with extreme depravity, such as for political gains or sadistic pleasure.
 - c) **Socially abhorrent nature**– When the crime targets vulnerable individuals or communities, causing widespread outrage.
 - d) **Magnitude of the crime** – When multiple murders are committed, showing extreme criminality.
 - e) **Personality of the offender and victim**– If the victim is a child, elderly, woman, or otherwise helpless.
6. The Supreme Court struck down Section 303 of the IPC, which prescribed a mandatory death penalty for life convicts who commit murder. It ruled that all murders should be judged under Section 302, which allows discretion between the death penalty and life imprisonment.
7. **Current Status:** The death penalty remains constitutionally valid but is only applied in exceptional cases. Courts must carefully examine aggravating and mitigating factors before awarding capital punishment.

NAKSHA Pilot Project

News: Recently, the **National Geospatial Knowledge-based Land Survey of Urban Habitations (NAKSHA)** was launched.



About National Geospatial Knowledge-based Land Survey of Urban Habitations (NAKSHA) Pilot Project

1. It is a pilot project fully funded by the **Government of India**.
2. Implemented by: **Department of Land Resources, Ministry of Rural Development**.
3. It aims to create and update **land records in urban areas** using geospatial technology.
4. **Objective**
 - Ensures **accurate and reliable documentation of land ownership** to reduce disputes.
 - Supports **urban planning, ease of living, and transparency in property record management**.
5. **Coverage & Implementation:** 152 Urban Local Bodies (ULBs) in 26 States and 3 Union Territories (UTs).
6. **Key Features**
 - Use of **drones and geospatial mapping** for land surveys.
 - Development of an **IT-based property record system** to enhance efficiency.
 - **Web-GIS platform** for centralized digital land records.
 - Standard Operating Procedure (SoP) booklet, video, and flyer to be launched for guidance.
7. **Expected Outcomes**
 - Reduction in **land-related disputes** and enhanced legal clarity.
 - Improved **urban planning and infrastructure development**.
 - Strengthening **property rights** and empowering citizens.
 - Enhanced **transparency and efficiency** in land record management.

White-Winged Ducks

News: A rare pair of white-winged ducks was recently spotted in Assam's Dehing Patkai National Park.

About Rare White-Winged Ducks



Figure 2. Source: The Sentinel

- The **white-winged duck** (*Asarcornis scutulata*) is also known as **Deo Hanh**.
- It is a rare and endangered species primarily found in the dense forests of South and Southeast Asia.
- This elusive bird is the **state bird of Assam, India**.
- They are **forest-dwelling species** that inhabit wetlands, swamps, slow-moving

streams, and channels within dense tropical forests.

- In India, their populations are mainly found in **Assam's Nameri National Park and Dihing Patkai National Park**, with smaller fragmented populations in Arunachal Pradesh.
- **Beyond India**, they are also distributed across **Bhutan, Thailand, Vietnam, Myanmar, and other Southeast Asian countries**.
- Despite their wide distribution, their population has significantly declined due to:
 - **Deforestation:** Rapid loss of forest cover has destroyed their natural habitat.
 - **Hunting:** These birds have been subjected to poaching in several regions.
 - **Human Encroachment:** Increasing human activities near their habitat have led to habitat degradation.
- **Conservation status:** IUCN : Endangered status
- The **White-Winged Duck Recovery Project** was initiated in 2018 focussing on tracking and protecting these birds through **passive acoustic monitoring** and habitat conservation strategies.

Parambikulam Tiger Reserve

News: A recent faunal survey conducted by the Forest Department in Kerala's Parambikulam Tiger Reserve has added 15 new species to its biodiversity records.



About Parambikulam Tiger Reserve

Parambikulam Tiger Reserve is a protected area located in the Western Ghats of Kerala, India.

It spread across approximately **643.66 sq km**.

It is one of the **best-managed tiger reserves** in India and serves as a critical habitat for several endangered species.

Parambikulam shares its borders with the **Anamalai Tiger Reserve in Tamil Nadu**.

The terrain consists of undulating hills, valleys, rivers, and reservoirs, providing a diverse ecosystem for flora and fauna.

Flora: The reserve boasts diverse vegetation, including teak, rosewood, sandalwood, and bamboo forests. It is home to one of the world's oldest and largest teak trees, **Kannimara Teak**, which is over **450 years old**.

Fauna: Bengal tiger, Indian leopard, Asiatic elephant, sloth bear, gaur (Indian bison), sambar deer, Nilgiri tahr, and lion-tailed macaque.

- **Birds:** Over **250 species of birds**, including Malabar pied hornbill, great Indian hornbill, and grey-headed fish eagle.
- **Reptiles:** King cobra, Indian rock python, and various species of turtles and lizards.

Earthquake Swarm

News: Earthquake swarms are in the news due to a recent spate of seismic activity on the Greek island of **Santorini** and surrounding areas.



About Earthquake Swarm

- An **earthquake swarm** is a sequence of many small to moderate earthquakes occurring in a localized area over a short period of time, without a single, large “mainshock” dominating the sequence.
- Unlike traditional earthquake sequences, which typically follow a **mainshock-aftershock** pattern (where a large earthquake is followed by progressively smaller ones), earthquake swarms consist of **numerous earthquakes of similar magnitudes occurring closely together in time and space.**

Causes of Earthquake Swarms

Earthquake swarms can be triggered by various geological processes, including:

- **Tectonic Activity** – Movement along fault lines due to stress accumulation in the Earth’s crust.
- **Volcanic Activity** – Magma movement beneath the surface can create pressure that causes small earthquakes, often preceding volcanic eruptions.
- **Hydrothermal Activity** – The movement of hot water and gases underground can induce seismic activity.
- **Human-Induced Activity (Induced Seismicity)** – Activities like wastewater injection, geothermal energy extraction, and mining can trigger swarms.

Characteristics of Earthquake Swarms

- **No Clear Mainshock** – Unlike typical earthquake sequences, swarms do not have a single, dominant earthquake.
- **Duration** – They can last from hours to several months.
- **Frequent Occurrence** – Many small to moderate earthquakes occur in a concentrated area over a short period.

- **Variable Magnitude** – Most earthquakes in a swarm are of low to moderate magnitude, but occasionally, larger ones can occur.

Digital Brand Identity Manual (DBIM)

News: The Ministry of Electronics and Information Technology (MeitY) launched the **Digital Brand Identity Manual (DBIM)** to harmonize the government's digital presence.



About DBIM

- DBIM aims to **revolutionize India's digital governance** by establishing a **consistent, secure, and inclusive** digital identity across government platforms.
- **Objectives of DBIM**
 - Aligns with the **Prime Minister's vision** of "*Reform, Perform, and Transform.*"
 - Enhances **citizen-centric** digital governance.
 - Simplifies and standardizes **government websites and services** for accessibility and inclusivity.
 - Strengthens the "**Minimum Government, Maximum Governance**" approach with **Uniform Governance**.

Key Features of DBIM

1. **DBIM Toolkit** – Ensures **uniformity in digital identity** across government platforms.
2. **Gov.In CMS** – Streamlined **website management system** for government websites.
3. **Central Content Publishing System (CCPS)** – Centralized content governance for **consistent messaging**.
4. **Social Media Guidelines** – Standardized **digital communication** for ministries and departments.

Maharashtra Protection of Interest of Depositors (MPID) Act, 1999

News: The Maharashtra Protection of Interest of Depositors (MPID) Act, 1999 is in the spotlight due to its application in the Torres investment scam, a major financial fraud that has impacted nearly 125,000 investors.



About Maharashtra Protection of Interest of Depositors (MPID) Act, 1999

- The **Maharashtra Protection of Interest of Depositors (in Financial Establishments) Act, 1999 (MPID Act)** was enacted to safeguard investors from fraudulent financial establishments that collect money under false promises and later default on repayments.
- The Act provides for the **attachment, sale, and distribution of assets** belonging to such financial entities to ensure that depositors can recover their funds.

Key Provisions of the MPID Act

1. Applicability:

- The Act applies to **financial establishments** that accept deposits from the public but fail to return the money along with the promised benefits (interest, bonus, or profits).
- The term *financial establishment* excludes banks and institutions regulated by the **Reserve Bank of India (RBI)** or other regulatory bodies.

2. Punishment for Fraudulent Financial Entities:

- Any person responsible for defaulting on deposits—**promoters, directors, partners, managers, or employees**—can face **up to six years of imprisonment** and a fine of **up to ₹1 lakh**.

3. Attachment and Sale of Properties:

- The government can **attach money, properties, and other assets** acquired by the fraudulent financial establishment.
- Once an attachment order is issued, a designated court can **make it absolute** and **order the sale of assets**.
- The sale proceeds are **equitably distributed among defrauded depositors**.

4. Fast-Track Mechanism for Investors' Relief:

- Unlike regular criminal proceedings that can take years, the MPID Act provides a **speedy process** for investors to reclaim their money.
- The law ensures that **legal expenses do not become a burden** on depositors seeking justice.

Significance of the MPID Act

- Protects investors—**especially from middle-class and lower-income groups**—from **Ponzi schemes and fraudulent financial firms**.
- Ensures that **defrauded investors can recover their money** through a structured **attachment and liquidation process**.
- Strengthens **state enforcement** against financial fraud, independent of existing banking and corporate laws.

Global Sea Ice Cover Hits Record Low

News: Global sea ice cover has dropped to a record low, with the combined extent of Arctic and Antarctic sea ice reaching just 15.76 million sq km over the five days leading up to February 13, 2025.



About Sea Ice

- Free-floating ice in the polar regions, distinct from icebergs, glaciers, ice sheets, and ice shelves (which form on land). It expands in winter and melts in summer, but some ice persists year-round.
- As of February 13, global sea ice extent dropped to **15.76 million sq km**, breaking the previous record of **15.93 million sq km** (Jan-Feb 2023).
- Arctic and Antarctic sea ice levels are at or near historical lows, based on satellite data since the 1970s.

Reasons Behind the Dip

- **Warm Air & Warm Oceans:** Warmer temperatures delay freezing and accelerate melting.
- **Ice-Breaking Winds:** Antarctic sea ice, being thinner and more mobile, is easily fragmented.
- **Storms in the Arctic:** Broke apart ice in Barents and Bering Seas.
- **Delayed Freezing:** Unusually warm waters in Hudson Bay slowed ice formation.

Consequences of Reduced Sea Ice

- **Increased Heat Absorption:** Less ice means more sunlight is absorbed, raising temperatures further.
- **Polar Warming Acceleration:** Polar regions are heating faster than the rest of the planet.
- **Disruption of Ocean Currents:** Freshwater from melting ice lowers ocean salinity, slowing water circulation.
- **Impact on Marine Life:** Disruptions in food chains and habitat loss.
- **Threat to Ice Shelves:** Slower ocean currents weaken ice shelf stability, leading to further sea-level rise.

Navika Sagar Parikrama II

News: INSV Tarini reached Port Stanley on 18 February 2025. This marks the third and most challenging phase of the voyage.



About Navika Sagar Parikrama II

- **Navika Sagar Parikrama II** is a pioneering circumnavigation expedition by the Indian Navy.
- It is led by **two women officers**, showcasing India's commitment to gender empowerment in maritime sectors.
- The voyage demonstrates the **resilience, skill, and self-reliance** of the Indian Navy's personnel.
- The vessel **INSV Tarini** set sail from **Goa, India**. It is navigating across the **Indian, Atlantic, and Pacific Oceans**.
- The crew encountered **three cyclones** and navigated the treacherous **Drake Passage**.

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- They crossed **Cape Horn** and passed through **Point Nemo**, the Oceanic Pole of Inaccessibility.
- The vessel will continue its journey towards **Cape Town, South Africa**. The final leg of the expedition will lead **back to India**.

Mission Objectives

- Promote ocean sailing and adventure sports.
- Encourage women's participation in maritime and defence sectors.
- Highlight India's rich maritime heritage and Naval traditions.
- Strengthen global goodwill and naval diplomacy.

Bacteria made Band Aid for plants

News: Scientists have discovered a bacterial cellulose bandage that can significantly speed up healing in plants, marking a potential revolution in agriculture and plant care.



About Bacteria-Made Band-Aid

- Bacterial cellulose, a **natural polymer** produced by certain bacteria, has long been used in human medicine for wound healing.
- Now, researchers have found that it works just as effectively on plants.
- A recent study, published showed that when applied to plant wounds, these cellulose patches **accelerated healing by more than 80%** compared to untreated cuts.

How It Works

- When plants suffer from injuries—whether due to pruning, environmental damage, or grafting—bacterial cellulose forms a protective layer, reducing infection risk and promoting faster regeneration.

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- Researchers found that plants treated with these patches not only healed quicker but also improved their ability to grow new shoots from cuttings, a process called **vegetative propagation**.
- The bacterial cellulose patches could:
 - **Enhance grafting success** in horticulture
 - **Protect and preserve cuttings** in commercial plant propagation
 - **Serve as a growth medium** in laboratory research

Article 101(4) of the Indian Constitution

News: Amritpal Singh, incarcerated under the National Security Act, has moved the Punjab and Haryana High Court to attend the ongoing Parliament session. He seeks to avoid disqualification under Article 101(4) due to prolonged absence from the Lok Sabha.



About Article 101(4) of the Indian Constitution

- **Article 101(4) of the Indian Constitution provides that:**
 - If a Member of Parliament (MP) is absent from the House for 60 consecutive days without permission, their seat may be declared vacant.
 - The counting of days excludes periods when Parliament is not in session.
 - The decision regarding disqualification is taken by the Speaker (Lok Sabha) or Chairman (Rajya Sabha).
- **Purpose of Article 101(4)**
 - Ensures that MPs actively participate in legislative proceedings.
 - Prevents neglect of parliamentary responsibilities by elected representatives.
 - Upholds the principle of accountability in democracy.
- **Exceptions & Considerations**

- MPs can apply for leave of absence due to valid reasons such as illness, detention, or unavoidable circumstances.
- If the House grants permission, the MP does not lose their seat.
- In case of legal detention, courts may intervene to allow attendance if required.

Majorana 1 Chip

News: Recently, Microsoft introduced its latest Majorana 1 chip.

About Majorana 1



- **Aim:** Majorana 1 aims to bring quantum computing closer to real-world applications by addressing key challenges in the field.
- **Reduced Error Rates:** It utilizes the properties of Majorana fermions to improve fault tolerance, making computations more stable and reliable.
- **20 Years in the Making:** The chip has been in development for nearly two decades, representing a long-term investment by Microsoft.
- **Potential Applications:** It is expected to revolutionize fields such as medicine, chemistry, cryptography, and aerospace by solving complex problems beyond the capability of classical computers.
- **Challenges in Quantum Computing:** Traditional qubits suffer from instability and high error rates, which the Majorana 1 chip seeks to overcome.
- **Competition with Tech Giants:** Rivals such as Google and IBM have also made strides in quantum computing, but Microsoft claims its approach offers superior fault tolerance.

Technology Adoption Fund (TAF)

News: IN-SPACe officially announced that TAF will promote space technology development. The initiative is expected to **accelerate innovation** and support space startups.



About Technology Adoption Fund (TAF)

- The **Technology Adoption Fund (TAF)** is an initiative launched by the **Indian National Space Promotion and Authorization Centre (IN-SPACe)** to support and accelerate the development of India's space technology sector.
- The fund is designed to assist **startups, MSMEs, and larger industries** in transforming their early-stage space technologies into commercially viable products.
- **Key Objectives of TAF**
 - Encourage domestic innovation in space technology.
 - Reduce India's reliance on imported space solutions.
 - Foster collaboration between **government bodies and private players**.
 - Enable the **commercialization of cutting-edge space technologies**.
- **Funding Structure**
 - **Startups and MSMEs:** Up to **60% of project cost** covered.
 - **Larger industries:** Up to **40% of project cost** covered.
 - **Maximum funding per project:** Rs 25 crore.
- **Benefits of TAF**
 - Bridges the gap between **innovation and market-ready solutions**.
 - Helps companies refine their technologies and production processes.
 - Positions India as a **global leader in space technology**.
 - Promotes the creation of **intellectual property (IP)** for future R&D.

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National Dam Safety Authority

News: The Supreme Court directed a supervisory committee, chaired by the head of the National Dam Safety Authority, to examine concerns raised by Tamil Nadu against Kerala regarding the maintenance of the 125-year-old Mullaperiyar Dam.



About National Dam Safety Authority

- The **National Dam Safety Authority (NDSA)** is a statutory body in India established under the **Dam Safety Act, 2021** to ensure the safety and maintenance of dams across the country.
- **Functions of NDSA**
 - **Implementation of Dam Safety Standards** – Ensures compliance with the guidelines set by the National Committee on Dam Safety (NCDS).
 - **Technical Supervision** – Oversees safety inspections, risk assessments, and maintenance of dams.
 - **Coordination Between States** – Acts as a mediator in inter-state dam disputes and ensures uniform safety protocols.
 - **Emergency Response Planning** – Works with disaster management agencies to prepare for dam failures and related hazards.
 - **Capacity Building & Research** – Promotes research, training programs, and technological advancements in dam safety.
- **Structure of NDSA**
 - The **Chairperson**, appointed by the central government, leads the authority.
 - It includes technical experts in dam engineering, hydrology, and disaster management.
 - Regional offices may be set up for better monitoring and coordination.
- **Significance of NDSA**
 - India has over **5,700 large dams**, many of which are aging and require stringent safety measures.

- Climate change, increasing water demand, and infrastructure development necessitate a robust regulatory framework for dam safety.
- The NDSA helps prevent dam failures, which could lead to catastrophic loss of life and property.

Ukraine's Critical Minerals

News: The US has proposed gaining access to 50% of Ukraine's mineral resources in return for military support. Trump claims that Ukraine owes the US \$500 billion worth of resources in exchange for past military aid.



About Ukraine's Critical Minerals

- **Abundant Reserves:** Ukraine possesses **22 of the 50 strategic minerals** identified as critical by the US. It holds **25 out of 34 minerals** recognized as critical by the EU.
- **Key Minerals:**
 - **Graphite** – Essential for batteries and energy storage.
 - **Lithium** – Crucial for electric vehicle (EV) batteries and renewable energy.
 - **Titanium** – Used in aerospace, defense, and industrial applications.
 - **Beryllium** – Important for high-tech equipment, satellites, and defense.
 - **Uranium** – Vital for nuclear energy and defense purposes.
- **Global Significance:** Ukraine's mineral wealth plays a crucial role in **defense, technology, and clean energy**. These resources are valuable as **China controls a large portion of the global supply** of critical minerals.
- **Exploration and Extraction Challenges:** Many reserves are **underexplored**, with old geological surveys from the Soviet era. A significant portion of deposits, including **lithium and rare earth elements**, are in **Russian-occupied territories**.

Dinesh Khara Committee

News: Insurance Regulatory and Development Authority (IRDAI) has set up a high-powered committee led by Dinesh Khara, former Chairman of the State Bank of India (SBI).



About the Dinesh Khara Committee

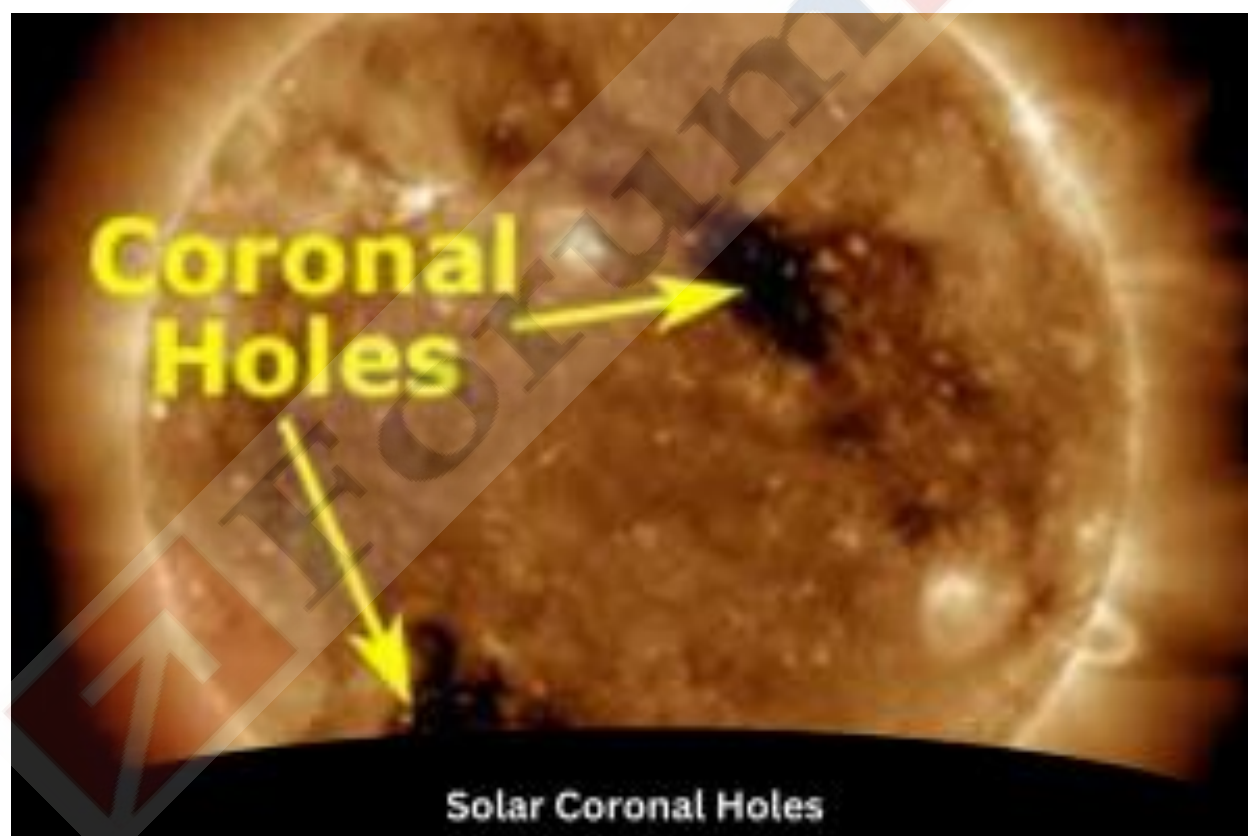
- The **Dinesh Khara Committee** is a **high-powered committee** formed by the **Insurance Regulatory and Development Authority of India (IRDAI)** to review the **Insurance Act, 1938** and suggest necessary amendments.
- **Aims:** It aims to align the Act with **modern insurance industry needs** and **boost foreign investment**.
- **Purpose of the Committee**
 - To **scrutinize** various aspects of the **Insurance Act, 1938**.
 - To recommend **amendments** to improve **insurance penetration** and attract investments.
 - To align **insurance laws** with modern economic and regulatory requirements.
 - To support the government's proposal of **allowing 100% foreign direct investment (FDI)** in the insurance sector.
- **Members of the Committee:** The seven-member panel includes:
 - **Dinesh Khara** – Former Chairman of **State Bank of India** (Chairperson of the Committee).
 - **NS Kannan** – Former MD & CEO of **ICICI Prudential Life Insurance**.
 - **Girish Radhakrishnan** – Former CMD of **United India Insurance**.
 - **Rakesh Joshi** – Former Member of **IRDAI**.
 - **Saurabh Sinha** – Former Executive Director of **RBI**.
 - **Alok Misra** – MD & CEO of **MFIN (Microfinance Institutions Network)**.
 - **L Vishwanathan** – Legal expert.

Key Recommendations

- **Increase in FDI Limit:** Allow **100% foreign direct investment (FDI)** in the insurance sector.
- **Composite Licences:** Permit insurers to operate in multiple insurance categories under a single licence.
- **Differential Capital Requirements:** Adjust capital requirements based on business size and risk exposure.
- **Reduction in Solvency Norms:** Modify solvency margin requirements to improve insurer efficiency.
- **Captive Licences:** Introduce captive insurance licensing for businesses to self-insure risks.
- **Investment Regulations:** Review **investment and repatriation** rules for foreign insurers.
- **One-time Registration for Intermediaries:** Simplify regulatory processes for insurance brokers and intermediaries.
- **Distribution of Financial Products:** Allow insurers to sell other financial products.

Solar Coronal Holes

News: Recently, astronomers conducted an extensive study on coronal holes. The study suggests that coronal holes influence Indian monsoon rainfall through their radiative effects.



About Solar Coronal Holes

- Solar coronal holes are regions on the Sun's outer atmosphere (corona) that appear dark in X-ray and extreme ultraviolet (EUV) images due to their lower density and temperature compared to surrounding areas.

- These regions have open magnetic field lines, allowing high-speed solar wind to escape into space, influencing space weather and Earth's magnetosphere.
- These regions have low-density plasma and open magnetic field lines, allowing solar wind to escape more easily into space.
- They are significant sources of high-speed solar wind, with speeds ranging between 450-800 km/sec.
- Coronal holes were first discovered in the 1970s using X-ray satellites.
- They play a crucial role in space weather as they influence the interplanetary magnetic field and affect Earth's magnetosphere.
- **Impact on Space Weather and Earth:**
 - Coronal holes can cause geomagnetic storms when the high-speed solar wind they generate interacts with Earth's magnetic field. These storms can disrupt power grids, satellite communications, and navigation systems.
 - Coronal holes can disturb the Earth's ionosphere, which is responsible for reflecting and modifying radio waves, leading to disruptions in radio communication.

Remission

News: Recently, the Supreme Court in a landmark ruling, directed all states with remission policies to consider the premature release of eligible prisoners even if they have not applied for remission.



About Remission

- Remission is the reduction of a prison sentence granted to a convict before the completion of their term.

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- It is different from parole or pardon, as the conviction remains, but the sentence is shortened.
- **Legal Provisions for Remission:**
 - **Section 473 of BNSS, 2023** and **Section 432 of CrPC, 1973** empower state governments to remit sentences
 - States can impose conditions for remission, such as periodic reporting to authorities
 - **Articles 72 and 161 of the Constitution** grant the President and Governors the power to remit sentences.
- **Considerations for Granting Remission**
 - The nature of the crime and its motive.
 - The convict's criminal background and potential for rehabilitation.
 - Public safety concerns.
 - Ensuring conditions do not make remission practically impossible.
- **Restrictions on Remission: Section 475 of BNSS (Section 433A of CrPC)** states that life convicts guilty of crimes punishable by death must serve at least **14 years** before being considered for remission.

Supreme Court's Landmark Ruling (2025)

- States must consider premature release of prisoners **even if they do not apply for remission**.
- Earlier rulings (2013) required prisoners to apply first, but the SC overturned this condition.
- If a state has a remission policy, it **must** proactively review cases for eligibility.
- Denying remission without consideration violates **Article 14 (Right to Equality)** of the Indian Constitution.

SC's Directives to States

- States must formulate an **exhaustive remission policy** within **two months** (if not already in place).
- Policies must include **clear, reasonable, and non-oppressive conditions** for remission.
- A convict **must receive notice** and have the chance to respond before remission is revoked.

DHARMA GUARDIAN Exercise

News: The Indian Army contingent has departed for the 6th edition of India-Japan Joint Military Exercise – DHARMA GUARDIAN, scheduled from 24th February to 9th March 2025 at the East Fuji Manoeuvre Training Area, Japan.

About DHARMA GUARDIAN Exercise



Source: PIB

- This is an annual joint military exercise, held alternately in India and Japan. The previous edition (2024) was conducted in Rajasthan, India.
- **Participating Forces:**
 - Indian Contingent: 120 personnel, primarily from a battalion of the MADRAS Regiment includes troops from other arms and services.
 - Japanese Contingent: Similar strength from the 34th Infantry Regiment of Japan Ground Self-Defence Force (JGSDF).
- **Objectives:**
 - Enhancing Interoperability between Indian and Japanese forces.
 - Joint Urban Warfare & Counter-Terrorism Operations under a UN mandate.
 - High Physical Fitness Training, joint planning, and tactical drills.
 - Tactical Drills & Disaster Response Strategies to improve operational capabilities.
 - Strengthening Defence Cooperation and refining combat skills.
- **Significance & Strategic Importance:**
 - Strengthens Bilateral Defence Relations between India and Japan.
 - Builds on the momentum of the Chief of the Army Staff's visit to Japan (14-17 October 2024).
 - Promotes Regional Security & Stability in line with the Indo-Pacific vision.
 - Fosters Military & Cultural Ties, reinforcing trust and cooperation.

National Medical Commission (NMC)

News: Recently, the Supreme Court struck down the National Medical Commission (NMC)'s eligibility condition requiring MBBS aspirants with disabilities to have "both hands intact, with intact sensation and sufficient strength."



About National Medical Commission (NMC)

- The **National Medical Commission (NMC)** is the **statutory body established under the National Medical Commission Act, 2019, replacing the Medical Council of India (MCI)**.
- It is a regulatory body responsible for overseeing medical education and the medical profession in India.
- **Objectives of NMC:**
 - **Regulation of Medical Education:** It ensures uniform standards in medical education, both undergraduate (MBBS) and postgraduate (MD/MS).
 - **Assessment and Accreditation:** It oversees the assessment, accreditation, and recognition of medical institutions across India.
 - **Licensing and Registration:** It maintains a National Register of Medical Practitioners and regulates medical licenses.
 - **Improving Access to Healthcare:** It enhances the availability of medical professionals in rural and underserved areas.
 - **Professional Ethics and Standards:** It ensures ethical medical practice and adherence to professional conduct.
 - **Fee Regulation:** It oversees the structure of fees in private medical colleges for transparency and affordability.
 - **Encouraging Research and Innovation:** It promotes scientific advancements and innovation in the healthcare sector.
- **Composition of NMC**
 - **Total:** 25 members, with the majority appointed by the Central Government.

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- **Tenure:** Four years, Part-time members: Two years.
- **11 part-time members** represent states or state medical councils.
- The chairperson and other members nominated by the Central Government are not eligible for renomination.
- Any decision by the Commission requires the approval of at **least 13 out of its 25 members**.