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CABINET APPROVES SHANTI BILL

Context

- The Union Cabinet has approved the Atomic Energy Bill, 2025, titled SHANTI (Sustainable Harnessing of Advancement of Nuclear Technology for India).
  - The Bill seeks to create a **unified and modern legal framework** for India's nuclear sector.

About

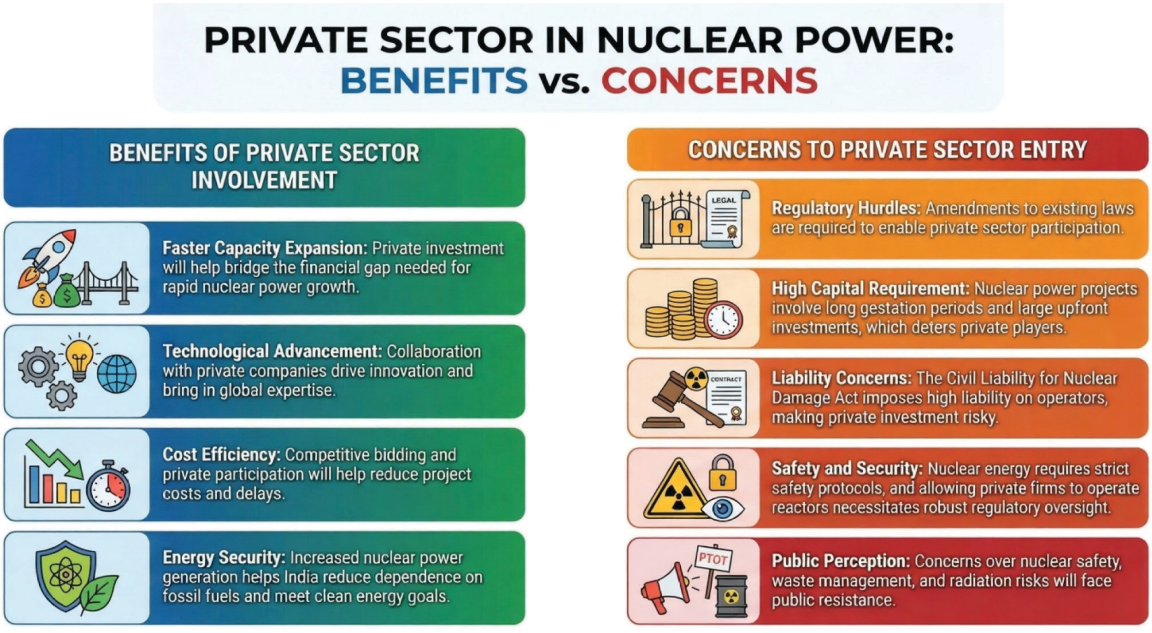
- Traditionally, nuclear power plants in India have been owned and operated only by state-owned **Nuclear Power Corporation of India Ltd (NPCIL)** and its fully-owned subsidiary **Bharatiya Nabhikiya Vidyut Nigam (BHAVINI).**
- To allow private sector participation government has to amend key legislations;
  - **Atomic Energy Act, 1962**, a framework for nuclear energy development and regulation.
  - **Civil Liability for Nuclear Damage Act, 2010,** ensuring compensation mechanisms for nuclear incidents.

Key Provisions of the Bill

- **Partial Opening of the Nuclear Value Chain:** The Bill allows private and global companies to participate in atomic mineral exploration, nuclear fuel fabrication and manufacturing of nuclear equipment and components.
  - Core and strategic areas such as **reactor operation and weapons-related activities** will continue to remain under government control.
- **Revamp of the Nuclear Liability Regime:** The Bill proposes a redesigned liability framework to address long-standing investor concerns by;
  - **Clearly defining liability responsibilities** among operators, suppliers, and the government.
  - **Introducing insurance-backed liability** caps to limit financial uncertainty.
  - **Providing government support** beyond a fixed liability threshold.
- **Nuclear Safety Authority:** The legislation proposes the establishment of an independent nuclear safety authority.
  - This body will strengthen regulatory oversight, separate safety regulation from promotional roles, and enhance credibility and transparency.
- **Dedicated Nuclear Tribunal**: It calls for a dedicated tribunal to handle nuclear-related disputes, intended to streamline resolution and enhance transparency in the sector.

Strategic Rationale Behind the Reform

- **India has set an ambitious target** of **100 GW** of nuclear power capacity by **2047.** Achieving this goal requires **large-scale capital infusion, advanced reactor technologies and Faster project execution.**
- **Energy Transition:** Nuclear power provides clean, reliable baseload energy, complementing intermittent renewables.
  - It supports India's commitments under climate agreements by reducing dependence on fossil fuels.
- **Enhancing Energy Security:** Diversifying energy sources through nuclear power reduces vulnerability to fuel imports and geopolitical shocks.



Way Ahead

- **Clear Regulatory Framework:** Establish a robust regulatory environment to ensure safety, compliance, and transparency, addressing concerns about accountability and national security.
- **Public-Private Partnerships (PPPs):** Promote partnerships where the government maintains oversight, while private players handle operations, innovation, and investment, ensuring a balance of interests.
- **Gradual Implementation:** Start with pilot projects and small-scale initiatives to test private sector involvement, ensuring risk management before large-scale implementation.

Source: TH

CABINET APPROVES INDIA-OMAN FREE TRADE PACT

Context

- The Union Cabinet has approved the proposed **Free Trade Agreement between India and Oman.**

About

- **The Comprehensive Economic Partnership Agreement** approval comes ahead of the Prime Minister's **three-nation tour to Jordan, Ethiopia and Oman.**
  - It was approved by the lower house of Parliament of Oman as well.
- The PM visit to Oman will be his second visit to the country and coincides with the **70th anniversary of diplomatic relations between the two nations.**
- **FTA:** Negotiations for the agreement began officially in **2023**.
  - In FTAs two trading partners either significantly reduce or eliminate customs duties on a maximum number of goods traded between them.
  - They also ease norms to promote trade in services and attract investments.
  - India already has a similar agreement with another Gulf Cooperation Council (GCC) member **UAE** which came into effect in **2022**.

Major Highlights of the FTA

- With the Comprehensive Economic Partnership Agreement (CEPA), India will get access to **98% of its products in Oman** and significant access in services.
- Oman's import duty ranges from 0 to 100% along with the existence of specific duties.
- Other than trade investment flows between the two sides are also expected to benefit from the agreement.

India-Oman Ties

- Diplomatic relations were **formalised in 1955** and elevated to a **Strategic Partnership in 2008.**
- **Trade Relations:** Oman is India's **30th largest trading partner in FY 2023-2024** with total trade of US$ 8.947 billion.
  - India is among Oman's **top trading partners** and Oman is the **third largest export destination** among the Gulf Cooperation Council (GCC) countries.
  - India is the 4th largest market for Oman's crude oil exports for the year 2023 after South Korea.
- **Investment flows** have been similarly robust, with more than **6,000 India–Oman joint ventures operating in Oman.**
  - These ventures account for an estimated **7.5 billion US dollars in capital over time.**
  - Oman's cumulative FDI equity inflows into India between **2000 - 2025 amounted to 605.57 million US dollars.**
- **Defence Cooperation:** India and Oman conduct regular biennial bilateral exercises between all three services.
  - Army exercise: Al Najah
  - Air Force exercise: Eastern Bridge
  - Naval Exercise: Naseem Al Bahr
- **Maritime Cooperation:** Oman is at the gateway of Strait of Hormuz through which India imports one-fifth of its oil imports.
  - India signed a pact with the country in 2018 to access the Duqm port of Oman.
  - The Port of Duqm is situated on the southeastern seaboard of Oman, overlooking the Arabian Sea and the Indian Ocean. It is strategically located, in close proximity to the Chabahar port in Iran.

About GCC

- It is a **political and economic alliance** of **six Middle Eastern countries**—Saudi Arabia, Kuwait, the United Arab Emirates, Qatar, Bahrain, and Oman.
- It was established in **1981.**
- It aims to achieve unity among its members based on their common objectives and their similar political and cultural identities, which are rooted in Arab and Islamic cultures.
- The presidency of the council rotates **annually**.

Way Ahead

- Realpolitik and strategic interests have been instrumental in bringing India closer to the Gulf countries, with both sides willing to collaborate.
- In the long run, defense industrial cooperation and technology transfers will likely come to form a pivotal component of their strategic cooperation.
- The convergences of interests – political, economic, technological and military-security – therefore, could pave the way for the furtherance of India's diplomacy with the Gulf states.

Source: DD

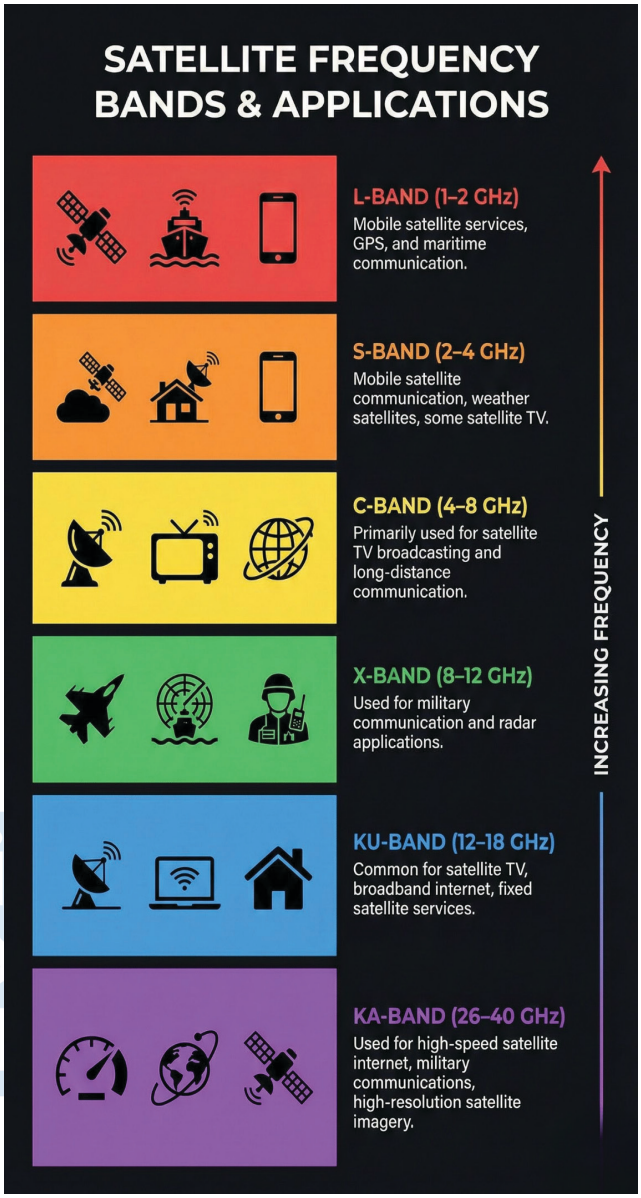
NEW FIGHT FOR SPECTRUM IN SPACE

Context

- The rapid expansion of satellite megaconstellations, driven by soaring demand for high-speed connectivity, has intensified the global race for limited spectrum and orbital slots.

What is Satellite Spectrum?

- Satellite spectrum refers to the **radio frequencies** used for satellite communications.
  - These frequencies enable satellite-based systems to **transmit data and signals between satellites** in orbit and ground stations.
- Unlike terrestrial spectrum, satellite spectrum operates without national territorial limits and is managed globally by the **International Telecommunications Union (ITU).**
- Satellite spectrum is divided into different frequency bands, each suited for specific types of communication



Spectrum allocation in India

- **Spectrum for satcom** is part of the first schedule of **The Telecommunications Act, 2023** ("Assignment of spectrum through administrative process").
- **Under Section 4(4)** of the Act, telecom spectrum shall be assigned through auction "except for entries listed in the **First Schedule** for which assignment shall be done by administrative process".
- **Administrative process** under the Act means assignment of spectrum without holding an auction (a bid process for assignment of spectrum).

Fight for Spectrum in Space

- **Spectrum Congestion:** Ku, Ka, and L bands are in extremely high demand. Overlapping frequencies risk interference, reducing service quality and threatening critical functions such as GPS.

- **Orbital Crowding and Debris:** Over 40,000 tracked objects already orbit Earth, including 27,000+ pieces of debris larger than 10 cm.
  - Projections show 50,000+ satellites may orbit by 2030, increasing collision risks and complicating scientific observations.
- **The ITU's first-come, first-served system** favours well-resourced spacefaring nations and companies that can file early and manage complex coordination, leaving late entrants with fewer and less valuable spectrum–orbit options.
- **Digital Divide and Affordability:** LEO satellites offer **low latency (20–40 ms),** enabling telemedicine and online education.
  - But affordability remains a challenge as Starlink terminal costs **$600,** unaffordable for most rural populations.
  - The ITU estimates that bridging global digital gaps will require **$2.6–2.8 trillion by 2030.**

Consequences of the Unregulated Spectrum Race

- **Technological Consequences:** Increased interference reduces reliability of services such as remote sensing, GPS, and climate observation.
  - Scientific astronomy faces disruptions due to bright satellite trails and radio noise.
- **Economic Consequences:** Early movers may establish monopolies in satellite broadband markets. **Spectrum scarcity** raises the cost of deployment for late entrants.
- **Geopolitical Consequences:** Unequal access to spectrum deepens the strategic divide between advanced and developing nations.
- **Social Consequences:** Without affordability reforms, satellite Internet may become premium infrastructure serving wealthy users, not underserved communities. This undermines its potential to reduce the global digital gap.

Reforms under World Radiocommunication Conference

- The World Radiocommunication Conference 2023 introduced key reforms through **Resolution 8,** requiring operators to report any deviation between planned and actual orbital deployments to **prevent misuse of filings.**
- It also set **phased deployment benchmarks** for megaconstellations, **10% within two years, 50% within five years, and full deployment within seven years**, to ensure timely and accountable use of spectrum and orbital resources.

Way Ahead

- The spectrum–orbit race demands updated global governance to balance innovation with sustainability, ensuring transparent coordination, stronger debris mitigation, and equitable access.
- For emerging spacefaring nations like India, active participation in shaping these norms is crucial to keep outer space sustainable and inclusive.

International Telecommunications Union (ITU)

- The ITU is a specialised agency of the **United Nations with 194** member states.
- **Founded in 1865** to facilitate international connectivity in communications networks, it serves as the **sole global coordinator for satellite spectrum** and **orbital slots**.
  - **India** has been a member of **ITU since 1869.**
- **Functions:** It allocates global radio spectrum and satellite orbits.
  - It develops the **technical standards** that ensure networks and technologies seamlessly interconnect, and strive to improve access to ICTs to underserved communities worldwide.

Source: TH

NITI AAYOG RELEASES REPORT ON "DEEPENING THE CORPORATE BOND MARKET IN INDIA"

Context

- NITI Aayog has released the report titled **"Deepening the Corporate Bond Market in India".**

About

- **The report examines** the current state, challenges, and future roadmap for strengthening India's corporate bond market—a key financing avenue for corporations, infrastructure, MSMEs, and emerging sectors.
  - **A deep and liquid corporate bond market** helps mobilise long-term capital, reducing over-reliance on bank credit and supporting economic growth.
  - **It is critical for** financing infrastructure, climate actions, MSMEs, and emerging sectors aligned with Viksit Bharat 2047 goals.

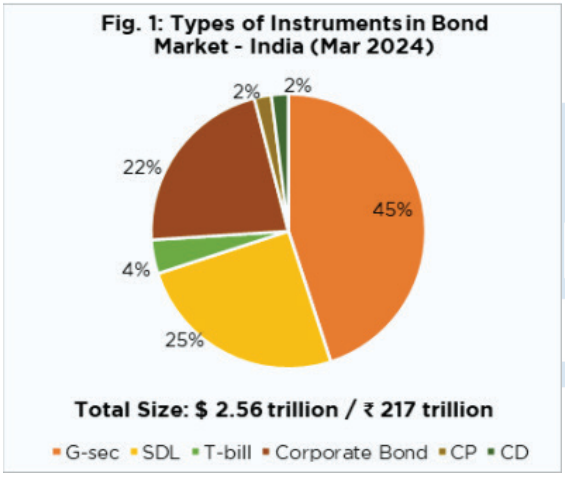
What is a Corporate Bond?

- Corporate bonds are **debt securities** issued by **private and public corporations.**
- **Companies issue corporate bonds** to raise money for a variety of purposes, such as building a new plant, purchasing equipment, or growing the business.
- **When one buys a corporate bond**, one lends money to the **"issuer,"** the company that issued the bond.

- In exchange, the company promises to return the money, also known as **"principal," on** a specified maturity date. Until that date, the company usually pays you a stated **rate of interest,** generally semiannually.
- While a corporate bond gives an **IOU (I owe you) from the company,** it does not have an **ownership interest** in the issuing company, unlike when one purchases the company's equity stock.

Major Highlights of the Report

- **Growth and Current Status:** Outstanding corporate bonds rose from 17.5 trillion (FY2015) to 53.6 trillion (FY2025), growing at ~12% annually.
  - Market size is 15–16% of GDP, improved but still below peers like South Korea, Malaysia and China.
  - Corporate bond fundraising is now approaching bank credit levels, signalling a gradual shift to market-based financing.



- **Strategic Importance:** A deep corporate bond market is indispensable for a $30 trillion economy by 2047, enabling mobilisation of long-term, low-cost capital for infrastructure, industry, climate action and emerging sectors.
  - It complements banks, reduces systemic concentration risks, strengthens monetary transmission, and supports a resilient financial architecture.
- **The report forecasts** that India's corporate bond market has the potential to exceed ₹100–120 trillion by 2030 (approximately $1.3–1.4 trillion), provided deeper structural reforms and institutional capacity-building are undertaken.
- **Equity vs. Bond Market Imbalance:** India' s equity market is valued at USD 4.8 trillion while the bond market is valued at USD 642 billion.
  - Equity markets are nearly 7 times larger than bond markets, indicating significant imbalance
- **Structural Limitations:**
  - **Issuer concentration:** Dominated by top-rated corporates; limited MSME participation.
  - **Investor concentration:** Heavy reliance on institutional investors; low retail and FPI participation.
  - **Market structure:** Private placements dominate; secondary market liquidity is shallow.
  - **Regulatory frictions:** Overlapping regulators, high compliance costs, procedural delays.
  - **Investment constraints:** Insurance and pension funds face limits on lower-rated securities.
  - **Weak enablers:** Inefficient debt recovery, tax asymmetries, high transaction costs.
- **Economic Benefits of a Deep Bond Market:**
  - Channels institutional and household savings into productive investment.
  - Supports development of risk management tools.
  - Provides stable financing for infrastructure, green transition, MSMEs and innovation-led sectors.
- **Global Experience & Lessons:** Countries like US, South Korea, Singapore and Thailand show success through:
  - coherent and unified regulation;
  - strong market infrastructure;
  - active market-making and deep secondary markets;
  - streamlined disclosures and credit enhancement mechanisms.
- These features enhance liquidity, investor diversity and financing depth.

Reforms Undertaken in India

- **SEBI:** SEBI has introduced **electronic trading** through the **Request for Quote (RFQ)** platform, facilitated retail access through online bond platforms, strengthened governance standards for credit rating agencies and debenture trustees, and simplified issuance norms.
- **RBI:** The RBI has enhanced settlement architecture, introduced tri-party repos and credit default swaps, and supported the development of repo and clearing mechanisms.
- **Government:** Additionally, the Government has promoted Infrastructure Investment Trusts (InvITs), Real Estate Investment Trusts (REITs), and green finance initiatives to encourage long-term investment and deepen capital markets.

- Collectively, these reforms have laid a strong foundation for a **more transparent, accessible, and technology-driven bond market ecosystem.**

Reform Roadmap (Phased Approach)

- **Short-term priorities:** Streamline regulations and improve inter-regulatory coordination.
  - Strengthen market infrastructure and digital access.
  - Simplify issuance for wider issuer participation.
  - Build confidence via quick wins and early liquidity improvements.
- **Medium to Long-term priorities:** Unified regulatory architecture and stronger resolution mechanisms.
  - Deeper secondary markets with active market-making and repo facilities.
  - Broader issuer base (mid-sized firms, new asset classes).
  - **Product innovation:** long-tenor bonds, credit-enhanced instruments, sustainability-linked bonds.
  - Expand investor base (insurance, pension, retail, FPIs).
  - Leverage digital innovations (tokenised bonds, integrated data platforms).

Source: PIB

INDIA OUT OF PAX SILICA INITIATIVE

Context

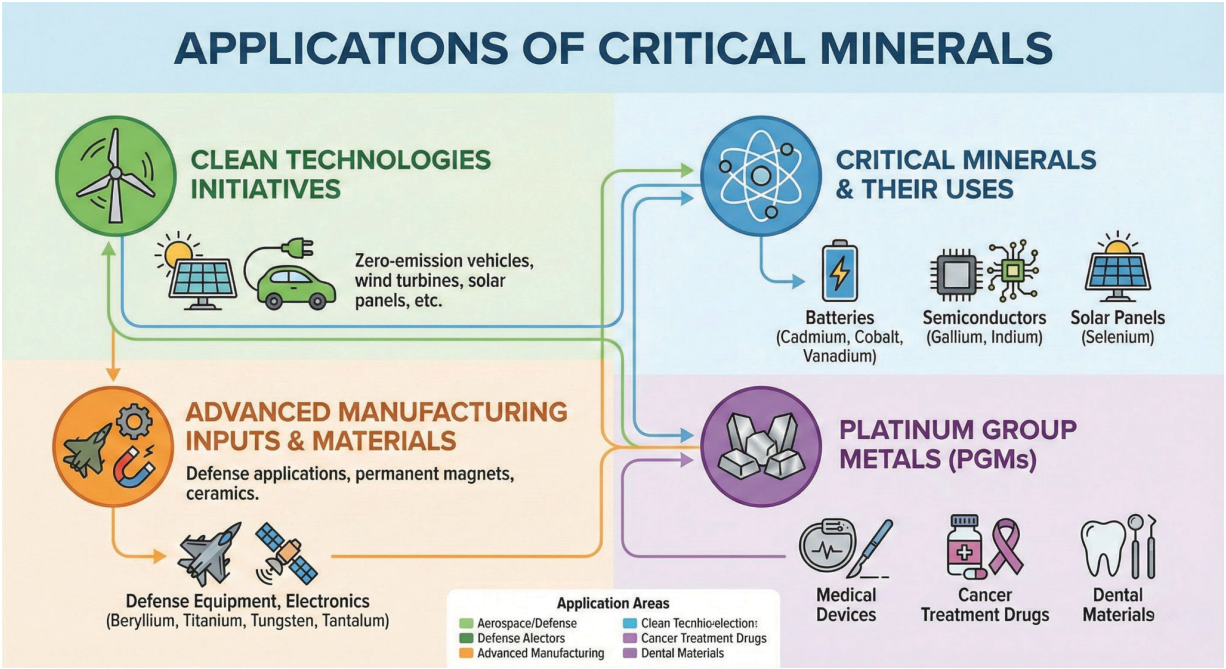
- India has been excluded from the **US-led Pax Silica initiative,** a new US critical mineral diversification plan.

About

- **Pax Silica** is a **US-led strategic initiative** to build a secure, prosperous, and innovation-driven silicon supply chain from critical minerals.
- **The inaugural Pax Silica Summit convenes counterparts from:** Japan, Republic of Korea, Singapore, the Netherlands, The United Kingdom, Israel, United Arab Emirates, and Australia.
  - Together, these countries are home to the most important companies and investors powering the global AI supply chain.
- **Its objective** is to reduce coercive dependencies, protect the materials and capabilities foundational to artificial intelligence, and ensure aligned nations can develop and deploy transformative technologies at scale.
- **Countries will partner** on securing strategic stacks of the global technology supply chain, including, but not limited to, software applications and platforms.

What are Critical Minerals?

- Critical minerals are elements that are the **building blocks of essential modern-day technologies,** and are at risk of supply chain disruptions.
  - The lack of availability of these minerals or the concentration of extraction or processing in a few geographical locations could potentially lead to "**supply chain vulnerabilities and even disruption of supplies".**



List of Critical Minerals

- **Different countries have their own unique lists** of critical minerals based on their specific circumstances and priorities.
- **A total of 30 minerals were found to be most critical for India**: Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium and Cadmium.

Source: IE

NEWS IN SHORT

PREAH VIHEAR TEMPLE

In News

- India has expressed concern over reports of damage to conservation facilities at the Preah Vihear temple complex.

About Preah Vihear Temple

- It is an ancient **Hindu temple** dedicated to **Shiva located in Cambodia**, near the border with Thailand.
- It was built mainly during the reigns of **Khmer kings Suryavarman I and Suryavarman II** (9th–12th centuries CE).
- It was declared a **UNESCO World Heritage Site** in 2008.

Source: TH

PRADHAN MANTRI GARIB KALYAN PACKAGE

In News

- The Supreme court extends ₹50 Lakh Pradhan Mantri Garib Kalyan Package (PMGKY) insurance to all doctors who died on COVID.

About PMGKP Insurance Scheme

- **Overview:** The PMGKP Insurance Scheme is a specific component under the larger Pradhan Mantri Garib Kalyan Package, launched in March 2020.
- **Coverage**: Personal accident insurance cover of ₹50 lakh per eligible health worker.
- **Risks Covered:** Death due to COVID-19 infection.
  - Accidental death while performing COVID-related duty.

Source: TH

NATIONAL MAKHANA BOARD HOLDS FIRST MEETING

In News

- A ₹476.03 crore **Central Sector Scheme** for holistic makhana development was rolled out during the **National Makhana Board's first meeting.**

About

- The Union Government has established the **National Makhana Board**, fulfilling the announcement made in the **Union Budget 2025—26.**
- The establishment of the Board marked a major step toward strengthening and modernizing **India's Makhana sector.**
- It is headquartered in Purnea, Bihar.

Do you know?

- Makhana, commonly known in English as fox nut, is the dried edible seed of the prickly water lily or gorgon plant (Euryale ferox).
- This plant is found in freshwater ponds throughout South and East Asia.
- It is recognized for its violet and white flowers, as well as its large, round, and prickly leaves, which can often exceed a meter in diameter.
- The edible part of the Makhana plant consists of small, round seeds that have an outer layer ranging from black to brown.
  - This has led to it being referred to as the 'Black Diamond.'
- In 2022, 'Mithila Makhana' was conferred a Geographical Indication (GI) tag.
- Makhana (Gorgon Nut or Foxnut) is an aquatic crop and is mainly grown in tropical and subtropical regions.

Source :PIB

COALSETU POLICY

In News

- The Union Cabinet has approved the **CoalSETU Policy**, which introduces a new system for coal linkage auctions aimed at improving transparency, efficiency, and flexibility in coal allocation for industrial use.

About CoalSETU Policy

- **Overview:** CoalSETU creates a new auction window under the existing Non-Regulated Sector (NRS) Linkage Auction Policy of 2016.

- **Eligibility and Scope:** Open to any domestic coal buyer (excluding traders); coking coal excluded; removes prior end-use restrictions for flexibility.
- **Usage Restrictions:** Coal for own consumption, export (up to 50% of quantity), coal washing, or other permitted purposes; domestic resale prohibited.
- **Significance:** Enhances transparency, ease of doing business, accelerates domestic coal utilization, reduces import dependence, and aligns with commercial mining reforms.

Source: PIB

INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT (IFAD)

In News

- India showcased its achievements in rural development, women's empowerment and climate-resilient agriculture at the IFAD–India Day event held in Rome.

About International Fund for Agricultural Development

- Headquartered in Rome, Italy, IFAD functions as a UN specialized agency established in 1977 to combat rural poverty in developing nations through targeted financing.
- IFAD provides concessional loans, grants, and technical assistance primarily to smallholder farmers, pastoralists, and rural entrepreneurs, emphasizing agriculture, climate resilience, value-chain development, and livelihood diversification.

Source: PIB

PROJECT SUNCATCHER

Context

- Google CEO Sundar Pichai has announced **Project Suncatcher**, a long-term research initiative to deploy **solar-powered data centres in space by 2027**.

About

- Under this project, Google is exploring constellations of satellites hosting high-performance AI hardware, similar to Starlink's satellite network but focused on space-based computing, not internet delivery.
- These satellites would run on **solar energy**, using **free-space optical links** to connect nodes and transfer data at **terabit speeds**. In space, solar panels can generate **up to 8 times more energy than on Earth** and almost continuously.

Why space?

- AI-driven data centres on Earth are consuming massive electricity and water. Their power demand could rise by 165% by 2030, worsening climate stress and remaining vulnerable to disasters and cable disruptions.

Source: IE

SUPERNOVA

Context

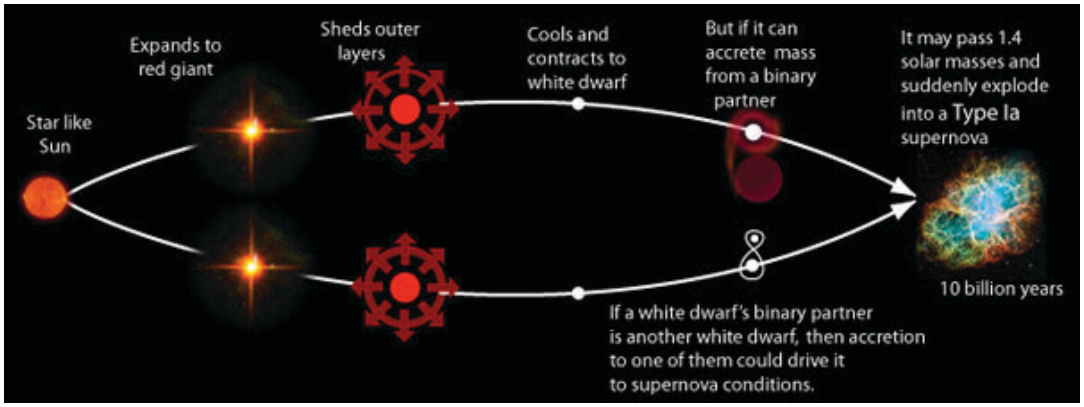
- Astronomers using the **James Webb Space Telescope (JWST)** have identified a rare supernova linked to a long gamma-ray burst, dating to about **730 million years** after the Big Bang.

What is Supernova?

- **Hydrostatic Equilibrium in a Star:** A star survives because of a balance between;
  - **Gravity** which is pulling matter inward and
  - **Nuclear Fusion**, releasing energy outward by fusing hydrogen into helium, and later heavier elements.
- **A supernova** is a powerful and luminous stellar explosion, occurring when a star reaches the end of its life. This happens when a massive **star's core collapses under gravity after it runs out of nuclear fuel.**
  - This **collapse triggers a shockwave** that blasts the star's outer layers into space, creating a supernova.

Types of Supernovae

- **Core-Collapse Supernova (Type II, Ib, Ic):** These supernovae occur in massive stars that are at least eight times the mass of the Sun. When nuclear fusion stops, the core collapses and outer layers blast outward. It leaves behind;
  - **A neutron star** (if mass is at least eight times as massive as the sun), or
  - **A black hole** (if mass is at least 20 times that of the sun).
- **Thermonuclear Supernova (Type Ia):** It occurs in binary star systems where a white dwarf star accumulates matter from its companion.
  - When the white dwarf exceeds the **Chandrasekhar Limit** of approximately **1.4 solar masses** it leads to core compression and runaway nuclear fusion, resulting in a Type Ia supernova with **no core remnant.**



Source: MoneyControl

INDIA'S WILDFIRE MANAGEMENT RESOLUTION ADOPTED AT UNEA-7

Context

- India's resolution titled "Strengthening the Global Management of Wildfires" was adopted at the 7th Session of the **United Nations Environment Assembly (UNEA-7) held in Nairobi, Kenya.**

About

- India drew attention to UNEP's global report '**Spreading Like Wildfire',** which warns that wildfires may rise by **14% by 2030, 30% by 2050 and 50% by 2100,** if current trends continue.
- India emphasized a call for a **shift from a reactive response to proactive prevention**, through better planning, early-warning and timely risk reduction measures.
- The **Global Fire Management Hub**, established in **2023 by FAO and UNEP,** was acknowledged as a key mechanism for supporting international efforts.

Key Provisions of India's Resolution

- Strengthened International Cooperation
- Enhanced Regional and Global Collaboration
- Knowledge Sharing and Capacity Building
- Support for National and Regional Action Plans
- Facilitating Access to International Finance

Source: PIB

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