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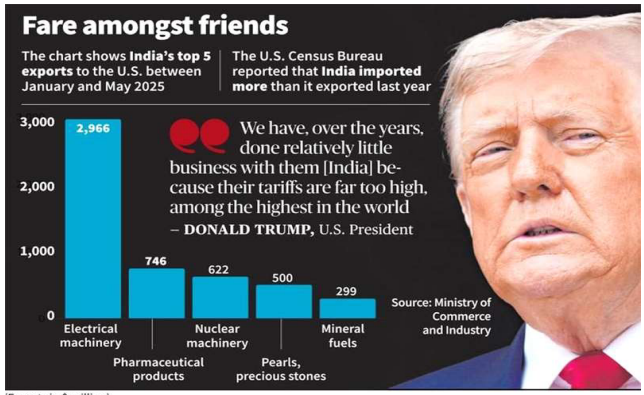
History, Art & Culture

India-US Trade Relations and Geopolitical Developments (2025)



1. Trump's Surprise Tariff Blitz on India

Background

- On **July 30, 2025**, US President Donald Trump announced a **25% tariff** on imports from India effective August 1, 2025, accompanied by an unspecified "penalty."
- The tariff is reportedly an addition over the **existing baseline tariff of 10%**, making India's effective tariff one of the highest imposed by the US on any country.
- The move comes amidst ongoing India-US trade talks **(6th round scheduled in August)**, which have been stuck mainly on sensitive sectors like agriculture and dairy.

Reasons Cited by the US

- India's **continued purchase of energy and military equipment from Russia**, despite Western sanctions and pressure due to Russia's invasion of Ukraine.
- India's **high tariffs** on American goods and other **non-monetary trade barriers** perceived by the US as obstructive.
- The US accuses India of maintaining protectionist policies that hinder fair trade access.
- The US goods trade deficit with India stood at **$45.7 billion in 2024**, up **5.4% from 2023**.
- The Trump administration views this rising deficit as evidence of an **unfair trading relationship**, using it as a key justification for tariff imposition.
- **India's BRICS Membership and Geopolitical Concerns :** India's active participation in the **BRICS bloc**, seen as **challenging the US dollar hegemony, raises concerns.**
- BRICS initiatives on **alternative payment systems and trade mechanisms** threaten US influence over global trade and finance.
- **India-Russia Defence and Energy Ties :** The US plans a **penalty linked to India's defence and energy imports from Russia**, aligned with the **Russian Sanctions Act, 2025**, which contemplates **up to 500% duties** on countries importing Russian petroleum products.
- This undefined penalty aims to maximize leverage over India during trade talks.

Economic and Sectoral Impact

- The US is India's **largest export market**, accounting for about **18% of goods exports**.
- Elevated tariffs could **reduce India's GDP growth by 0.2 to 0.3 percentage points**, primarily affecting labour-intensive sectors such as **gems & jewellery, textiles, clothing, and mobile phones**.
- Copper exports to the US may decline; however, **India's large domestic consumption could absorb this dip.**

India-US Trade Relationship Overview

- The US is India's **largest trading partner**, with bilateral trade valued at **$131.84 billion in 2024-25**.
- Both nations aspire to expand this to **$500 billion by 2030** through a **multi-sector Bilateral Trade Agreement (BTA)**.

Key Indian Export Sectors to the US:

Sector	Export Highlights & Tariff Risks
Electronics & Tech	India is the **largest exporter of iPhones to the US (44% share in Q2 2025).** Tariffs jeopardize Apple's plans to increase Indian manufacturing capacity to 60 million units.
Pharmaceuticals	**Largest exporter of generic (non-patented) drugs to the US**, supplying 50% of the US market. The tariff threatens margin-sensitive pharma exports.
Gems & Jewelry	**US accounts for over 30% of India's global jewelry exports;** higher tariffs risk supply chain disruptions.
Textiles & Apparel	**Facing calls to halt shipments due to 25% tariff-induced price hikes;** risks losing market share to regional competitors.

India's Response: Pragmatism and Strategic Partnership

- India has avoided **tit-for-tat retaliation**, choosing a **pragmatic approach** anchored in its long-term strategic partnership with the US.
- India reiterates the need for a **"fair, balanced, and mutually beneficial" trade agreement** that safeguards farmers, entrepreneurs, and MSMEs.
- Willing to **reduce tariffs on select industrial goods** and offer concessions in areas like public procurement and agriculture, **if matched by the US**.
- Increased imports of US oil by over **270% YoY in early 2025**, indicating efforts to bridge the trade deficit through enhanced energy purchases from the US.
- India rejected the notion that its membership in BRICS or dealings with Russia are "anti-American," emphasizing **de-dollarisation and trade in domestic currencies are risk-management tools, not political statements**.
- India continues to maintain a **strong defence partnership** with the US despite the tariff tensions.

2. Contentious Issues in India-US Trade Talks

Agriculture and Dairy

- India's **agriculture sector, especially dairy, remains a red line** in negotiations.
- India refuses to accept US demands related to **genetically modified (GM) crops** such as corn and soya, due to domestic regulatory concerns and farmer welfare.
- The US insists on market access for GM products, viewing India's strict regulations as discriminatory.
- Given agriculture's socio-economic importance in India, this impasse is difficult to resolve quickly.

Trade Concessions and Timing

- Negotiators are eyeing a **tentative timeline for an interim trade deal by October 2025**.
- If the final tariff on India is capped between **10-15%**, similar to the UK and Japan, India may view the deal as acceptable.
- Tariffs above 15%, nearing Vietnam's 20%, would reduce the deal's attractiveness, especially with the risk of trans-shipment rules affecting export inputs sourced from other countries, including China.

3. US-Pakistan Rapprochement and Implications

Details

- Alongside tariffs on India, Trump announced a **US-Pakistan trade deal with a 19% tariff**, lower than India's 25%.
- Trump also touted cooperation on **developing Pakistan's "massive oil reserves"**, implying strategic economic partnerships.

Indian Concerns

- India views the **US-Pakistan reset with suspicion**, noting Pakistan's **deep mistrust and antagonistic history**.
- Pakistan's rapid engagement with Trump's inner circle, including **investments in US**

cryptocurrency firms and diplomatic gestures, suggests a **strategic recalibration by Islamabad**.

- Delhi questions whether the US will rebalance its South Asia policy more favorably towards Pakistan, possibly undermining India's interests.
- The ongoing US defence support to Pakistan (e.g., F-16 jets) adds to Delhi's strategic unease.

4. US Tariff Policy and Preferential Treatment to Competitors

Country/Region	US Tariff Imposed	Strategic Implications
India	**25%**	**Highest tariff; hurts exports, leads to pressure in trade talks**
Pakistan	**19%**	**Lower tariff; US-Pak trade deal ongoing; strategic concerns for India**
Bangladesh	20%	Key competitor in RMG; lower tariff strengthens its exports
Vietnam	20%	ASEAN competitor; affects electronics and manufacturing sectors
Malaysia, Indonesia, Philippines	19%	ASEAN competitors; challenge India in electronics, footwear
China	30%	Highest tariff but ongoing complex negotiations

Tariffs on Over 50 Countries Including Pakistan and Bangladesh

- After securing trade agreements with the **EU, Japan, South Korea**, Trump's administration imposed **lower tariffs on over 50 countries** compared to India's 25%.
- **Pakistan and Bangladesh**, India's direct competitors in various sectors, face tariffs of **19% and 20% respectively**, lower than India's.
- Other ASEAN nations like **Vietnam (20%)**, **Malaysia, Indonesia, Philippines (19% each)** have also been assigned preferential tariffs.
- This preferential tariff structure gives these countries a **competitive advantage over India in the US market**.
- Notably, Bangladesh's lower tariffs could hurt India's **Ready-Made Garments (RMG)** exports, as Bangladesh is a key supplier globally.
- Vietnam, Malaysia, and others could capture greater shares in the **electrical, electronics, and non-leather footwear** sectors, sectors where India is expanding rapidly.
- Pakistan, despite historical tensions, signed a trade deal with the US at 19% tariffs, with promises of cooperation in developing Pakistani oil reserves, although Pakistan's oil exploration has struggled.

Implications

- India's exports risk losing competitiveness, especially in **labour-intensive sectors like textiles, electronics, footwear, and garments**.
- The **tariffs come into effect August 7, 2025**, putting immediate pressure on Indian exporters.
- The tariff differential could lead to **trade diversion**, with US buyers sourcing more from competitors with lower tariffs.
- This policy reflects **US frustration** with the slow progress of India-US trade talks.

5. India-China Tariff Differential

- China currently faces a **30% tariff**, higher than India's 25%.
- US-China trade talks are ongoing but without major breakthroughs; the tariff truce was extended for 90 days in Stockholm talks.
- India hopes for a **10-20% tariff advantage relative to China** to offset India's domestic structural disadvantages (e.g., infrastructure, logistics).
- India closely monitors US port-level tariffs on Chinese imports to find export opportunities.

6. US Penalties on India's Russian Energy and Defence Imports

Context

- Trump threatens **penalties on India for buying Russian oil and military equipment**, imposing a **100% secondary tariff on oil buyers of Russia**.
- India imports about **36% of its oil from Russia** (FY 2024-25), a figure that had been declining prior to the US announcement.
- Defence dependency on Russia remains significant (~60-70%), a legacy of Soviet-era ties; however, India has diversified to other suppliers including the US.

India's Stand

- India insists its **bilateral ties with Russia are sovereign** and based on strategic and security needs.
- Defence purchases are driven by national security imperatives, not external pressures.
- India has already curtailed Iranian oil imports (from 2019) under previous US sanctions; recent US sanctions target Indian firms connected to Iranian energy trade.

7. US Military Posturing: Nuclear Submarines Near Russia

- Trump ordered **two US nuclear submarines to move closer to Russia** due to Moscow's rejection of an August 8 ceasefire deadline in the Ukraine war.
- The move follows **hostile exchanges** between Trump and Russia's Dmitry Medvedev, with nuclear threats exchanged.
- The US and NATO are developing **new mechanisms to supply Ukraine with weapons using NATO funds**.
- Russia controls about 20% of Ukraine's territory, demands Kyiv's capitulation, and insists on Ukraine's permanent neutrality.
- Kyiv demands a full Russian withdrawal and seeks NATO membership.

8. Strategic and Policy Implications

- **India's Pragmatism:** Despite US pressure, India balances economic interests, strategic autonomy, and global partnerships.
- **Trade Negotiations:** India remains firm on protecting sensitive sectors while seeking to expand market access.
- **US-Pakistan Ties:** India must carefully monitor and respond to evolving US-South Asia dynamics.
- **Russia-Ukraine Conflict:** India maintains neutrality, balancing ties with Russia and the West amid escalating tensions.
- **Global Trade Patterns:** India's competitiveness in the US market is challenged by preferential tariffs given to other countries.
- **Long-term Outlook:** The developments underscore the complex interplay of trade, geopolitics, and strategic partnerships in a multipolar world.

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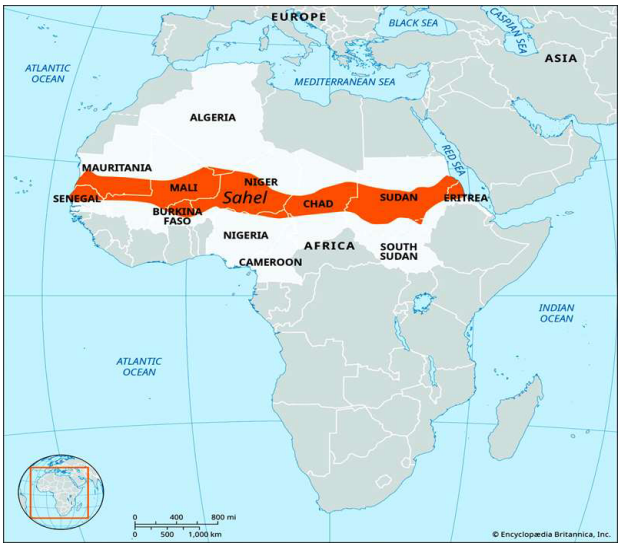
The Sahel Region



Why in news :

- **Nuclear Cooperation with Niger**: Russia has signed a strategic nuclear agreement with Niger, a major global uranium supplier. This deal, signed with Russia's state atomic energy corporation Rosatom, includes plans for building nuclear power plants and modernizing energy infrastructure in the country. This move is seen as a direct challenge to France's long-standing influence.

About the Sahel Region

1. Geographical Features

- **Location**: The Sahel is a semi-arid transitional zone in Africa, stretching approximately 5,000 kilometers from the Atlantic Ocean to the Red Sea. It forms a natural buffer between the arid Sahara Desert to the north and the more humid Sudanian savannas to the south.
- **Countries**: It runs through parts of countries including Senegal, Mauritania, Mali, Burkina Faso, Niger, Nigeria, Chad, Sudan, and Eritrea.
- **Topography**: The region is mostly flat, with elevations typically ranging between 200 and 400 meters.
- **Climate and Vegetation**: The climate is hot and semi-arid. Vegetation is sparse, consisting of low-growing grass, thorny shrubs, and scattered acacia and baobab trees.

2. Key Challenges and Geopolitical Significance

The Sahel is one of the world's most volatile regions and has become a new arena for geopolitical competition.

- **Political Instability**: The region has been plagued by a series of military coups since the 2010s. This is often a result of public frustration with weak governance, corruption, and the inability of civilian governments to address security threats.
- **Security Threats**: It is a hotbed for violent extremism, with non-state armed groups, including affiliates of ISIS and al-Qaeda, exploiting weak governance and porous borders. This has led to a major humanitarian crisis.
- **Climate Change and Migration**: The Sahel is highly vulnerable to climate change, experiencing severe desertification and recurring droughts. This exacerbates resource conflicts and food insecurity, making the region a key transit point for migrants traveling to Europe.
- **Geopolitical Vacuum**: The growing anti-French sentiment and withdrawal of Western forces have created a vacuum that Russia is actively filling. Russia offers itself as an alternative partner to new military regimes through military, economic, and security deals. This strategy aims to displace the historic influence of former colonial powers like France.
- **Strategic Resources**: The region is rich in natural resources, including gold, oil, and uranium, which makes it attractive to global powers.

Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)

Why in News?

- The inaugural **BIMSTEC Traditional Music Festival** was recently hosted at Bharat Mandapam in New Delhi. This event marked a significant step in promoting cultural cooperation among the member nations of the Bay of Bengal Initiative.

About BIMSTEC

- **Formation**: BIMSTEC is a regional organization that came into existence on June 6, 1997, with the signing of the **Bangkok Declaration**.
- **Membership**: It comprises seven member states located in the littoral and adjacent areas of the Bay of Bengal, acting as a crucial link between South and Southeast Asia. The group includes five countries from South Asia (**Bangladesh, Bhutan, India, Nepal, and Sri Lanka**) and two from Southeast Asia (**Myanmar and Thailand**).
- **Economic and Demographic Profile**: The BIMSTEC region has a collective population of approximately 1.7 billion people, which accounts for 22% of the world's total population. The combined GDP of the member countries is an impressive US$5 trillion.
- **Organizational Structure**: BIMSTEC facilitates cooperation through various platforms, including Summits, Ministerial Meetings, and a Permanent Working Committee. Its Permanent Secretariat is located in **Dhaka, Bangladesh**.
- **Areas of Cooperation**: BIMSTEC has identified 14 priority areas for collaboration, with a specific member country taking the lead in each. India is the lead country for four key sectors: Transport & Communication, Tourism, Environment & Disaster Management, and Counter Terrorism & Transnational Crime.

Intermediate-Range Nuclear Forces (INF) Treaty

Why in News?

- Russia has recently announced that it no longer considers itself bound by the **Intermediate-Range Nuclear Forces (INF) Treaty**.
- This development follows the United States' earlier withdrawal from the landmark arms control agreement, effectively marking its demise.

About the INF Treaty

- **Key Parties and Purpose**: The INF Treaty was signed in 1987 between the **United States** and the **Soviet Union** (now Russia) with the objective of slowing down the nuclear arms race.
- **Geopolitical Context**: The treaty was born out of a period of heightened tensions in the Cold War, driven by a significant buildup of nuclear-capable missiles by both sides in Europe, which threatened the entire continent's security. It was signed by US President **Ronald Reagan** and Soviet leader **Mikhail Gorbachev**.
- **Key Provisions**:
    - It mandated the elimination of an entire class of nuclear-capable

weapons: all **ground-launched missiles** with a range between **500 and 5,500 kilometers**.

- The treaty established a robust **verification mechanism**, allowing observers from both nations to ensure compliance. This led to the verifiable destruction of 2,619 missiles over three years.

- **Current Status**: The United States announced its withdrawal from the treaty in 2019, citing Russia's alleged development and deployment of a new cruise missile that Washington claimed was in violation of the agreement. Russia denied the accusations and countered with its own claims of U.S. non-compliance before officially suspending its participation.

United Nations High Commissioner for Refugees (UNHCR)

Why in News?

- The **United Nations High Commissioner for Refugees (UNHCR)**, the UN Refugee Agency, recently suspended its process for facilitating the repatriation of **Sri Lankan Tamil refugees**. This decision was made after some returnees were reportedly arrested upon their arrival in Sri Lanka.

About United Nations High Commissioner for Refugees (UNHCR)

- **Overview and History**: Established in **1950** by the United Nations General Assembly, UNHCR's initial mandate was to help the millions of people who were displaced after the Second World War. Today, it is a global organization dedicated to protecting the rights of people forced to flee their homes due to conflict and persecution. It works to save lives and build a better future for refugees worldwide, facilitating either their return home or resettlement.
- **Funding and Recognition**: UNHCR is almost entirely funded by **voluntary contributions** from governments, private donors, and other organizations. The agency's humanitarian work has been recognized with two **Nobel Peace Prizes**, awarded in 1954 and 1981. In 1954, UNHCR also started the **Nansen Refugee Award** to honor individuals or groups who have provided outstanding service to the cause of refugees.
- **Governance Structure**: UNHCR is governed by the **UN General Assembly** and the **Economic and Social Council (ECOSOC)**. Its biennial programs and corresponding budget are approved by the UNHCR Executive Committee. The head of the agency, the **High Commissioner**, is appointed by the UN General Assembly. The organization's headquarters are located in **Geneva, Switzerland**.

Asia-Pacific Institute for Broadcasting Development (AIBD)

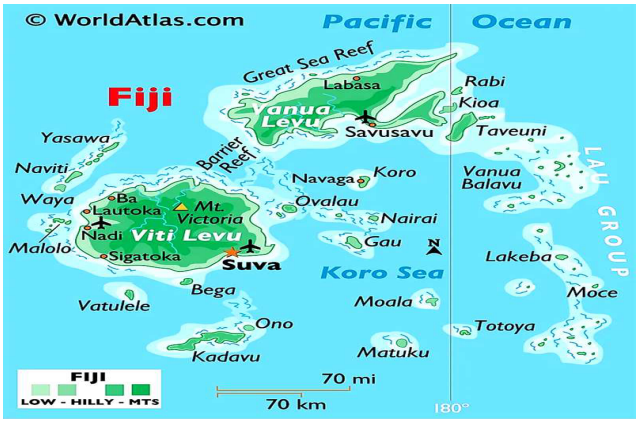
Why in News?

- **India** has been elected as the Chairman of the **Executive Board of the Asia-Pacific Institute for Broadcasting Development (AIBD)**. This significant achievement took place at the 23rd AIBD General Conference held in Phuket, Thailand.

About the Asia-Pacific Institute for Broadcasting Development (AIBD)

- **Overview**: Established in **1977** under the guidance of **UNESCO**, the AIBD is a unique inter-governmental organization. Its mandate is to assist countries of the **United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP)** in developing their electronic media environment. The secretariat of the organization is located in **Kuala Lumpur, Malaysia**.
- **Key Details**:
    - AIBD's primary goal is to foster a vibrant and cohesive electronic media landscape in the Asia-Pacific region through policy and resource development.
    - The institute's founding organizations, which are non-voting members of its General Conference, include the **International Telecommunication Union (ITU)**, the **United Nations Development Programme (UNDP)**, and **UNESCO**.
    - The AIBD currently boasts a membership of **92 organizations** from **44 countries**.
- **India's Role**: India is a **founding member** of the AIBD. The country's public service broadcaster, **Prasar Bharati**, represents the Ministry of Information & Broadcasting at the organization. This marks the second time India has held the chairmanship, having last served in this capacity in 2016.

Fiji



Why in News?

- In a recent development, the Prime Minister of India announced that India will provide training and equipment to strengthen Fiji's maritime security.
- This move signals a deepening of bilateral relations and shared strategic interests in the Indo-Pacific region.

About Fiji

- **Geographical Overview**: Fiji is an island nation located in the South Pacific Ocean, northeast of New Zealand and southwest of Hawaii. The country is an archipelago comprising around **300 islands** and 540 islets, with approximately 100 of them inhabited. It does not share any land borders with other countries. The capital, **Suva**, is situated on the southeast coast of the largest island, **Viti Levu**, which accounts for more than half of Fiji's total land area.
- **Topography and Demographics**: The islands have a complex geological history, formed primarily by volcanic activity and coral formations. Viti Levu's interior is characterized by rugged, mountainous terrain, including the country's highest peak, **Mount Tomanivi**. Nearly half of Fiji's total area is forested, while the western parts of the larger islands are covered in dry grasslands. The majority of the population is of mixed **Melanesian-Polynesian ancestry**, with a large minority of people of South Asian descent. The official languages are English and Fijian, and the currency is the Fiji dollar.

International Atomic Energy Agency (IAEA)

IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Why in News?

The **International Atomic Energy Agency (IAEA)** is in the news because the head of the UN nuclear watchdog has confirmed that a team of its inspectors has returned to Iran to resume its monitoring duties, though access remains a point of negotiation. This development highlights the agency's critical role in global nuclear oversight.

About the International Atomic Energy Agency (IAEA)

- **Overview**: The IAEA is the world's leading intergovernmental body for scientific and technical cooperation in the nuclear field. Established in **1957**, it operates as an autonomous organization within the United Nations system. Its primary goal is to promote the peaceful use of nuclear technology while ensuring it is not diverted for military purposes. The agency has its headquarters in **Vienna, Austria**, and currently includes 180 member states.
- **Institutional Structure**: The IAEA's governance is overseen by three main bodies:
  - **General Conference**: Composed of representatives from all member states, it meets annually to approve the agency's budget and set its overall policy.
  - **Board of Governors**: A 35-member body that meets about five times a year to approve safeguards agreements, and appoint the Director General.
  - **Secretariat**: Led by the Director General, this body is responsible for the IAEA's day-to-day operations and functions.
- **Core Functions**:
  - **Peaceful Use of Nuclear Technology**: The IAEA works to accelerate and enlarge the contribution of atomic energy to peace, health, and prosperity globally.
  - **Nuclear Safeguards**: A key function is to apply comprehensive **nuclear safeguards**—a system of monitoring, on-site inspections, and analysis—to verify that a country's nuclear material and activities are used exclusively for peaceful purposes and not for weapons.
  - The IAEA reports to both the **UN General Assembly** and the **UN Security Council** on any instances of non-compliance with these safeguards.

EDITORIALS

Crux of The Hindu & Indian Express

International Issues

India-China Relations: Talks on LAC De-escalation & Bilateral Reset (Aug 2025)

Why in News?

- On **August 18–19, 2025**, Chinese Foreign Minister **Wang Yi** visited **New Delhi** to hold bilateral talks with **External Affairs Minister S. Jaishankar** and **National Security Advisor Ajit Doval**.
- The discussions focused on:
  - **De-escalation at the Line of Actual Control (LAC)**
  - **Improving bilateral ties and trade**
- This marks the **first high-level visit** since the October 2024 meeting between PM Modi and President Xi Jinping in **Kazan**, where both sides agreed to work towards **normalising relations** after years of military tensions.
- The visit aimed to **push forward the stalled de-escalation process** along the **Line of Actual Control (LAC)** and review overall **bilateral ties**.
- Preparations are also underway for **PM Modi's upcoming visit to China** for the **SCO Summit in Tianjin (August 31–September 1, 2025)**.

Context: The India-China Border Standoff (2020–Present)

- **April–May 2020**: PLA incursions in Eastern Ladakh began.
- **June 15, 2020**: **Galwan Valley clash** – 20 Indian soldiers martyred; significant loss on Chinese side too (undisclosed).
- Led to the **worst diplomatic and military crisis** since the 1962 war.
- **Multiple rounds** of diplomatic, military, and Special Representatives' talks have occurred since, but **full disengagement remains incomplete**.

Key Developments from August 2025 Meeting

1. Statements by EAM Dr. S. Jaishankar

- India and China "**have seen a difficult period**" but "**now seek to move ahead**".
- Called for a **"candid and constructive approach"**, guided by the **Three Mutuals**:
  - Mutual Respect
  - Mutual Sensitivity
  - Mutual Interest
- Reiterated that:
  - "Differences must not become disputes"
  - "Competition must not become conflict"

2. Emphasis on Border Peace

- "**Peace and tranquillity at the border** is the basis for any positive momentum."
- Asserted that the **de-escalation process at the LAC must move forward**.
- Urged **joint responsibility** in maintaining border stability.

3. Follow-up on Prior Issues Raised

- Jaishankar brought up **"particular concerns"** from his **July 2025 Beijing visit**, including:
  - **Restrictive trade practices** by China
  - **Export curbs on rare earth elements and fertilisers**
    - *Note:* Rare earths are vital for **EVs, electronics, defense, and semiconductors**.
    - China controls over **85%** of global rare earth processing.

4. Rebuilding Bilateral Ties

Discussed the following topics to revive normalcy:

Area	Progress/Status
Kailash Mansarovar Yatra	Resumed after 5 years (suspended since 2020)
Tourist Visas	India resumed visa issuance for Chinese nationals
Direct Flights	Advanced-stage talks to restart flights suspended since 2020
River Data Sharing	Resumption under discussion
Border Trade & Connectivity	Talks underway
Pilgrimages & People-to-People Contacts	Emphasized as key trust-building measures

5. Broader Geopolitical Dialogue

- India reaffirmed its commitment to:
  - A **fair, balanced, and multipolar world**
  - A **multipolar Asia**
  - **Reformed multilateralism** in global institutions

- Emphasized **stability in global economy** and **fighting all forms of terrorism**.

China's Position (Wang Yi's Remarks)

- India-China relations have gained **"shared confidence"**.
- Highlighted:
  - Efforts to **"dispel interference"**
  - Desire to **"expand cooperation"** and **"consolidate momentum"**
- **Asserted that:**

"India and China can provide the most-needed certainty and stability to Asia and the world."

- Blamed **"rampant unilateralism"** and **disruption of free trade** — indirectly referencing U.S. global policies (particularly under the Trump administration).
- Called for both countries to promote:
  - **Dignity for developing nations**
  - **Global South unity**
  - **Dialogue over confrontation**
- Also **China has made an *in-principle commitment* to address India's requirements for:**
  - Rare earth elements (REEs)
  - Fertilisers
  - Tunnel-boring machines

What are Rare Earth Elements (REEs):

- **Rare Earths**: Group of 17 metals with crucial applications in:
  - Electronics
  - Green energy (e.g. wind turbines, EVs)
  - Defence (missiles, radars)
  - Medical tech
  - Telecommunications
- **India's REE status:**
  - India imports REEs worth ~$33 million annually (SBI Report).
  - 30 minerals identified as **critical to India's economic security**.
- **Challenges in imports from China:**
  - No outright ban, but **stringent export controls & licensing**.
  - **Supply chain disruptions** for Indian sectors:
    * Transport equipment
    * Basic metals
    * Electrical & electronics
    * Construction
    * Machinery

China's Dominance in Global REE Market

- Accounts for **60–70% of global REE mining**.
- Controls critical stages of **processing and value-addition**.
- Used as a **strategic tool** in geopolitical negotiations.

Geopolitical Context

India–US Trade Tensions:

- US under **President Trump (2.0)** has:
  - Imposed **50% tariffs** on Indian goods.
  - Penalised India for importing **Russian oil** (25% tariff).
- In contrast, **China imports more Russian oil**, but faces **no such sanctions**.

US–China Deal:

- Trump announced rare-earth cooperation with China:
  - Full supply of rare earths and magnets.
  - Visa access for Chinese students to US institutions.
- Raises questions about US reliability as a trade partner for India.

China's Messaging:

- Urges India to counter "**unilateral bullying**" (hint at US).
- Advocates for **multipolarity** and **South-South cooperation**.
- Signals interest in **resetting bilateral ties** with India via economic cooperation.

Special Representatives' Talks (Aug 19, 2025)

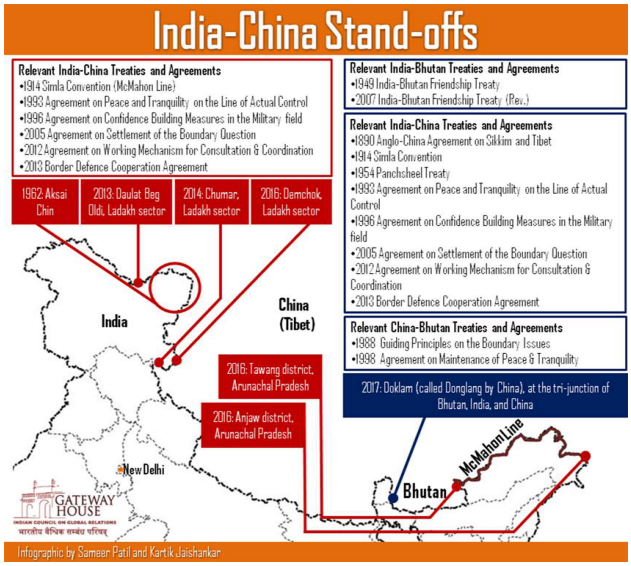
- **24th Round of Talks** between:
  - Indian NSA **Ajit Doval**
  - Chinese Foreign Minister **Wang Yi** (also China's Special Representative)
- **Agenda**:
  - Border delimitation & demarcation
  - Military disengagement
  - Confidence-Building Measures (CBMs)
  - Cross-border exchange frameworks

This mechanism is the highest institutional format for addressing the India-China boundary question.

Strategic & Diplomatic Significance

Domain	Implication
Border Security	Full disengagement remains pending in sectors like Depsang and Demchok
Bilateral Trust	Dialogue is key to rebuilding mutual confidence
Trade	China's trade restrictions on rare earths impact India's tech & EV sectors
Multilateral Engagement	Prepares for India-China engagement at SCO, BRICS, and G20
Geopolitics	Balancing China's assertiveness with India's strategic autonomy

India-China Relations at 75 :



- In **2025**, India and China marked **75 years of diplomatic relations**. Despite decades of **strategic divergences**, both countries continue to engage on multiple fronts — **trade**, **multilateral forums**, **cultural exchange**, and **border diplomacy**.
- China invoked the metaphor of an **"Elephant-Dragon Duet"**, symbolizing peaceful coexistence between the two Asian giants.
- The milestone is being observed amid efforts to reset bilateral ties after the **2020 Galwan Valley clash** and subsequent **LAC standoff**.

Evolution of India-China Relations (1950–2025)

Period	Key Highlights
1950s	Diplomatic ties established; **Panchsheel Agreement (1954)** emphasizing peaceful coexistence.
1962	India-China **war** over border disputes. Relations froze for decades.
1988 onwards	Normalization begins; **Rajiv Gandhi's China visit** revives ties.
2003–2012	Growth in trade and people-to-people exchange. Special Representatives (SR) mechanism started.
2020	**Galwan clash** derails relations; border tensions resurface.
2024–25	**Kazan summit** and **2025 reset** signal willingness to normalize relations again.

India-China: A Strategic & Economic Snapshot

1. Diplomatic Architecture

- **Special Representatives' Dialogue** (ongoing since 2003).
- **Working Mechanism for Consultation and Coordination (WMCC)** on border affairs — latest, **33rd round held in March 2025**.
- **2025 Vice Minister-Foreign Secretary Meeting** in Beijing renewed focus on cooperation.

2. Trade & Economic Relations

- Bilateral trade in **2023–24**: **USD 118.4 billion**
  - India's exports: iron ore, chemicals, cotton, aluminum.
  - Imports: telecom, APIs, solar panels, electronics.

- Trade deficit: **USD 85 billion in 2023–24**.
- **FDI Linkages**:
    - Over **$3.5 billion** invested by Chinese firms in **18 Indian unicorns** (as of 2020).
    - Many continue indirect investment through third countries.

3. Cultural & Civilisational Ties

- Ancient exchanges: **Xuanzang**, **Bodhidharma**, **Tagore**.
- **Visva-Bharati seminar (April 2025)** marked **100 years of Tagore's visit to China**.
- Interest in **Ayurveda**, **Yoga**, and Indian arts growing in China.
- **Direct flights, visa facilitation, and academic MoUs** revived in 2025.

4. Defense & Border Diplomacy

- Regular **Corps Commander-level meetings**.
- Confidence-building at Galwan, Pangong Tso, Gogra.
- **Breakthrough disengagement in Depsang & Demchok (late 2024)**.
- Border infrastructure on both sides intensifying.

5. Multilateral Engagement

- Active cooperation in:
    - **BRICS**
    - **SCO**
    - **AIIB**
    - **G-20**
- Endorsed **Global South solidarity** and **multipolar world order**.

Challenges in India-China Relations

1. Unresolved Border Disputes

- **LAC still undefined** — frequent patrol clashes.
- **Aksai Chin** (38,000 sq km) under Chinese control.
- China claims **Arunachal Pradesh** as **South Tibet**.
- **Dual-use border villages**, roads, and airstrips by China pose new threats.
- Remaining **friction zones**: Depsang Plains, Charding Ninglung Nala.

2. Trust Deficit Post-Galwan

- **2020 Galwan incident** — 20 Indian soldiers martyred.
- Military talks have reduced friction but not fully restored trust.

3. Trade Imbalance

- India's trade deficit with China is **structural**:
    - High-tech imports vs low-value exports.
- **Anti-dumping measures** often circumvented via **ASEAN FTAs**.

4. China-Pakistan Nexus

- **CPEC in PoK** violates Indian sovereignty.
- China's **military and nuclear aid** to Pakistan raises concerns.

5. Technological Dependence

- Chinese brands control **~75%** of India's smartphone market.
- EVs, solar panels, and electronics rely heavily on Chinese inputs.
- India lacks semiconductor self-sufficiency.

6. Cybersecurity Concerns

- **Chinese malware (e.g., ChamelGang)** targeted Indian power, telecom, and healthcare sectors.
- India banned **300+ Chinese apps**, restricted **Huawei & ZTE** from 5G.

7. Hydropolitics

- China controls upper reaches of **Brahmaputra** and **Sutlej**.
- **Medog and Zangmu dams** built without consultation.
- **No water-sharing treaty**, only data-sharing arrangements.

8. Diplomatic Obstruction

- China blocks India's entry into:
  - **NSG**
  - **UNSC Permanent Membership**
- Also shields **Pak-based terrorists** from UNSC listing.

Way Forward: Strategic Recommendations

Area	Strategic Direction
Border Resolution	Expedite **SR-level talks** & WMCC to define LAC & disengage fully
Maritime Posture	Enhance **Indian Ocean presence**, collaborate via **QUAD**, **SAGAR**
Tech Resilience	Build capacities via **PLI scheme**, **IN-SPACe**, **India Semiconductor Mission**
Supply Chain Diversification	Adopt **China+1 strategy** for critical imports (APIs, electronics)
Regional Leadership	Use **PM-DevINE**, **SASEC**, **BIMSTEC** to counter BRI
Crisis Management	Institutionalize **military hotlines**, conduct **joint drills**
Multilateral Leverage	Strengthen India's role in **AIIB**, **BRICS**, **G-20**
Cultural Diplomacy	Expand **soft power** via AYUSH, education, and arts

India's Flood Warning to Pakistan – Tawi River

Theme: Disaster Management | India-Pakistan Relations | Geography | International Treaties

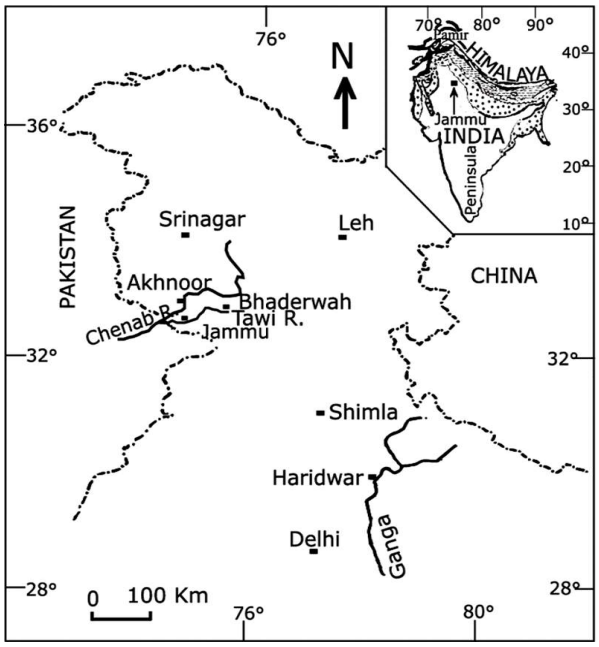
Context:

- On **August 26, 2025**, India issued a **flood warning to Pakistan** regarding potential flooding in the **Tawi River** as a **humanitarian gesture**, despite the **Indus Waters Treaty (IWT)** remaining suspended after the **Pahalgam terror attack (April 22, 2025).**

Why the Warning Was Issued:

- Continuous **heavy to extremely heavy rainfall** in **Jammu**.
- **Tawi River** flowing close to **12 feet**, nearing the **danger mark of 17 feet**.
- Prediction of **further rainfall, cloudbursts**, and rising river levels until **August 27**.
- **Humanitarian concern** for downstream populations in **Sialkot, Pakistan**.

About Tawi River – Geographical Context:



- **Major left-bank tributary** of the **Chenab River**.
- **Origin**: **Kailash Kund glacier**, **Bhaderwah**, **Doda district** (J&K).
- **Flows through**: Udhampur'! Jammu'! Enters **Sialkot** (Pakistan's Punjab province).

Indus Waters Treaty (IWT) – Current Status:

- A 1960 treaty between **India and Pakistan** for sharing rivers of the **Indus Basin**.
- Mandates **information-sharing** on river flows, floods, etc.
- **Currently in abeyance** post **April 2025 Pahalgam terror attack**.
- Despite the suspension, India's alert to Pakistan showcases **responsible diplomacy and humanitarian concern**.

Impact on Local Areas in Jammu Province:

- **Close to 800 deaths** reported due to extreme weather in 2025.
    - Includes **65 deaths** during **Machail Yatra** in **Kishtwar** (flash floods).
- **Orange Alert issued**:
    - Public advised against trekking or entering mountainous areas.
    - Residents in **low-lying areas** advised to remain vigilant.
- Infrastructure Damage:
    - **Bridge collapse** over **Sehar Khad** in **Kathua** disrupted **NH-44 traffic** between **Kathua and Samba**.
- All schools (govt. & private) closed in **Jammu province** for August 25–26.

Significance of India's Action:

1. **Humanitarian Diplomacy**: Upholding international norms despite bilateral tensions.
2. **Disaster Risk Reduction**: Timely alerts can help mitigate downstream impact.
3. **Strategic Communication**: Reinforces India's global image as a **responsible regional actor**.

Possible Mains Questions:

Q. Discuss the role of humanitarian diplomacy in India's foreign policy with reference to the recent flood warning issued to Pakistan in August 2025.

Q. Evaluate the significance of early warning systems and transboundary communication in disaster management in South Asia.

❐❐❐

Indian Polity & Governance

Collusive Litigation

The Supreme Court has recently taken **suo motu cognizance** of "collusive litigations" involving officials of the Bengaluru Development Authority (BDA), highlighting the judiciary's proactive role in preventing the misuse of legal processes by statutory bodies.

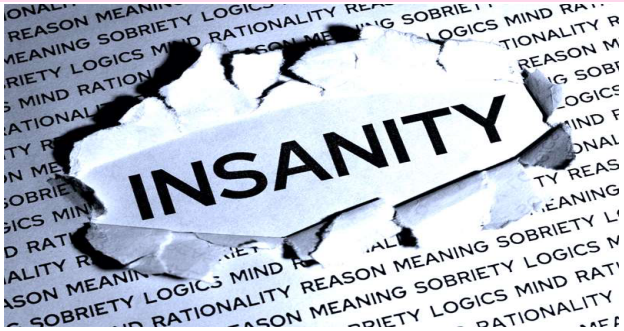
About Collusive Litigation

- **Definition:** Collusive litigation refers to a lawsuit where the parties involved are **not genuinely adversarial** but instead cooperate to achieve a desired, often fraudulent, outcome. There is a lack of a real dispute or conflict, and the parties share a common goal. It is often referred to as a "friendly suit."
- **Key Issues:**
    - **Abuse of Process:** It can be used to manipulate the judicial system to achieve an outcome that would otherwise not be possible.
    - **Undermining the Adversarial System:** The legal system is based on a genuine contest between opposing parties. Collusive suits erode this fundamental principle by creating a false conflict.
    - **Circumventing Law:** Such suits may be used to bypass legislative processes or to obtain a court order (a decree) that allows parties to perform an act that would otherwise be illegal.

Legal Principles in India

- **Challenging a Decree:** A collusive decree can be set aside if the party challenging it was **not a party to the suit** and can prove collusion or fraud.
- **Burden of Proof:** The burden of proving that a decree was obtained collusively lies with the party seeking to set it aside.
- **Judicial Intervention:**
    - **High Courts** have the authority to intervene in cases of collusive decrees, particularly under their supervisory powers granted by **Article 227** of the Constitution.
    - **Supreme Court** can also take **suo motu cognizance**, as it did in the recent BDA case, to ensure justice and prevent the misuse of legal processes, especially by public authorities.
- **Involvement of Parties:** A key principle established in case law is that a party involved in the collusion **cannot seek to have the decree set aside**. Only a third party, whose rights are adversely affected by the decree, can challenge it.

Legal Insanity



Why in News?

- The Chhattisgarh High Court recently acquitted an individual of a double murder charge by accepting the defense of **legal insanity**. The verdict has brought into focus the critical distinction between legal and medical concepts of insanity in criminal trials.

About Legal Insanity

- **Definition**: Legal insanity is a legal term, not a medical one, referring to a severe mental state that exempts an individual from criminal responsibility.
- **Core Principle**: The defense operates on the premise that at the time of the crime, the defendant was suffering from such a severe mental illness that they were incapable of understanding the nature of the act or distinguishing right from wrong.
- **Burden of Proof**: The **accused** bears the responsibility of proving their legal insanity. They must present a *prima facie* case with supporting evidence, such as psychiatric evaluations and documentation of their behavior before, during, and after the offense.
- **Judicial View**: The Supreme Court of India, in the case of ***Surendra Mishra vs. State of Jharkhand*** (2011), clarified that not every person with a mental disease is automatically exempt from criminal liability. The accused must specifically demonstrate that their condition made them incapable of understanding the crime.
- **Types of Legal Insanity**:
    - **Emotional Insanity**: A state of extreme emotional turmoil that leads to a complete derangement of intellect.
    - **Temporary Insanity**: A condition that exists only at the specific time of the criminal act.

Medical Insanity *Vs*. Legal Insanity

Aspect	Medical Insanity	Legal Insanity
Nature	A **clinical diagnosis** of a mental illness or psychological disorder.	A **legal concept** that defines criminal responsibility.
Purpose	Focused on an individual's health and well-being, leading to treatment, therapy, and medical interventions.	Determines whether an individual should be held legally accountable for a crime.
Decision-Making	A person with a mental illness may still have the capacity to make daily life decisions.	It implies a person was incapable of making rational decisions and was unable to understand the consequences of their actions at the time of the offense.

Talaq-E-Hasan

Why in News?

- The Supreme Court of India recently agreed to hear a series of petitions that challenge the practice of **talaq-e-hasan**, arguing that it is unconstitutional.
- The petitions contend that the practice is discriminatory as it can only be exercised by men.

About Talaq-E-Hasan

- **Nature**: It's a traditional, extrajudicial form of divorce in Islam that is considered valid across all schools of Muslim law. Unlike other forms, it is **revocable**.
- **Procedure**: A Muslim man pronounces "talaq" on his wife once a month over three consecutive months. The period between each pronouncement is known as the **'iddat'** or period of abstinence. If the couple resumes cohabitation or becomes intimate during this 90-day period, the divorce is automatically revoked. The divorce becomes final only after the third pronouncement, provided no reconciliation has occurred.
- **Revocability**: This form of divorce is not instantaneous. It provides a window for reconciliation, with the marriage remaining valid until the final pronouncement.

How is it Different from Triple Talaq?

- **Triple Talaq** (*Talaq-e-Biddat*) was banned by the Indian government in 2019.
- The key difference lies in the **timing and revocability**. In Triple Talaq, a man could

divorce his wife instantly and irrevocably by pronouncing the word "talaq" three times in a single sitting. There was no waiting period, and the marriage was immediately terminated.

- In contrast, **Talaq-e-Hasan** is a gradual process with a built-in waiting period and a chance for reconciliation, making it distinct from the banned practice.

Quality Council of India (QCI)

भारतीय गुणवत्ता परिषद्
QUALITY COUNCIL®
OF INDIA
QCI Creating an Ecosystem for Quality

Why in News?

- The **Quality Council of India (QCI)** has been in the news after its constituent board, the **National Accreditation Board for Testing and Calibration Laboratories (NABL)**, launched a new online portal. This new **Medical Application Portal** aims to improve the efficiency and transparency of the accreditation process for medical laboratories.

About Quality Council of India (QCI)

- **Establishment and Status**: Established in **1997**, the QCI is a non-profit autonomous organization. It was created as a unique public-private partnership between the Government of India and three of the country's premier industry associations: the **Associated Chambers of Commerce and Industry of India (ASSOCHAM)**, the **Confederation of Indian Industry (CII)**, and the **Federation of Indian Chambers of Commerce and Industry (FICCI)**. The organization operates under the administrative control of the **Department for Promotion of Industry and Internal Trade (DPIIT)**, under the Ministry of Commerce and Industry.
- **Key Functions**: QCI serves as India's national accreditation body. Its primary role is to create a robust mechanism for the **independent third-party assessment** of products, services, and processes. It also promotes the adoption of international quality standards and leads a nationwide quality movement in key sectors like healthcare, education, and manufacturing. QCI works through several specialized accreditation boards, including NABL, the National Accreditation Board for Certification Bodies (NABCB), and the National Accreditation Board for Hospitals & Healthcare Providers (NABH).
- **Governance**: The QCI is governed by a council that consists of **38 members**, with equal representation from the government, industries, and other stakeholders. This unique structure ensures a balanced and transparent approach to setting quality standards and implementing policies.

UMEED Portal

Why in News?

The **Ministry of Minority Affairs** recently launched a new module on the **UMEED Portal**. This feature allows specific vulnerable groups, including **widows, divorced women, and orphans**, to apply for maintenance support from Waqf-alal-aulad properties, marking a significant step toward making Waqf administration more transparent and people-centric.

About UMEED Portal

- **Overview**: The **Unified Waqf Management, Empowerment, Efficiency, and Development**

(UMEED) Portal is a centralized digital platform designed to register and manage Waqf properties throughout India. The portal is an initiative of the Ministry of Minority Affairs and aims to bring greater **transparency** and efficiency to the administration of these properties. The launch of the portal is a part of the reforms proposed under the **Waqf (Amendment) Bill, 2025**.

- **Key Features**:
    - **Mandatory Geotagged Registration**: All Waqf properties must be registered on the portal within a six-month timeframe, with extensions possible for valid reasons. The registration requires specific details, including measurements and **geotagged locations**. Properties that are not registered by the deadline are considered disputed and referred to the **Waqf Tribunal**.
    - **Beneficiary Focus**: While properties owned by women cannot be classified as Waqf, women, children, and people from economically weaker sections remain the primary beneficiaries of Waqf assets.
    - **New Module for Vulnerable Groups**: The recently launched module provides a digital avenue for widows, divorced women, and orphans to apply for financial support. This process uses **Aadhaar-based authentication** and an online approval system managed by respective State/UT Waqf Boards. Approved maintenance support is disbursed via **Direct Benefit Transfer (DBT)** directly into the beneficiaries' bank accounts.

Steady Decline in Fund Allocations To Panchayati Raj Institutions (PRIs)

Why in News?

- A **Parliamentary Standing Committee on Rural Development and Panchayati Raj** has expressed concern over the **steady decline in fund allocations** to **Panchayati Raj Institutions (PRIs)**.
- The committee urged the **Centre to ensure urgent corrective measures**: more untied, adequate, and performance-linked funding.

Key Concepts

Concept	Description
Panchayati Raj Institutions (PRIs)	Constitutionally mandated rural local self-government bodies (Part IX, 73rd Amendment Act, 1992)
11th Schedule	Lists 29 subjects (e.g., agriculture, health, education) to be devolved to PRIs
State Finance Commissions (SFCs)	Constitutionally mandated bodies (Art. 243-I) for recommending devolution of funds to PRIs by states
Finance Commissions (FCs)	Central body (Art. 280) recommending division of central tax revenues between Centre, states, and local bodies
Gram Sabha	A body comprising all adult members of a village that approves PRI decisions

Sources of Funds for PRIs

Source	Explanation
1. Own Source Revenue (OSR)	Local taxes (property, vehicle tax), fees (licensing, water), user charges, fines
2. Shared/Assigned Revenues	Collected by states/centre and partially assigned to PRIs (e.g., mining royalties, entertainment tax)
3. Central Finance Commission Grants	Tied (for specific schemes) and untied grants recommended by FC (e.g., 15th FC)
4. State Government Grants	Based on SFC recommendations—population, geography, backwardness considered
5. Scheme-Based Funding	From Centrally Sponsored Schemes (CSS) like MGNREGS, PMAY-G, SBM, NRLM etc.
6. Special Grants	E.g., MPLADS, MLALADS, Backward Regions Grant Fund (BRGF)

Key Issues in PRI Funding

1. Declining Fund Allocation

- Parliamentary panel flagged consistent **reduction in PRI fund allocation**, threatening **fiscal decentralization**.

2. Poor Implementation of SFCs

- Only **25 states have set up SFCs**; just **9 have constituted their 6th SFC**.
- **Delays in ATRs (Action Taken Reports)** noted in states like Jharkhand, Gujarat, Telangana.
- **States like Punjab and Tamil Nadu** show better compliance.

3. Dependence on Grants

- **95% of PRI revenue** comes from government grants; **only 1% from local taxes**.
- Average PRI revenues:
  - Own tax: ₹ 21,000
  - Non-tax: ₹ 73,000
  - Central grants: ₹ 17 lakh
  - State grants: ₹ 3.25 lakh

4. Low Revenue Expenditure

- PRI spending as % of GSDP is **less than 0.6%** across states.
  - Bihar: 0.001%, Odisha: 0.56%

5. Uneven Devolution of Powers

- Inconsistent transfer of **29 subjects** under the **11th Schedule**.
- States reluctant to devolve due to fear of losing control over planning and resources.

6. Institutional & Structural Flaws

- **Rotational reservation** for SCs/STs/Women disrupts continuity.
- **District Planning Committees (DPCs)** poorly implemented.
- Lack of training among elected members in planning and budgeting.

Inter-State Disparities

High Performing States	Lagging States
Kerala (Avg Revenue: ₹60 lakh)	Andhra Pradesh, Punjab (< ₹6 lakh)
West Bengal (₹57 lakh)	Bihar (lowest revenue-GSDP ratio)

Recommendations & Required Steps

1. Performance-Linked Funding

- Ensure **adequate, untied, performance-based grants**.
- Incentivize better governance and service delivery.

2. Revive State Finance Commissions (SFCs)

- Regular constitution of SFCs is critical.
- States must **submit reports and implement recommendations** in time.
- Encourage **accountability and transparency** via ATRs.

3. Enhance Own Revenues

- Empower PRIs to collect and manage **local taxes and user charges**.
- Provide **technical support** for efficient tax collection.

4. Improve Transparency & Accountability

- Implement **social audits**, RTI disclosures, and **financial audits**.
- Digitize financial processes and procurement systems.

5. Strengthen Institutional Capacity

- Invest in **training elected representatives**.
- Strengthen **District Planning Committees** for integrated local planning.

6. Digital Governance

- Promote **e-Governance at Panchayat level** for service delivery, fund tracking.
- Create PRI-level dashboards for scheme implementation and fund usage.

Conclusion

A strong and fiscally empowered **Panchayati Raj system** is vital for achieving **grassroots democracy and inclusive development**. Urgent attention is needed to : Restore fund flows, Ensure timely devolution, Build local capacities, and Promote transparency. Without these, PRIs risk becoming **mere implementers of state schemes** rather than true agents of **self-governance** as envisaged in the Constitution.

India's Judicial System

Why in News?

- Recently, The **Supreme Court reduced its pendency by 4.83% in 100 days** via effective **case management reforms**.
- However, India's judicial system faces **systemic challenges**, especially in **lower courts**, where **backlogs, vacancies, and access issues** remain pressing.

Judicial Reforms Introduced in India

1. Mission-Based Reforms

- **National Mission for Justice Delivery & Legal Reforms (2011)**:
  - Aim: Reduce delays, enhance accountability, and improve performance in judiciary.
- **Fast Track Courts (FTCs)**:
  - Set up for cases involving **women, children, senior citizens**, etc.
  - *As of Oct 2024*: **800+ FTCs operational** across India.

2. Digital Reforms & e-Courts

- **e-Courts Project** (Mission Mode):
  - End-to-end digital solutions for courts.
  - Supports **e-filing**, **virtual courts**, **video conferencing**, **digital evidence**.
- **e-Sewa Kendras**:
  - Assist citizens in filing cases and accessing services online.
- **WAN Connectivity** (as of Dec 2024):
  - **99.5%** of court complexes connected.
  - **3,240 courts** and **1,272 jails** equipped for video conferencing.
- **Tele-Law** (launched 2017):
  - Connects citizens with lawyers via **Common Service Centres (CSCs)**.
- **AI Tools Introduced**:
  - **FASTER**: Fast & Secure Transmission of Electronic Records (e.g., bail orders).
  - **SUVAS & SUPACE**: AI tools for judgment drafting and case analysis.

3. National Judicial Data Grid (NJDG)

- Online database for **18,735 subordinate courts**.
- Enables **real-time tracking** of pendency and disposal.

4. Legislative Measures

- **Jan Vishwas Act (2023)**:
  - Decriminalised **183 provisions across 42 laws**, reducing judicial burden.
- Amendments to:
  - **Criminal Laws (2018)**
  - **Arbitration & Conciliation Act (2019)**
  - **Commercial Courts Act (2018)** – Introduced **Pre-Institution Mediation & Settlement (PIMS)**.

5. Alternative Dispute Resolution (ADR)

- Encouragement of:
  - **Mediation**, **Arbitration**, **Lok Adalats**, **Conciliation**
- **Mediation Act, 2023**: Statutory backing to mediation.

Challenges Plaguing India's Judicial System

1. Pendency of Cases

- Over **5 crore** cases pending across Indian courts.
- *50%* cases in subordinate courts pending for **3+ years**.
- *1,500+ cases* pending in HCs for over **50 years**.

"Tareekh pe tareekh" has become symbolic of India's court delays.

2. Judicial Vacancies

- Judicial vacancy rate in HCs: **33%** *(as per IJR 2025)*.
- **Judge-to-population ratio**: **21 judges per million**,
  - Far below Law Commission's 1987 recommendation of **50 per million**.
- Despite a 20% rise in pendency (2020–24), appointments haven't kept pace.

Collegium System:

- Criticized for **opaqueness**, **delay in appointments**, and lack of diversity.

3. Infrastructure & Technology Deficit

- Out of 25,081 sanctioned district judges:
  - Shortage of **4,250 courtrooms**
  - Shortage of **6,021 residential units**
- Only **41%** courts have VC studio facilities.
- Only **38%** have video linkage with jails (CJI Survey 2021).

NJIAI (National Judicial Infrastructure Authority of India) proposed but not implemented.

4. Lack of Judicial Accountability

- No robust mechanism for non-impeachable misconduct.
- Collegium system struck down NJAC (2015) '! Ongoing debate.

RTI: Delhi HC claimed **no data maintained** on complaints against district judges – lack of transparency

5. Barriers to Accessing Justice

- **Legal Services Authorities Act, 1987**:
  - 80% of Indians are eligible for free legal aid.
  - But **<1%** avail these services.
- Undertrial Crisis:
  - *76%* of India's prison population are undertrials (up from 66% in 2012).

6. Lack of Representation & Diversity

- **No woman Chief Justice of India yet**.
  - Justice B.V. Nagarathna is expected in **2027**.
- Women Judges in HCs: **14.27%** (as of March 2025).
- 3 HCs (Uttarakhand, Meghalaya, Tripura) have **no woman judges**.
- SC/ST/OBC representation remains poor.

"Uncle Judge Syndrome" = Nepotism, eroding meritocracy.

7. Judicial Overreach vs. Activism

- Landmarks:
  - **Maneka Gandhi v. UoI (1978)**: Expanded Article 21.
  - **Vishaka (1997)**: Guidelines on sexual harassment.
- But recent cases like **Electoral Bonds Judgment** led to criticisms of overreach.

8. Executive Interference

- **Delays in clearing Collegium recommendations**
- **Justice Muralidhar's transfer (2020)** – widely seen as retaliatory.
- **CJI Ranjan Gogoi's nomination to Rajya Sabha** = Raised "quid pro quo" concerns.

Way Forward: Judicial Reform Blueprint

1. Tech-Based Case Management

- **Expand e-Courts:** Digitize records, AI-driven scheduling.

- Model: Singapore's **Integrated Case Management System (ICMS)**
- Scale up:
    - **FASTER** (Electronic bail orders)
    - **SUVAS**, **SUPACE** (AI tools for judgment writing, analytics)

2. Alternative Dispute Resolution (ADR)

- Mediation Act, 2023 – needs proper rollout.
- Build more **mediation centers**, train professionals.
- **Incentivize** settlements with tax breaks & faster enforcement.

3. Judicial Appointments & Diversity

- Reform Collegium: Introduce **Judicial Appointments Commission** with transparency.
- Consider **All India Judicial Service (AIJS)** under Article 312.
- Raise **retirement age** (UK: 75 for senior judges).
- Ensure **gender, caste, regional diversity**.

4. Court Infrastructure

- Set up **National Judicial Infrastructure Authority (NJIAI)**.
- Implement **flexi-fund mechanisms** (as per NITI Aayog).
- Improve amenities, ensure accessibility and court hour efficiency.

5. Strengthening Legal Aid

- Boost funding to **NALSA**, increase mobile clinics & CSC coverage.
- Collaborate with **law schools** for pro bono services.
- Scale **Tele-Law**, and emulate **Netherlands' legal aid model**.

6. Specialized Courts

- Expand success stories like:
    - **NCLT**: 269 resolution plans approved in FY24 ('!42% YoY)
    - **POCSO Courts**
- Learn from Germany: Create **Environmental**, **Cybercrime**, **IPR Courts**.

7. Judicial Training & Ethics

- Mandatory **Compassion Training** & **Ethical Modules** (via National Judicial Academy).
- **Bangalore Principles** of Judicial Conduct must be mainstreamed.
- Continuous Legal Education – model after Singapore's CPD for lawyers.

8. Transparency & Public Engagement

- **Live-stream court proceedings** (esp. Constitutional benches).
- Translate judgments into **regional languages**.
- Judicial Performance Evaluation (like US) for accountability

Linguistic Reorganisation of States

Why in News?

The **Governor of Tamil Nadu recently criticized the linguistic reorganisation of Indian states,** reviving debate over its long-term impacts on federalism, unity, and regionalism. This comes at a time when language-based tensions and identity politics are resurfacing in various parts of the country.

Background of State Reorganisation in India

Initial State Structure (1950–1956)

- Post-independence, states were categorized as:
    - **Part A**: Former British provinces
    - **Part B**: Princely states
    - **Part C**: Smaller provinces and chief commissioners' provinces
    - **Part D**: Andaman and Nicobar Islands
- These divisions were temporary and lacked administrative or cultural coherence.

Early Demands for Linguistic States

- Language-based identity demands intensified in South India.

- **Potti Sreeramulu**, a freedom fighter, died after a hunger strike in 1952, leading to the formation of **Andhra State** in 1953 (from the Madras Presidency).

Government's Response

1. **Dhar Commission (1948)**
    - Rejected linguistic reorganisation.
    - Emphasized national unity over regional demands.
2. **JVP Committee (1949)**
    - Members: Jawaharlal Nehru, Sardar Patel, Pattabhi Sitaramayya.
    - Opposed linguistic states due to fears of national disintegration.
3. **States Reorganisation Commission (SRC) (1953)**
    - Chair: Justice Fazl Ali; Members: H.N. Kunzru, K.M. Panikkar.
    - Recommended reorganisation based on language, but cautioned against the "one language, one state" principle.
    - Stressed national security, economic, administrative, and financial viability.

States Reorganisation Act (1956)

- Implemented SRC's recommendations.
- India was reorganised into **14 states** and **6 Union Territories**.
- Abolished Part A, B, C, D classifications.
- Paved the way for future demands based on identity, development, and governance.

Arguments in Favour of Linguistic Reorganisation

1. Cultural Accommodation within Federalism

- Provided recognition to India's linguistic and cultural diversity.
- Helped integrate regional aspirations into the national constitutional framework.
- Prevented alienation of linguistic communities by empowering them within the Union.

2. Defused Secessionist Tendencies

- Unlike Pakistan and Sri Lanka, India defused separatist tendencies by accommodating linguistic aspirations.
- Avoided violent conflicts through institutional accommodation.

3. Administrative Efficiency

- The **Second Administrative Reforms Commission (ARC)** observed that linguistic homogeneity:
    - Aided local governance.
    - Simplified communication in administration, education, and judiciary.

4. Political Representation and Democratic Decentralisation

- Enabled regional parties to participate in national politics.
- Strengthened democratic processes and local empowerment.

5. Unity in Diversity

- Allowed regions to celebrate their language and culture within the framework of national integrity.
- Strengthened India's pluralistic ethos.

Arguments Against Linguistic Reorganisation

1. Rise of Regionalism and Linguistic Chauvinism

- Linguistic majoritarianism in some states has marginalized minority language speakers.
- Example: Discrimination against non-Marathi speakers in Maharashtra.

2. Politicization of Linguistic Identities

- Regional political parties often mobilize language for electoral gains.
- Leads to repetitive demands for new linguistic or identity-based states (e.g., Tulu Nadu, Vidarbha).

3. Inter-State Tensions and Border Disputes

- Long-standing disputes such as **Maharashtra-Karnataka** over **Belagavi** are rooted in linguistic claims.

4. Administrative Overload

- Continuous state reorganisation proposals burden administrative machinery and dilute governance focus.

5. Weakening of Pan-Indian Identity

- Excessive regionalism can undermine national integration.
- Risks prioritizing state-level interests over national priorities.

What Should Be India's Future Strategy on Language Policy?

1. Promotion of Multilingualism

- Avoid imposition of any single language.
- Apply the **Three-Language Formula** flexibly.
- Promote education in **mother tongues**, especially in early schooling (as per **National Education Policy 2020**).

2. Upholding Constitutional Safeguards

- Ensure protection of linguistic minorities under:
  - **Article 29** (Cultural and educational rights)
  - **Article 30** (Rights of minorities to establish institutions)
- Promote languages listed in the **Eighth Schedule** of the Constitution.

3. Inter-State Cultural Exchange

- Strengthen programs like **Ek Bharat Shreshtha Bharat** to promote linguistic harmony.

4. Redressing Linguistic Exclusion Within States

- Ensure state-level inclusivity through:
  - Multilingual signage, public forms, administrative communication.
  - Inclusion of minority languages in state policies and education systems.

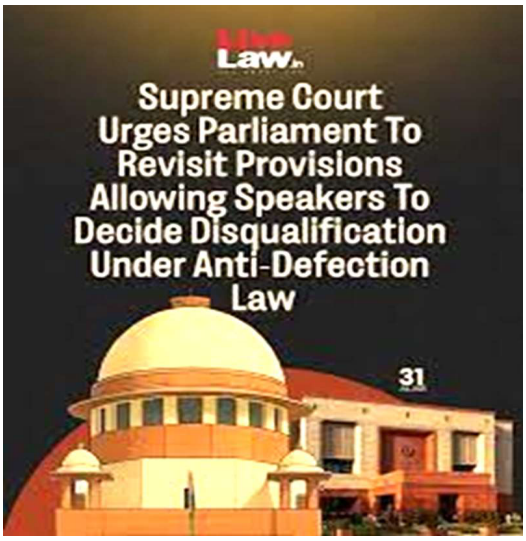
5. Use of Technology and Digital Platforms

- Promote platforms like **Bhashini**, a government-led multilingual AI tool, to ensure access to governance, digital services, and information in all Indian languages.

Conclusion

The linguistic reorganisation of states was a bold and largely successful experiment in accommodating India's deep diversity within a federal framework. It helped integrate multiple identities, enhance administrative functionality, and prevent internal conflicts seen in other multi-lingual nations. However, evolving political dynamics and emerging regional aspirations demand a balanced, inclusive, and forward-looking language policy. India's future lies in strengthening multilingual federalism that upholds diversity while reinforcing national unity. Constitutional safeguards, decentralised governance, and technological innovation should guide this ongoing journey.

Supreme Court Direction on Telangana Defection Case & Need for Anti-Defection Law Reforms



Background of the Case

- **10 BRS MLAs defected to Congress** after the **2023 Telangana Assembly elections**.
- **Disqualification petitions filed** with the **Assembly Speaker** in **March–April 2024** under the **Tenth Schedule** (Anti-Defection Law).
- The **Speaker delayed action** for over **7 months**, issuing notices only after the matter reached the **Supreme Court**.

Supreme Court's Observations and Directions (September 2025)

- **Speaker directed to decide disqualification petitions within 3 months**.
- Criticized the **delay**, stating it **defeats the purpose** of the Anti-Defection Law.
- Used phrase: "**operation successful, patient died**" to highlight how delays undermine justice.
- Warned that **MLAs attempting to delay proceedings** will face **adverse inference**.
- **Struck down Telangana High Court division bench order** that allowed more time, upholding the single judge's direction.

Supreme Court's Larger Concerns

- Called on **Parliament to reconsider the Speaker's role** as sole authority for disqualification.
- Raised concerns over **Speaker's political affiliation compromising neutrality**.
- Noted **30+ years of recurring delays and political misuse** under the **Tenth Schedule**.

Quote from CJI B R Gavai: "Is the trust reposed in the Speaker to act swiftly and neutrally being upheld? The cases speak for themselves."

What is the Anti-Defection Law

Introduction

- Introduced by the **52nd Constitutional Amendment Act, 1985**, adding the **Tenth Schedule**.
- Aimed to curb **political defections** that caused instability (e.g., "Aaya Ram, Gaya Ram" phenomenon).

Amendments

- **91st Amendment Act, 2003**:
  - Removed the "**one-third split**" provision.
  - Allowed **mergers only if two-thirds** of legislators agree.
  - Disqualified defectors from **ministerial/paid posts unless re-elected**.

Grounds for Disqualification under the Anti-Defection Law

Ground	Explanation
Voluntarily giving up party membership	Includes formal resignation or conduct indicating defection.
Voting/abstaining against party whip	Without prior permission.
Independent MLA joining a party	Immediate disqualification.
Nominated member joining party after six months	Disqualified.

Exceptions to Disqualification

- **Merger clause**: No disqualification if **two-thirds members merge**.
- **Presiding officers** (Speaker, Chairman) exempt if they resign from party to remain neutral.

Criticisms of the Anti-Defection Law

Issue	Description
Restricts dissent	Legislators cannot vote against party line even if conscience demands.
Speaker's bias	Speaker often belongs to ruling party, causing **neutrality concerns** and **delays**.
No fixed time limit	Lack of deadlines enables **strategic delays**.
Horse trading enabled	Two-thirds merger provision exploited for opportunistic defections.
Opaque party whips	Poor communication causes disputes.

Key Supreme Court Judgments on Defection

1. **Kihoto Hollohan *Vs*. Zachillhu (1992)**
   - Speaker's decisions subject to **judicial review** for mala fide intent or procedural lapses.
2. **Ravi S. Naik v. Union of India (1994)**
   - Defection can be **inferred from conduct**.
   - Speaker must be a **neutral adjudicator**.
3. **Keisham Meghachandra Singh v. Manipur Speaker (2020)**
   - Recommended **3-month deadline** for decisions.
   - Suggested **independent tribunal** for neutrality.

4. **Padi Kaushik Reddy v. State of Telangana (2025)**
    - Urged Parliament to **reconsider Speaker's role**.
    - Called for **timely and fair reforms**.

Suggested Reforms for Strengthening the Law

Reform	Description
Shift power to independent body	Transfer disqualification decisions from Speaker to **Election Commission or tribunal**.
Set clear time limits	Mandatory deadline (e.g., **3 months**) for decisions.
Limit law's scope	Apply only to **confidence motions, budget votes** affecting government stability.
Promote intra-party democracy	Encourage **internal debate** and reduce top-down control.
Enhance transparency	Mandate **public communication of party whips**; ensure **time-bound and transparent proceedings**.

Committees Calling for Reform

- **Dinesh Goswami Committee (1990)**
- **Hashim Abdul Halim Committee (1994)**
- **Law Commission Reports (1999 and 2015)**
- **2nd Administrative Reforms Commission**
- **170th Law Commission Report (1999)**

Conclusion

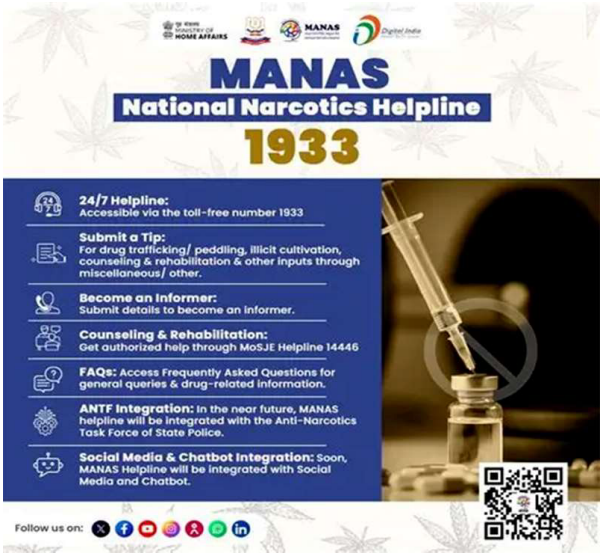
The Supreme Court's Telangana verdict is a **wake-up call** for urgent reforms. The Anti-Defection Law, intended to promote political stability, has become a tool for **delay, political manipulation, and suppression of democratic principles**. Parliament must ensure the law is **impartial, timely, transparent**, and restores **public faith in democracy**.

EDITORIALS

Crux of The Hindu & Indian Express

Indian Polity & Governance

NATIONAL NARCOTICS HELPLINE 'MANAS'



Why in News

- The Government of India informed the Rajya Sabha (6 August 2025) that the **MANAS (Madak-Padarth Nished Asoochna Kendra) Helpline – 1933** has shown significant success in enabling citizens to report drug trafficking and access de-addiction support.
- Over **70,000 citizens** have used the platform within a year.

ABOUT National Narcotics Helpline – MANAS

- Launched On: 18 July 2024
- Launched By: Ministry of Home Affairs**, in collaboration with the** Narcotics Control Bureau (NCB)

Objective

- To create a **citizen-centric**, **anonymous**, and **secure** platform for:
    - Reporting **drug trafficking**, **illicit cultivation**, and other **NDPS-related offences**
    - Accessing counselling and rehabilitation services
    - Promoting **drug abuse awareness and public participation**

Key Features of MANAS Helpline

Feature	Details
Toll-Free Number	1933
Official Portal	www.ncbmanas.gov.in
Email	info.ncbmanas[at]gov[dot]in
Mobile Access	Through **UMANG App**
Languages	Bilingual – **Hindi and English**
Type	**Secure**, **multi-channel**, **confidential**, and **interactive**

Citizen Services Provided

1. **Anonymous Reporting**:
   - Drug trafficking, storage, manufacturing, cultivation
2. **Rehabilitation Support**:
   - Transfer to **MoSJE Helpline 14446** for de-addiction services
3. **Awareness Materials**:
   - Posters, videos, brochures via the web portal
4. **Public Participation Activities**:
   - Online quizzes, poster-making, and reel contests via **MyGov**
   - Contributing to the **Drug-Free Bharat** campaign

Performance Highlights (Till July 2025)

Metric	Data
Total Citizens Reached	70,000
Actionable Tips Escalated	6,152
NDPS Cases Registered	36
Rehabilitation & De-addiction Calls	7,100
Miscellaneous Queries	56,700
Quiz Participants (MyGov)	2,013
Poster Submissions	835
Reel Submissions	522

Significance

- **Strengthens Internal Security**: Supports anti-narcotics enforcement through tip-offs.
- **Empowers Citizens**: Encourages public vigilance and participation.
- **Enhances Public Health**: Connects addicts with professional counselling and rehab.
- **Digital Governance**: Integrates services from NCB, MoSJE, MyGov, and UMANG App.
- **Promotes Awareness**: Engages youth and public in Drug-Free India campaign.

CAG Finds ₹ 3.69 Lakh Crore Cess Collections Not Transferred to Designated Funds

Context:

- The **Comptroller and Auditor General (CAG)**, in its report for the **Union Government Accounts 2023–24**, revealed that the **Central Government failed to transfer ₹ 3.69 lakh crore** of **cess collections** to the **respective designated funds**, defeating the **purpose-specific nature of cesses**.
- The report was **tabled in Parliament on August 12, 2025**, and the issue pertains to **multiple cesses** collected over several decades, dating back to **1974**

What is a Cess?

- A **cess** is a **tax-on-tax**—an additional levy imposed **over and above existing taxes**.
- It is meant to be used for a **specific purpose**, unlike general tax revenues.

- Cesses are meant to be deposited into **designated reserve funds** in the **Public Account of India**, separate from the Consolidated Fund.

Key Findings of the CAG Report

1. Total Shortfall

- As of **March 31, 2024**, the **short transfer** to designated funds amounted to **₹ 3,69,307 crore**.
- These include cesses for:
  - **Oil Industry Development**
  - **Health and Education**
  - **Investor Protection**
  - **National Highway Monetisation**

Case Studies from the Report

A. Oil Industry Development Cess

- **Act**: Oil Industry (Development) Act, **1974**.
- Purpose: To fund the **Oil Industry Development Board (OIDB)**.
- **CAG Finding**:
  - Total cess collected (1974–2024): **₹ 2.94 lakh crore**.
  - Amount transferred to OIDB: **Only ₹ 902 crore** (just **0.3%** of total).
  - **No transfers made since FY 1991–92**.
- **Government Response**:
  - An **Oil Industry Development Fund** was operationalised from **2024–25**.
  - Transfers made:
    * FY 2024–25: **₹ 17,730 crore**
    * FY 2025–26 (budgeted): **₹ 19,376 crore**

B. Health and Education Cess

- Timeline:
  - **2004**: 2% Education Cess introduced.
  - **2007**: 1% Secondary and Higher Education Cess added.
  - **2018**: Replaced by 4% **Health and Education Cess**.
- Intended Beneficiary Funds:
  - **Prarambhik Shiksha Kosh (PSK)** – est. 2005
  - **Madhyamik and Uchchatar Shiksha Kosh (MUSK)** – est. 2017
  - **Pradhan Mantri Swasthya Suraksha Nidhi (PMSSN)** – est. 2021
- **CAG Finding**:
  - Shortfall in transfer from **2018–19 to 2023–24**: **₹ 37,537 crore**
- **Finance Ministry Claim**:
  - It transferred **₹ 3.66 lakh crore** to these funds.
- **CAG Response**:
  - Government accounts show only ₹ 2.65 lakh crore transferred.
  - ₹ 1 lakh crore discrepancy remains unexplained and needs reconciliation.

C. Other Funds with Short Transfers

Fund Name	Shortfall
Investor Education and Protection Fund	₹2,505.5 crore
Monetisation of National Highways Fund	₹5,968.1 crore

Why is This Significant?

1. Violation of Fiscal Transparency

- Cess collections are **meant for specific public welfare schemes**.
- Not transferring them to the intended funds violates **Parliamentary authority**, **federal accountability**, and **citizen trust**.

2. Breach of Financial Discipline

- Funds collected under a legal provision (e.g., Oil Industry Act) but not used as mandated point to **mismanagement** of public finances.
- Questions the **credibility of budgetary allocations** and **financial governance**.

3. Impact on Public Services

- Non-transfer to education, health, and infrastructure funds could **undermine service delivery**, especially in sectors that rely on **targeted, earmarked financing**.

Conclusion

The CAG report uncovers **serious lapses in financial accountability** by the Union Government, with **large cess collections not being transferred** to their legally designated funds. This not only raises **governance concerns** but also risks the **underfunding of critical sectors** like **education**, **health**, and **infrastructure**. Effective reform and **transparency in fiscal transfers** are essential for restoring public trust and upholding constitutional principles.

Prime Minister's Independence Day Address – August 15, 2025

August 15, 2025

Theme: *Viksit Bharat by 2047* – Roadmap for a self-reliant, inclusive, and globally competitive India

1. About Indian Independence Day :

- ***Indian Independence Day is celebrated** annually on the 15th of August, **commemorating the end of** British colonial rule **and the** birth of a sovereign, democratic republic **in the year** 1947.*
- ***It stands as a** symbol of India's freedom, **unity, and the culmination of a** century-long struggle for independence, **primarily through** non-violent resistance, civil disobedience, **and** mass mobilization **led by numerous freedom fighters.***

2. Historical Background of Indian Independence Day

Colonial Period and the Freedom Struggle

- ***Before** August 15, 1947, **India was under** British colonial rule **for nearly** 200 years, **having gradually come under British control after the 18th century, culminating in the formal** British Raj from 1858.*
- ***India's struggle for independence was** long and multifaceted, **involving mass movements, political negotiations, and cultural reawakening.***
- ***It was marked by the leadership of** Mahatma Gandhi, Subhas Chandra Bose, Jawaharlal Nehru, Sardar Vallabhbhai Patel, Dr. B.R. Ambedkar, **and countless others.***

Key movements included:

- *Non-Cooperation Movement (1920–1922): **Led by Mahatma Gandhi, calling for mass non-violent resistance against British institutions.***
- *Civil Disobedience Movement (1930–1932): **Featured the** Salt March (Dandi March) **as a symbol of defiance.***
- *Quit India Movement (1942): **A final call for the British to leave India, launched by the Indian National Congress under Gandhi's leadership.***

British Withdrawal and Partition

- ***Following the** Second World War (1939–1945), **the British Empire was** economically and politically weakened.*
- ***The widespread unrest in India, including the** Naval Mutiny of 1946, **coupled with** international pressure **and the efforts of Indian leaders, forced the British to consider withdrawal.***
- ***This led to the passage of the** Indian Independence Act, 1947, **by the** British Parliament, **which formalized the** partition of British India into two dominions: India and Pakistan.*

- ***On the** midnight of August 14–15, 1947**, India officially gained independence**, and** Jawaharlal Nehru**, India's first Prime Minister, delivered his iconic "**Tryst with Destiny**" speech in the Constituent Assembly, declaring India's arrival as a free nation.*

3. Journey to the 79th Independence Day (2025)

India's 79th Independence Day, celebrated on** August 15, 2025**, marks** 78 years of freedom**. Over these decades, India has transitioned from a** colony to a republic**, and from a** developing nation to an emerging global power**.

Milestones in this journey include :

- *Adoption of the Constitution **in 1950.***
- *Green and White Revolutions **that ensured food security.***
- *Liberalization in 1991**, opening the economy.***
- *Technological and digital revolutions **in the 21st century.***
- ***Becoming a leader in** space technology, pharmaceuticals, and climate action**.***

***Each Independence Day reinforces the** memory of past struggles **and strengthens the** vision of a Viksit Bharat by 2047**, as articulated by Prime Minister Narendra Modi in the** 79th Independence Day Address*

4. Chronological Order of Independence Day Celebrations

The celebrations on Independence Day follow a** traditional and symbolic sequence**, with nationwide participation from** government bodies, schools, citizens, and armed forces**.

At the National Level (Red Fort, New Delhi):

1. *Arrival of the Prime Minister **at the** Red Fort**, New Delhi, where he is received by the** Defense Minister and military officials**.***
2. ***The** National Flag **is unfurled by the Prime Minister.***
3. ***A** 21-gun salute **is fired in honor of the nation.***
4. ***The** National Anthem **is played, evoking patriotism across the nation.***
5. ***The Prime Minister addresses the nation, discussing:***
   - ***India's** achievements*
   - *Challenges faced*
   - ***Future** goals and aspirations*
6. ***A** grand parade **follows, showcasing:***
   - ***The strength and discipline of the** armed forces*
   - *Cultural floats **from states and UTs***
   - *Folk dances **and regional music***
   - ***Technological and scientific achievements***
7. ***The event is witnessed by** national leaders**,** diplomats**, and** citizens**, and is** broadcast live across the country**.***

At the State and Local Levels:

- *State capitals **conduct similar events presided over by** Governors and Chief Ministers**.***
- *Flag-hoisting ceremonies **are held in** schools, colleges, universities**, and** government offices**.***
- ***Patriotic** songs, skits, dances**, and** speeches **by students and local leaders are performed.***
- ***Prizes and awards are given to meritorious students and community leaders for contributions to society.***

Cultural and Symbolic Aspects:

- ***Citizens decorate homes and public spaces with** tricolor flags, lights, and patriotic posters**.***
- ***Patriotic films and documentaries are aired on television.***
- ***The Indian diaspora celebrates the day in embassies and Indian communities across the world, reinforcing** India's global cultural presence**.***

1. THE ADDRESS

- On August 15, 2025, Prime Minister Narendra Modi delivered the **longest Independence Day speech** in India's history, lasting **103 minutes**.

- The speech was not just ceremonial but served as a **visionary policy blueprint** for building a **Viksit Bharat (Developed India) by 2047**.
- The Prime Minister outlined a path to transform India into a $10 trillion economy by emphasizing self-reliance (Aatmanir-bharta), innovation, and citizen empower-ment.
- He declared that India had moved from a state of dependency to one of **technological advancement, economic resilience, and strategic autonomy**.
- The day was described as a celebration of the "**140 crore resolutions**" of Indian citizens, representing **unity, pride, and national purpose**.

2. CONSTITUTION, UNITY, AND CULTURAL IDENTITY

- The Prime Minister stated that the **Constitution of India** has acted as a **guiding light and moral compass** for 75 years, especially during times of crisis.
- He paid tribute to **Dr. Syama Prasad Mookerjee**, recognizing him as the **first national leader to sacrifice his life for constitutional integrity**, particularly in the context of **Jammu and Kashmir**.
- Emphasizing **national unity**, he said that **unity is India's most powerful mantra**, and that the nation must not allow any force to undermine the thread of unity.
- He celebrated **India's cultural and mythological heritage**, which he described as a source of inspiration in fields such as **defense** and **governance**.
- The government granted **classical language status** to **Marathi, Assamese, Bangla, Pali, and Prakrit**, acknowledging their **historical, linguistic, and literary significance**.
- A major initiative called the **Gyan Bharatam Mission** was launched to **locate, digitize, and preserve handwritten manuscripts and ancient texts** using modern technology.
- The **successful organization of the Maha Kumbh** was highlighted as a powerful example of India's **unity in diversity and organizational excellence**.
- The Prime Minister also saluted the **Rashtriya Swayamsevak Sangh (RSS)** for completing **100 years of service**, acknowledging its role in **nation-building and promoting social cohesion**.

3. NATIONAL SECURITY AND DEFENSE SELF-RELIANCE

- For the first time, the Prime Minister publicly acknowledged **Operation Sindoor**, a **recent military operation** carried out entirely using **indigenous weapons and platforms**, which targeted **terrorist infrastructure in Pakistan**.
- He declared that **India's national security** no longer depends on **foreign powers**, but on **self-reliant capabilities**.
- He clearly stated that **India will not tolerate nuclear blackmail or cross-border terrorism**.
- He asserted that **the Indian Army will decide on its own terms, at the time and place of its choosing**, and will **select and destroy targets accordingly**.

- A new strategic military initiative named **Mission Sudarshan Chakra** was announced to enhance **offensive and rapid-response capabilities**, inspired by **Lord Krishna's divine weapon**.
- The mission's objective is to **neutralize enemy infiltrations** with **precision, speed, and power**.
- The Prime Minister called on **Indian scientists and youth** to undertake the **indigenous development of jet engines**, and to treat this as a **national mission**.
- He also announced that by **2035**, **all public places** in India would be covered under a **nationwide security shield** using **homegrown surveillance and defense technologies**.

4. WATER AND ENERGY SOVEREIGNTY

- The Prime Minister declared that the **Indus Waters Treaty** is **no longer acceptable** to India, as it allows water from the **Indus River system** to **irrigate enemy territories** while **Indian farmers suffer**.
- Quoting, "**Blood and water will not flow together**," he signaled a potential **review or termination of the treaty** to protect India's **national and agricultural interests**.
- India has achieved **50% clean energy generation** by **2025**, achieving the goal **five years ahead** of the **2030 target**.
- This was possible due to a **thirtyfold increase in solar energy capacity** over the past decade.
- He announced the launch of the **National Deepwater Exploration Mission** to tap into **offshore oil and gas reserves**, aiming to **reduce dependence on fuel imports**.
- Under **Mission Green Hydrogen**, large-scale investments are being made to make **India a global leader in clean fuel technology**.
- He further stated that **10 nuclear reactors** are already operational and that India aims to **increase its nuclear energy capacity tenfold by 2047**.
- Importantly, for the **first time in India's history**, the **private sector** will be allowed to **participate in nuclear energy projects**, paving the way for technological advancement and investment.
- The Prime Minister assured that the **money saved from reduced fuel imports** would be **redirected to farmer welfare and national development**.

5. ECONOMIC REFORMS AND SELF-RELIANCE

- The government will form a **Task Force for Next-Generation Reforms** to review all existing laws, rules, and procedures related to **economic activities**.
- The key goals of this task force include:
  - Reducing compliance costs for startups, MSMEs, and entrepreneurs.
  - Eliminating the fear of arbitrary legal actions.
  - Streamlining laws to improve ease of doing business.
- The Prime Minister announced that **Next-Generation GST Reforms** would be launched by **Diwali 2025**, including a **reduction in taxes on essential goods**, benefiting **consumers, local vendors, and small businesses**.
- The **income tax exemption limit** was raised to **₹ 12 lakh**, providing significant relief to the **middle class** and promoting **formal economic participation**.
- The **National Manufacturing Mission** will be accelerated, with a focus on **Zero Defect, Zero Effect (ZED)** production standards to ensure **quality manufacturing with minimal environmental impact**.
- Citizens and shopkeepers are encouraged to actively promote **Indian-made goods** under the **"Vocal for Local"** initiative.
- Displaying **Swadeshi boards** in shops is encouraged to foster **economic patriotism and pride**.
- He emphasized that **self-reliance is not just about trade**, but also about **national capability, dignity, and independence**.

6. AGRICULTURE AND FARMERS' WELFARE

- The Prime Minister described **farmers as the backbone of India's journey** from dependency to self-reliance.
- He stated that he has **"stood as a wall"** to protect **farmers and livestock keepers** from harmful domestic or global policies.
- India recorded **historic grain production** in the past year, ensuring **national food security**.
- The new **PM Dhan-Dhanya Krishi Yojana** was launched for **100 backward farming districts**, offering **integrated support** in areas such as **irrigation, seed supply, fertilizers**, and **market access**.
- Existing schemes such as **PM-KISAN Samman Nidhi**, **rainwater harvesting**, and **timely fertilizer supply** have increased **farmer confidence** and productivity.
- India currently ranks:
    - **#1 in milk, pulses, and jute production**.
    - **#2 in rice, wheat, cotton, fruits, and vegetables**.
- Agricultural exports have **crossed ₹ 4 lakh crore**, indicating global competitiveness.
- The Prime Minister highlighted the **urgent need to produce fertilizers and key agri-inputs domestically** to strengthen **food sovereignty** and reduce dependency on imports.

7. SCIENCE, TECHNOLOGY, AND INNOVATION

- The Prime Minister stated that India's early semiconductor efforts were "killed at birth", but the country is now operating in mission mode.
- The first Made-in-India semiconductor chips are expected to launch by the end of 2025.
- He urged youth and researchers to build India's own operating systems, AI models, cybersecurity tools, and social media platforms to ensure digital sovereignty.
- He highlighted CoWIN as a successful example of India's ability to build world-class Digital Public Infrastructure (DPI).
- More than 300 space startups are actively working in the areas of satellites, space exploration, and deep-tech innovation.
- He honored Group Captain Shubhanshu Shukla as a national hero, and confirmed that Gaganyaan, India's first indigenous manned space mission, is progressing rapidly.
- India also aims to establish its own space station in the coming years, underscoring its space ambitions.

8. SOCIAL JUSTICE AND INCLUSIVE DEVELOPMENT

- Over the last decade, **25 crore people have risen out of poverty**, forming a new **"neo-middle class"**.
- This transformation has been driven largely by **Direct Benefit Transfer (DBT)** systems that promote **efficiency and transparency** in welfare delivery.
- A **High-Powered Demography Mission** will be launched to address **illegal migration** and **demographic imbalances** in **border districts**.
- The **Red Corridor**, once consisting of **125 Maoist-affected districts**, has now been reduced to **just 20 districts**.
- Regions once known for conflict are now emerging as **corridors of green development** and **constitutional governance**.
- He noted that **tribal youth from Bastar** are now representing India in the **Olympics**, showcasing successful integration and opportunity.
- On the occasion of the **150th birth anniversary of Bhagwan Birsa Munda**, the government reaffirmed its commitment to **tribal empowerment and the eradication of Naxalism**.

9. WOMEN EMPOWERMENT AND YOUTH ENGAGEMENT

- **Self-help groups (SHGs)** led by women have achieved **global success**, with many of their products reaching **international markets**.

- Indian women are now **leading in startups, the armed forces, space missions, and sports**.
- The **Namo Drone Didi initiative** has empowered rural women to use **drones in agriculture**, improving productivity.
- The government aims to create **three crore "Lakhpati Didis"**, meaning women entrepreneurs who earn over **₹ 1 lakh annually**.
- The **PM Viksit Bharat Rozgar Yojana**, worth **₹ 1 lakh crore**, was launched to provide **₹ 15,000 financial support** per newly employed youth.
- The program aims to benefit **3 crore young Indians**.
- Youth were encouraged to lead in emerging sectors such as **AI, semiconductors, defense technologies**, and **digital platforms**.

10. LEGAL AND GOVERNANCE REFORMS

- The government has abolished **over 1,500 outdated laws** and removed **more than 40,000 unnecessary compliances** in the past few years.
- In the latest parliamentary session, **over 280 legal provisions** were scrapped to **simplify and modernize governance**.
- The **Bharatiya Nyay Sanhita (BNS)** has replaced the **colonial-era Indian Penal Code (IPC)**, promoting **citizen trust, transparency**, and **national values**.
- Faceless tax assessments and **transparent income tax reforms** have improved **ease of compliance** and **reduced corruption**.

11. HEALTH AND LIFESTYLE

- The Prime Minister declared that **obesity** is a **national health crisis**, urging every family to **reduce cooking oil consumption by 10%** to prevent **lifestyle-related diseases**.
- India will further strengthen its role as the **"Pharmacy of the World"** by promoting **domestic research and development** in **drugs, vaccines**, and **medical technology**.
- He emphasized the **urgent need to develop life-saving medicines entirely within India** to ensure **affordability and accessibility**.

12. KEY QUOTES FROM THE ADDRESS

- **"Blood and water will not flow together."** – On reviewing the Indus Waters Treaty and asserting national interests.
- **"We will not allow even a single particle of slavery to remain in our lives, systems, or laws."** – On decolonizing institutions and mindsets.
- **"I will stand shoulder to shoulder with you."** – PM's commitment to the youth and innovators.
- **"Viksit Bharat by 2047"** – The defining national vision for development.

13. CONCLUSION: A CALL TO ACTION

The Prime Minister's 79th Independence Day speech was a comprehensive development blueprint, emphasizing a whole-of-government and whole-of-society approach.

It focused on building a **self-reliant, secure, inclusive, and innovative India**, underpinned by constitutional values and cultural pride.

NCDRC, 10 States Clear more Consumer Cases than filed in July 2025 : Ministry

Context

- The National Consumer Disputes Redressal Commission **(NCDRC) along with 10 states recorded a case disposal rate above 100% in July 2025**, meaning more consumer cases were cleared than newly filed.

- **Tamil Nadu led with a 277% disposal rate,** followed by Rajasthan (214%) and others.
- The **Ministry of Consumer Affairs credits digital reforms such as the e-Jagriti platform for faster,** more accessible consumer grievance redressal.

Background

- The **Consumer Protection Act, 2019** established a three-tier quasi-judicial system:
  - District Commissions
  - State Commissions
  - National Commission (NCDRC)
- **Aims:** Inexpensive, simple, and speedy redressal of consumer disputes.
- **Persistent challenges:** Case backlog, infrastructure gaps, staff shortages.
- **Reforms:**
  - E-Daakhil portal for online filing.
  - Mediation provision under Consumer Protection Act, 2019.
  - E-Jagriti (2025) – new integrated platform for consumer services.

Key Facts (July 2025 Data)

- NCDRC disposal rate: 122%
- **Tamil Nadu: 277% (highest)**
- **Other states >100%:**
  - Rajasthan – 214%
  - Telangana – 158%
  - Himachal Pradesh – 150%
  - Uttarakhand – 150%
  - Meghalaya – 140%
  - Kerala – 122%
  - Puducherry – 111%
  - Chhattisgarh – 108%
  - Uttar Pradesh – 101%
- **Overall disposal rate: Higher than July 2024 → showing steady progress.**

Digital Support: e-Jagriti Platform

- **Launched:** January 2025.
- **Users:** 2+ lakh (including NRIs) by August 2025.
- **Features:**
  - Integrated multiple systems (OCMS, e-Daakhil, NCDRC CMS, CONFONET).
  - Online complaint filings '! 85,531 cases filed digitally (2025).
  - Services: Case filing, fee payment, real-time tracking.
  - Virtual hearings, multilingual access.
  - SMS/email updates for litigants.
  - Accessibility features for elderly and visually impaired '! inclusive justice.

Illustrative Case Outcomes (2025)

- **Tamil Nadu:**
  - Refund of ₹ 14,249 + costs for defective TV.
  - Refund of ₹ 99,500 coaching fees + ₹ 5 lakh compensation + interest.
- **Punjab**: Refund of ₹ 3.09 lakh + interest for defective tiles.
- **Haryana**: Consumer won refund for faulty dishwasher and service contract.
- **Gujarat**: Insurance company directed to reimburse denied Mediclaim + interest + compensation.

Significance

1. Strengthening Consumer Rights – Faster grievance redress enhances consumer confidence.
2. Judicial Efficiency – Rare instance of >100% disposal, countering judiciary's pendency crisis.
3. Digital Justice – E-Jagriti shows transformational impact of digital governance in justice delivery.
4. Global Relevance – Supports India's image as a pro-consumer economy, benefitting Ease of Doing Business.
5. Inclusive Access – Accessibility tools empower vulnerable consumers.

Challenges

- Pending backlog still exists, especially in older cases.

- Infrastructure gaps in District & State forums (lack of permanent staff, courtrooms).
- Awareness gap – Many consumers unaware of e-Jagriti/e-Daakhil.
- Compliance delays – Even after favorable orders, companies often delay refunds/ compensation.

Way Forward

1. National Scaling of e-Jagriti with vernacular language integration.
2. Consumer Mediation Expansion → ADR to prevent litigation overload.
3. Monitoring Disposal Ratios monthly to push states lagging behind.
4. Capacity Building – more staff, training, infrastructure at District/State commissions.
5. Strict Enforcement → penalties for non-compliance with consumer forum orders.
6. Awareness Programs on consumer rights & digital grievance redress.

Mines and Minerals (Development and Regulation) Amendment Bill, 2025

Context

- On **August 19, 2025**, the **Rajya Sabha** passed the **Mines and Minerals (Development and Regulation) Amendment Bill, 2025**.
- The **Lok Sabha** had already passed it on **August 12, 2025**.
- The bill was passed **amidst a walkout** by Opposition members, who demanded a discussion on unrelated issues (like Bihar's voter list revision).

What the Bill Does

- **Amends** the **Mines and Minerals (Development and Regulation) Act, 1957**.
- **Empowers mining leaseholders** to mine **critical minerals** (e.g. **lithium, cobalt, nickel**) **without paying additional royalty**.
- **Facilitates creation of mineral exchanges** to **promote market development and trading** of minerals.
- **Renames** the **National Mineral Exploration Trust** as the: **National Mineral Exploration and Development Trust**.

Significance of the Bill

- Supports **India's strategic needs**: critical minerals are vital for:
  - Electronics (phones, laptops)
  - Aerospace
  - Green energy (EV batteries)
  - Agriculture
  - Space technology
- India currently **depends heavily on imports** for these minerals — the bill aims to reduce this reliance.
- **24 critical minerals** identified by the Centre for focused development.

Institutional & Policy Reforms

- Launch of the **National Critical Mineral Mission**:
  - **₹ 34,000 crore** outlay
  - Objective: Increase **domestic production**, including from **offshore** areas.
- Push for **transparency and accountability** in the mining sector.
- Emphasis on creating a **market ecosystem** (like stock exchanges) for minerals.

Political Reactions

- **Union Minister G. Kishan Reddy**:
  - Called the bill part of "revolutionary reforms" under the Modi govt.
  - Blamed past UPA regime for corruption in mining.
- **Opposition**:
  - **Mallikarjun Kharge** (Congress): Demanded unrelated discussion; led to walkout.
  - **John Brittas** (Left): Criticized the bill as "far-reaching", asked it be sent to a **select committee**.
- **Parliamentary concern** raised on:
  - Expunged remarks being shared on **social media/Sansad TV** — calls for stricter controls on House proceedings being leaked.

Why This Matters :

- **Economic Security**: Boosting domestic production of critical minerals will reduce import bills and dependency on foreign nations (notably China).
- **Geopolitical Angle**: Control over critical minerals is key in global power play (example: lithium wars).
- **Energy Transition**: These minerals are key to India's **net-zero goals**, battery storage, and EV development.
- **Ease of Doing Business**: The bill reduces bureaucratic hurdles for leaseholders, encouraging private sector participation.

Vibrant Villages Programme (VVP) and Border Management

Theme: Governance | Internal Security | Border Area Development | Centre-State Relations

Context:

- Recently, Union Home Minister Amit Shah inaugurated a two-day workshop on the **Vibrant Villages Programme (VVP)** in New Delhi.
- Reiterated that **"border villages should not be the last, but the first villages of India."**

About Vibrant Villages Programme (VVP)

- **Type**: **Centrally Sponsored Scheme (**VVP-I); **Central Sector Scheme (**VVP-II)
- **Time Period**:
  - **VVP-I**: FY 2022–23 to 2025–26
  - **VVP-II**: Till FY 2028–29

VVP-I (Phase I)

Coverage :

- **Target Villages**: 2,967 villages
- **Location**: 46 blocks in 19 districts
- **States/UTs**: Arunachal Pradesh, Himachal Pradesh, Sikkim, Uttarakhand, and Ladakh (UT)

Key Features

- **Village Action Plans**: Prepared by District Administration with Gram Panchayats
- **100% Saturation** of Central and State schemes
- **No overlap** with the Border Area Development Programme

VVP-II (Phase II)

- Type: Central Sector Scheme (100% Centre funding)
- Approved: April 2025 by Union Cabinet
- Outlay: ₹ 6,839 crore
- Vision: Aligns with Viksit Bharat@2047 for "Safe, Secured & Vibrant Land Borders"

Coverage

- **Strategic Villages** along International Land Borders (ILBs)
- **States/UTs**:
    - Arunachal Pradesh, Assam, Bihar, Gujarat, J&K (UT), Ladakh (UT), Manipur, Meghalaya, Mizoram, Nagaland, Punjab, Rajasthan, Sikkim, Tripura, Uttarakhand, Uttar Pradesh, and West Bengal

Key Objectives of Vibrant Villages Programme (VVP):

1. **Prevent Migration** from border villages.
2. Achieve **100% saturation of government schemes** in these villages.
3. Develop villages as **instruments of national security** and local empowerment.

Vision Behind VVP:

- Shift in national perspective from viewing border villages as "last" to "first" settlements.
- Strengthen **strategic presence**, **patriotism**, and **development** in frontier regions.

Strategic and Security Dimensions:

- Border villages are considered **security assets**.
- Demographic changes in border areas flagged as a **deliberate challenge** to national security.
    - Example: PM's Independence Day speech highlighting concerns.
- Call for vigilance against **illegal religious encroachments** within 30 km of border areas.

Key Components of VVP Implementation:

1. **Multi-sectoral Development**:
    - **Infrastructure** (telecom, roads, healthcare, drinking water, education)
    - **Tourism promotion** (e.g., homestays with state-supported booking platforms)
    - **Employment generation** through cooperatives and local procurement. E.g., ITBP sourcing local milk, vegetables, etc.
2. **Cultural Preservation**:
    - Promote and protect **indigenous culture and identity**.
3. **Role of Stakeholders**:
    - **District Collectors**: Key role in coordinating scheme saturation and tackling demographic issues.
    - **Central Armed Police Forces (CAPFs)**:
        * Contribution to education, healthcare, and sports.
        * Support formation of **dairy cooperatives** to supply security forces.
    - **State Governments**: Essential for coordinated implementation.

Outcomes and Best Practices:

- **Positive population trends** in border villages of Arunachal Pradesh.
- **Gujarat Model**: Successful removal of encroachments along land and maritime borders.

Administrative Suggestions by Home Minister:

- Integrate VVP into **core administrative functioning**.
- Use schemes like **MGNREGA** for:
    - Creating **ponds**, afforestation, and permanent rural infrastructure.
- Ensure **inter-ministerial coordination** (MHA, MoD, etc.)

Possible Mains Question:

Q. *Discuss the significance of the Vibrant Villages Programme in the context of national security and rural development in India's border regions.*

❐❐❐

Indian Society & Social Justice

UN Women

United Nations Entity for Gender Equality and the Empowerment of Women

UN Women is a key United Nations entity dedicated to advancing gender equality and the empowerment of women worldwide. It recently celebrated its **15th anniversary**, reflecting on its progress and the continuing challenges to women's rights globally.

About UN Women

- **Establishment:** It was created in **July 2010** by the **UN General Assembly** as part of the UN reform agenda to consolidate resources and mandates for greater impact.
- **Purpose:** UN Women brings together four former UN bodies and is the lead organization within the UN system for gender equality. Its mission is to make the vision of the Sustainable Development Goals (SDGs), particularly **SDG 5**, a reality for women and girls.
- **Headquarters:** New York City.

Main Roles and Functions

1. **Supporting Inter-Governmental Bodies:** It provides technical and policy support to global policymaking bodies, such as the **Commission on the Status of Women (CSW)**, to help them formulate and set global standards and norms on gender equality.
2. **Assisting Member States:** UN Women helps member states implement these global standards by providing **technical and financial support** and forging partnerships with civil society organizations.
3. **Leading and Coordinating the UN System:** It leads and coordinates the UN system's work on gender equality, promoting accountability and monitoring system-wide progress.
4. **Grant-making:** UN Women provides grants to government agencies and civil society groups through two key funds:
    - **The Fund for Gender Equality:** Supports initiatives that promote women's economic and political empowerment.
    - **The UN Trust Fund to End Violence against Women:** Dedicated to combating all forms of gender-based violence.

Relationship with other UN Bodies

- **Commission on the Status of Women (CSW):** As a functional commission of the **United Nations Economic and Social Council (ECOSOC)**, the CSW is the primary global policymaking body on gender equality. UN Women serves as its secretariat and provides crucial support for its work.
- **Other Bodies:** UN Women also provides information and support on women's rights issues to the General Assembly, ECOSOC, and the Security Council. It maintains the UN Secretary-General's database on violence against women.

PM National Dialysis Programme

The **Pradhan Mantri National Dialysis Programme (PMNDP)** has been significantly expanded, now providing free dialysis services across all **36 States and Union Territories** in 751 districts. This expansion aims to reduce the financial burden on patients with end-stage kidney failure.

About the Programme

- **Launch:** Rolled out in **2016** under the **National Health Mission (NHM)**.
- **Nodal Ministry:** Ministry of Health and Family Welfare.
- **Objective:** To provide accessible and affordable dialysis services, **free of cost**, to **Below Poverty Line (BPL)** beneficiaries at district hospitals and beyond. It is also increasingly supporting all patients with end-stage renal disease (ESRD).
- **Implementation Model:** The program is primarily implemented in a **Public-Private Partnership (PPP)** mode, though in-house and hybrid models are also used depending on the state's needs. This leverages the private sector's expertise to set up and operate dialysis units efficiently.
- **Components:** The program supports both **Haemodialysis** and **Peritoneal Dialysis** services, with the latter being particularly beneficial for patients in remote areas as it can be administered at home.

Key Initiatives and Features

- **PMNDP Portal:** Launched in May 2022, this IT platform integrates all dialysis centers under the NHM. Its key features include:
    - **Renal Registry:** Facilitates the creation of a national renal registry to track and monitor patients.
    - **Portability:** The portal, which is integrated with the **Ayushman Bharat Health Account (ABHA)** ID, enables the **"One Nation-One Dialysis"** concept. This allows patients to access dialysis services at any registered center across the country, ensuring continuity of care even if they travel or relocate.
- **Funding:** The NHM provides financial assistance to states and UTs for setting up and operating dialysis centers, ensuring equitable access to care for all, regardless of geography.
- **Reach:** As of June 30, 2025, a total of **1,704 dialysis centers** are operational, a significant increase from the initial number, reflecting the program's successful expansion to cover every district in the country.

Market Coupling

The **Central Electricity Regulatory Commission (CERC)** has proposed to implement **market coupling** in the Day-Ahead Market (DAM) of power exchanges from January 2026. This move, however, has been met with skepticism from some industry officials and analysts who believe it may provide little benefit to the power sector.

About Market Coupling

- **Definition:** Market coupling is a mechanism used in energy markets to create a **single, uniform price for electricity** across different trading platforms or exchanges.
- **Current Scenario:** Currently, India has three operational power exchanges: the **Indian Energy Exchange (IEX), Power Exchange India Limited (PXIL),** and **Hindustan Power Exchange Limited (HPX)**. These exchanges operate independently, collecting their own buy and sell bids and discovering separate market clearing prices (MCPs). This results in slight price variations across the platforms.
- **Proposed Model:** Under the proposed model, a single entity, the **Market Coupling Operator (MCO)**, will aggregate all buy and sell bids from the different exchanges. The MCO will then match these bids to discover a single, unified price that will apply to all transactions, regardless of the exchange through which the electricity is traded. The CERC has proposed a **round-robin model** where the three exchanges will take turns acting as the MCO.

Advantages and Disadvantages

- **Potential Advantages:**
  - **Improved Efficiency:** It can enhance the efficiency and integration of interconnected markets, leading to better utilization of transmission infrastructure.
  - **Enhanced Liquidity:** A single, transparent price can increase market liquidity by encouraging more participants to trade.
  - **Price Convergence:** It will ensure that prices are more closely aligned across exchanges, reducing the potential for arbitrage and creating a more efficient allocation of resources.
  - **Reduced Dominance:** It could help level the playing field and reduce the dominant market share of a single player like IEX.
- **Potential Disadvantages and Challenges:**
  - **Limited Impact:** Critics argue that since the price differences between exchanges are already minimal, the benefits of a uniform price may not be significant.
  - **Operational Complexity:** Aggregating bids from multiple platforms and creating a unified price is a complex process that requires significant system integration and could add a new layer of bureaucracy.
  - **Stifling Innovation:** By reducing the exchanges' role to mere "bid collectors," market coupling could diminish their incentive to innovate and develop new products.
  - **Low Share of Exchange Trading:** Since only a small percentage (around 7%) of India's total electricity is traded on exchanges, the impact of this reform on the overall power market and consumer prices may be marginal.

Denotified, Nomadic and Semi-Nomadic Tribes

Recent calls for a **permanent national commission** for Denotified, Nomadic, and Semi-Nomadic Tribes (DNTs) gained traction at a national conference held in New Delhi, highlighting the need for a dedicated body to address the historical injustices and ongoing marginalization of these communities.

About Denotified, Nomadic, and Semi-Nomadic Tribes

- **Denotified Tribes (DNTs):** Also known as **Vimukta Jati**, these are communities that were historically stigmatized and notified as "criminal tribes" under the colonial-era **Criminal Tribes Act of 1871**. After India's independence, this discriminatory act was repealed in **1952**, leading to their "denotification."
- **Nomadic Tribes (NTs):** These are communities who do not have a fixed settlement and move from place to place for their livelihood, often relying on natural resources and traditional occupations.
- **Semi-Nomadic Tribes (SNTs):** These are communities that have a semi-permanent place of residence but also practice seasonal migration for their sustenance.
- **Marginalization:** Collectively, these communities are among the most neglected and economically deprived groups in India. Historically, they were denied access to private land and have been living a life of destitution for generations.

Status and Government Initiatives in India

- **Population:** DNTs and NTs constitute roughly **10% of India's population**. There are approximately 150 DNT communities and about 500 NT communities.
- **Renke Commission (2008):** This commission was constituted to identify and list DNT communities and recommend measures for their welfare.
- **Idate Commission (2014):** Headed by Bhiku Ramji Idate, this commission was tasked with preparing a state-wise list of DNTs and suggesting appropriate welfare measures. Its key recommendations included:
    - Creating a **permanent statutory commission** for DNTs, NTs, and SNTs.
    - Formulating a single, uniform classification for these communities instead of the current state-wise anomalies in SC/ST/OBC lists.
- **Development and Welfare Board (DWBDNC):** Based on the recommendations of the Idate Commission, the Ministry of Social Justice and Empowerment constituted the DWBDNC in **2019** to formulate and implement welfare and development programs.

Scheme for Economic Empowerment of DNTs (SEED)

- **Launch:** The SEED scheme was launched in **2022** by the Ministry of Social Justice and Empowerment with a financial outlay of **₹ 200 crore** for five years (FY 2021-22 to FY 2025-26).
- **Objective:** To empower DNT communities by providing:
    - **Educational empowerment:** Free coaching for competitive examinations.
    - **Health insurance:** Coverage for health and medical facilities.
    - **Livelihood initiatives:** Support for community-level livelihood projects.
    - **Housing assistance:** Financial aid for the construction of houses.
- **Implementation:** The scheme is implemented by the **DWBDNC**, and beneficiaries are identified by state and union territory governments.

Ayurveda Aahara

Why in News?

- The Food Safety and Standards Authority of India (FSSAI), in collaboration with the Ministry of Ayush, recently issued a formal list of food products classified under the newly created "Ayurveda Aahara" category. This move aims to provide clarity and authenticity for traditional Ayurvedic food preparations.

About Ayurveda Aahara

- **Core Concept**: Ayurveda Aahara designates a category of food products crafted in accordance with the holistic dietary principles of Ayurveda. These principles, rooted in one of the world's oldest health systems, emphasize a balance of natural ingredients, therapeutic herbs, and consideration for seasonal suitability.
- **Regulatory Framework**: The initiative is a direct outcome of the **Food Safety and Standards (Ayurveda Aahara) Regulations of 2022**. The newly issued list helps

operationalize these regulations, making it easier for manufacturers to produce certified products.

- **Authenticity and Source**: The food formulations on the list are directly sourced from recipes found in a specific set of classical Ayurvedic texts, which are listed in the regulations' Schedule A. This ensures that the products are based on verified, traditional knowledge.
- **Impact**: The new classification and definitive list are expected to assist Food Business Operators (FBOs) by establishing a credible reference for manufacturing. It also aims to promote the wider adoption of traditional, Ayurveda-based nutrition for public health benefits.

India Electric Mobility Index

Why in News?

- The **NITI Aayog** has recently introduced the **India Electric Mobility Index (IEMI)**, a new tool designed to evaluate and rank the performance of Indian states and union territories in their transition to electric vehicles.

About the India Electric Mobility Index (IEMI)

- **Purpose**: The IEMI is a pioneering, data-driven framework that offers a comparative analysis of the progress of states and UTs in achieving their electric mobility objectives. It serves as a national benchmark, scoring each region out of 100 points.
- **Evaluation Framework**: The index assesses progress across **16 indicators** categorized under three primary themes:
    - **Transport Electrification Progress**: This theme focuses on the adoption of electric vehicles from the demand side.
    - **Charging Infrastructure Readiness**: This tracks the development and availability of charging facilities.
    - **EV Research and Innovation Status**: This measures the efforts on the supply side, including research and development within the EV ecosystem.
- **Objectives**: The index aims to support states by providing a transparent framework to assess their efforts and identify both strengths and gaps. It is intended to inform policy decisions, promote healthy competition, and facilitate the sharing of best practices among states to help them align with national electric mobility goals.
- **Strategic Role**: The IEMI underscores the critical need for integrated planning, state-level coordination, and cross-sectoral collaboration to achieve India's broader vision for a sustainable, decarbonized transport future.

India Cine Hub Portal

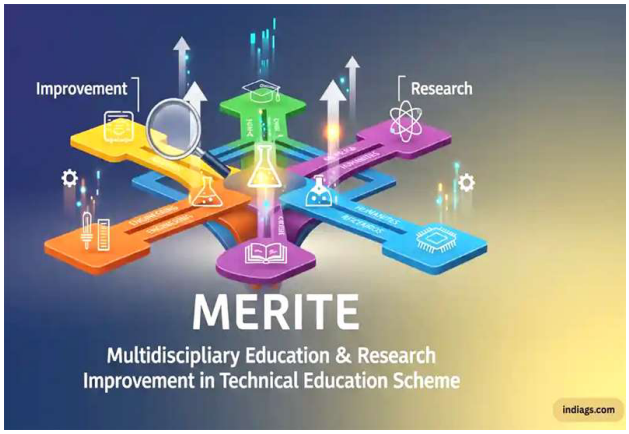
Why in News?

- The central government has recently encouraged states to utilize the **India Cine Hub Portal** to facilitate and streamline the process of global film production within their territories.

About the India Cine Hub Portal

- **Launch and Mandate**: Launched on June 28, 2024, the portal was established by the **Ministry of Information & Broadcasting**, under the **National Film Development Corporation (NFDC)**. It was initially designed to help foreign filmmakers but has now extended its services to Indian filmmakers as well.
- **Core Function**: It operates as a single-window system to simplify and expedite permissions, secure incentives, and map resources for film projects across India. The portal's main goal is to promote India as a premier filming destination by creating a film-friendly ecosystem.
- **Key Features**: The platform incorporates several key features to enhance the ease of doing business:
    - **GIS-based location mapping**, which helps filmmakers identify suitable shooting locations.
    - A **common application form** to streamline the permission process.
- **State Integration**: Currently, seven states and two Union Territories have fully integrated with the portal's services, while 21 states and six Union Territories have been onboarded.

MERITE Scheme



Why in News?

- The Union Cabinet has approved the implementation of the **Multidisciplinary Education and Research Improvement in Technical Education (MERITE) Scheme**. This new initiative aims to transform technical education across India.

About the MERITE Scheme

- **Nature and Objective**: The MERITE Scheme is a **Central Sector Scheme** designed to improve the quality, equity, and governance of technical education in government engineering institutions and polytechnics throughout India. It is formulated in collaboration with the **World Bank** and is aligned with the principles of the **National Education Policy-2020 (NEP-2020)**.
- **Funding and Duration**: The scheme has a total financial outlay of **₹ 4,200 crore** for a five-year period, from 2025-26 to 2029-30. The World Bank will provide **₹ 2,100 crore** of this as a loan. Funds will be disbursed to participating entities through a **Central Nodal Agency**.
- **Key Interventions**: The scheme focuses on enhancing student employability through a multifaceted approach. Major interventions include:
    - Offering **internship opportunities** and updating curricula to match industry needs.
    - Organizing **faculty development programs** and establishing **research hubs**.
    - Providing support to incubation and innovation centers, as well as skill and maker labs.
- **Target Beneficiaries**: An estimated **275 government/government-aided technical institutions** are expected to be supported under the scheme. This includes selected

National Institutes of Technology (NITs), State Engineering Institutions, Polytechnics, and Affiliating Technical Universities (ATUs). Additionally, State and UT technical education departments will also receive support.

- **Collaboration**: Eminent institutions like the **IITs** and **IIMs**, along with regulatory bodies such as **AICTE** and **NBA**, will play a significant role in the scheme's implementation.

Lepcha Tribe

Why in News?

- The state of **Sikkim** recently celebrated **Tendong Lho Rum Faat**, a traditional nature-worshipping festival of the indigenous **Lepcha tribe**, highlighting the community's deep cultural and spiritual connection to their environment.

About the Lepcha Tribe

- **Origin and Distribution**: The Lepcha, who refer to themselves as **'Rongs' or 'Rongkups'**, are an indigenous ethnic group found in the eastern parts of Nepal, western Bhutan, and in India's **Sikkim state** and the **Darjeeling district of West Bengal**. In Sikkim, they are recognized as a **Scheduled Tribe**.
- **Geographical Habitat**: They reside on the southern and eastern slopes of **Mount Kanchenjunga**, with their settlements ranging from elevations of 230 meters to the mountain's peak at 8,586 meters above sea level.
- **Language and Demographics**: The Lepcha people speak a unique language, also called Lepcha, which has its own script derived from Sanskrit. They are considered a "vanishing tribe" with a dwindling population, estimated at around 42,909 individuals as per the 2011 Indian Census.
- **Livelihood and Culture**:
    - Traditionally, the Lepcha were hunters and gatherers, but today they also practice farming and cattle breeding.
    - Their spiritual beliefs have evolved from traditional nature worship and animism to also embrace **Buddhism**. They originally considered **Mount Kanchenjunga** their guardian deity.
    - The community's cultural life is marked by regular festivals that feature singing, dancing, and archery contests.

S.H.I.N.E. Initiative

Why in News?

- The **Department of Health Research (DHR)** and the **Indian Council of Medical Research (ICMR)** recently organized a nationwide open day event called the **S.H.I.N.E. Initiative**, a program aimed at engaging students in health and biomedical research.

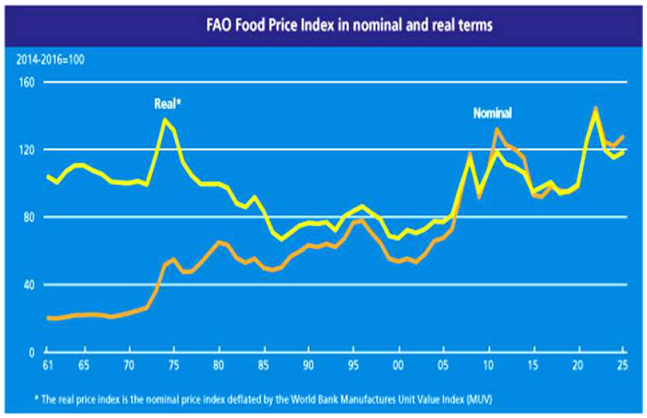
About the S.H.I.N.E. Initiative

- **Name and Objective**: The acronym **S.H.I.N.E.** stands for **Science, Health and Innovation for Nextgen Explorers**. The program is a

nationwide student outreach effort launched by the **ICMR** to spark scientific curiosity, foster innovation, and motivate young learners to pursue careers in science and public health.

- **Scope**: The event saw participation from more than **13,000 students** in grades 9-12 from over 300 schools across 39 districts in 16 states and union territories.
- **Interactive Activities**: To make the experience engaging and informative, the initiative included a variety of hands-on activities, such as:
    - Guided laboratory tours at various ICMR institutes.
    - Research exhibitions and poster walks.
    - Video presentations and live demonstrations of ongoing scientific work.
- **Unique Feature**: To make the program more accessible to students, a friendly mascot named **Dr. Curio** was introduced as a guide throughout the event.

FAO Food Price Index



Why in News?

- The **United Nations' Food and Agriculture Organization (FAO)** recently announced that the world food commodity prices reached their highest level in over two years during July, as measured by its monthly Food Price Index.

About the FAO Food Price Index

- **What it is**: The **Food Price Index** is a measure of the monthly changes in the international prices of a basket of five major food commodity groups. The index is a trade-weighted average of the prices of **cereals, vegetable oils, dairy, meat, and sugar**.
- **Calculation**: The index uses the **2014-2016 period** as its base year, with the index value set at 100 for that period. The values reflect price changes relative to this baseline.

Key Facts about the Food and Agriculture Organization (FAO)

- **Mandate**: As a specialized agency of the United Nations, the FAO leads global efforts to defeat hunger and improve nutrition and food security. Its primary goal is to ensure that everyone has consistent access to enough high-quality food to lead healthy and active lives.
- **Membership and Headquarters**: The organization operates in over 130 countries and has 195 members, which include 194 countries and the European Union. Its headquarters are located in **Rome, Italy**.
- **Related Bodies and Publications**: The FAO works closely with sister UN bodies like the **World Food Programme (WFP)** and the **International Fund for Agricultural Development (IFAD)**. It is also well-known for publishing several key reports on the state of global agriculture and food systems, including:
    - The State of the World's Forests (**SOFO**)
    - The State of World Fisheries and Aquaculture (**SOFIA**)
    - The State of Agricultural Commodity Markets (**SOCO**)
    - The State of Food Security and Nutrition in the World (**SOFI**)

National Organ And Tissue Transplant Organization (NOTTO)

Why in News?

- The **National Organ and Tissue Transplant Organization (NOTTO)** recently issued a significant 10-point advisory. This new guideline gives priority to **women patients** and the **relatives of deceased donors** in the allocation of organ transplants, aiming to address gender imbalances and encourage more donations.

About the National Organ and Tissue Transplant Organization

- **Establishment**: NOTTO is an apex-level body established under the **Directorate General of Health Services**, within the **Ministry of Health and Family Welfare**. Its formation is mandated by the **Transplantation of Human Organs and Tissues (Amendment) Act of 2011**, which regulates organ donation and transplantation in India.
- **Core Functions**: As the highest national body for organ donation, NOTTO's primary functions include:
    - **Coordination**: It acts as the national center for coordinating the procurement and distribution of organs and tissues across India.
    - **Registry**: It maintains a national registry for all organ and tissue donations and transplantations to ensure transparency and accountability.
    - **Policy & Monitoring**: NOTTO formulates policy guidelines and protocols, monitors transplantation activities, and compiles registry data from state and regional bodies.
- **Divisions**: NOTTO operates through two main divisions:
    - **National Human Organ and Tissue Removal and Storage Network**: This division is responsible for the nationwide coordination of organ procurement, allocation, and distribution.
    - **National Biomaterial Centre**: This centre focuses on the procurement, processing, and storage of various tissues for transplantation, also known as the National Tissue Bank.
- **Other Activities**: The organization also plays a crucial role in creating public awareness about organ donation, disseminating information to hospitals and individuals, and providing consultancy and training support on legal and non-legal aspects of donation and transplantation.

Khelo India ASMITA

Why in News?

- The **Khelo India ASMITA Football League 2025-26** was recently launched in Jalgaon, Maharashtra, by the Minister of State for Youth Affairs and Sports. This event marks the beginning of the annual league season dedicated to women's sports.

About Khelo India ASMITA

- **Nature & Objective**: **ASMITA**, which stands for **Achieving Sports Milestone by Inspiring Women**, is a core component of the Khelo India mission. It's an **affirmative action** initiative aimed at promoting sports among women and girls and ensuring inclusive, grassroots-level sports development. The

program is part of the broader 'Khelo Bharat Niti' (Khelo India Mission) that uses sports as a tool for nation-building and women's empowerment.

- **Implementation & Scope**: The **Sports Authority of India (SAI)**, in collaboration with various National Sports Federations, conducts these women's leagues at both zonal and national levels for multiple age groups. The initiative, which began in 2021, aims to not only increase participation but also serve as a platform for identifying new talent across India.
- **Key Targets (2025-26)**: In the current financial year, there are plans to conduct **852 ASMITA leagues** across **15 sports disciplines**, with a target of engaging more than **70,000 women athletes** in all states and union territories.
- **Significance**: By creating dedicated platforms for young girls, this initiative is helping to challenge traditional stereotypes and empower women to become new role models in sports.
- **Nodal Ministry**: The initiative is overseen by the **Ministry of Youth Affairs and Sports**.

Moai Statues

Why in News?

- A recent study has warned that rising sea levels could submerge the iconic **Moai statues** on Easter Island by as early as **2080**. This would pose a significant threat to the island's cultural identity and its tourism-based economy.

About Moai Statues

- **Overview**: The Moai are massive, **monolithic stone statues** carved from volcanic rock. They were created by the **Rapa Nui people**, the first Polynesian settlers on Easter Island, between approximately **1400 and 1650 A.D.** There are around 1,000 Moai statues on the island, with the tallest reaching 33 feet.
- **Purpose and Symbolism**: The statues were carved in the likeness of deceased ancestors, chieftains, or other important people. They were placed on rectangular stone platforms called **'ahu'**, which served as both ceremonial sites and tombs for the individuals they represented. Each statue was intentionally given distinct characteristics to honor the specific person it depicted.

Key Facts about Easter Island

- Located in the **eastern Pacific Ocean**, Easter Island (also known as Rapa Nui) is a key part of the **'Polynesian Triangle'**.
- This vast, spearhead-shaped area also includes Hawaii and New Zealand and is considered the traditional homeland of the Polynesian people.

APAAR ID

Why in News?

- The **Central Board of Secondary Education (CBSE)** recently made it compulsory for all students to provide their **APAAR ID** when registering for board examinations.

About the APAAR ID

- **Overview**: **APAAR**, which stands for **Automated Permanent Academic Account Registry**, is a permanent, **12-digit ID** for every student in India, envisioned under the **National Education Policy (NEP) 2020**. It aims to create a "One Nation, One Student ID" system.
- **Functionality**: The ID serves as a **lifelong academic passport**, consolidating a student's entire educational journey from pre-primary to higher education. It stores a comprehensive record of all academic achievements, including degrees, certificates, scholarships, and credits, in a central database. The ID is linked to the student's **Aadhaar** and stored in their **DigiLocker** for easy and secure access.
- **Objectives**:
    - To facilitate **seamless transfers** for students moving between different educational institutions.
    - To provide **standardized, digital records** for mark sheets and other credentials.
    - To aid in **educational policymaking** and analysis by offering a centralized database of student information.
- **Generation**: The APAAR ID is generated through the **Unified District Information System for Education Plus (UDISE+)**, a comprehensive database of information on schools in India.

e-Sushrut@Clinic

Why in News?

- The **National Health Authority (NHA)** and the **Centre for Development of Advanced Computing (C-DAC)** have signed a Memorandum of Understanding (MoU) to roll out **e-Sushrut@Clinic**, a new digital health platform.

About e-Sushrut@Clinic

- **Overview**: e-Sushrut@Clinic is a lightweight, government-backed **Hospital Management Information System (HMIS)** designed as a cloud-based solution specifically for **small and medium healthcare providers**. Developed by C-DAC, it is a simplified version of their flagship e-Sushrut software and marks a crucial step in expanding the **Ayushman Bharat Digital Mission (ABDM)** ecosystem.
- **Key Features**: The platform is tailored to meet the needs of outpatient clinics, offering modules for outpatient management, pharmacy, and nursing at a low per-user cost. Its user-friendly features allow healthcare providers to onboard directly from their laptops or mobile devices via a webpage using their **Health Facility Registry (HFR)** and **Health Professionals Registry (HPR)** credentials. Providers not yet registered can do so directly on the platform.
- **Significance**: e-Sushrut@Clinic enables small clinics and sub-centers to easily **digitize patient records, prescriptions, and billing** with minimal technical overhead. This streamlines processes like telemedicine and diagnostics. The platform also integrates various **ABDM utilities**, such as the **AIIMS Clinical Decision Support Systems (CDSS)** for conditions like hypertension and diabetes, which helps doctors make more accurate diagnoses and treatment decisions.

National Gopal Ratna Award

Why in News?

- The Department of Animal Husbandry and Dairying (DAHD), under the Ministry of Fisheries, Animal Husbandry and Dairying, has announced the opening of nominations for the **National Gopal Ratna Awards 2025**.

About the National Gopal Ratna Award

- **Overview**: The National Gopal Ratna Award is recognized as one of the highest national honors in India's **livestock and dairy sectors**. It was launched in 2021 as part of the **Rashtriya Gokul Mission**.
- **Aim**: The award's primary goal is to promote excellence and encourage contributions from various stakeholders, including milk-producing farmers, dairy cooperatives, and technicians. A key focus is on the conservation and promotion of India's robust **indigenous cattle and buffalo breeds**.
- **Categories**: The awards are conferred in three main categories:
    1. **Best Dairy Farmer** rearing indigenous cattle/buffalo breeds.
    2. **Best Dairy Cooperative Society (DCS)/Milk Producer Company (MPC)/Dairy Farmer Producer Organization (FPO)**.
    3. **Best Artificial Insemination Technician (AIT)**.
- **Special Provision**: To boost dairy development activities in challenging terrains, a special award category has been established for the **North Eastern Region (NER)** and **Himalayan States**.
- **Recognition**: Winners receive a Certificate of Merit, a memento, and a monetary prize for the first two categories.

Sahariya Tribe

Why in News?

- A recent genetic study conducted by researchers found a potential genetic link to the unusually high rate of **tuberculosis (TB)** within the **Sahariya tribe** of central India. This finding highlights the unique health challenges faced by this community.

About Sahariya Tribe

- **Status and Demographics**: The Sahariya are one of the **Particularly Vulnerable Tribal Groups (PVTGs)** in India, a classification for tribes with pre-agricultural technology, low literacy, and a stagnant or declining population. With a population of over six lakhs as per the 2011 Census, they are primarily concentrated in **Madhya Pradesh**, **Rajasthan**, and **Uttar Pradesh**. They are also known by names like Seher, Sair, and Savar.
- **Habitat and Social Structure**: The Sahariyas are predominantly forest dwellers. While living in villages with other communities, they typically reside in a separate area called **'Seharana'**, which consists of a cluster of houses. Their homes are traditionally made from stone boulders or mud. They generally live in small joint families.

- **Livelihood and Skills**: Their economy is based on forest resources, supplemented by cultivating small plots of land and working as landless laborers, with seasonal migration being a common practice. They are particularly skilled in making **catechu**, a valuable extract, from **khair trees** (*Acacia catechu*), which is used in traditional medicine, as a food additive, and as a dye.
- **Cultural and Social Aspects**:
    - **Language**: The tribe has lost its original language and now speaks the local dialects of the regions where they live.
    - **Religion**: They practice traditional ethnic religions but also incorporate Hindu beliefs and values into their identity.
    - **Dance**: The Sahariya tribe is known for the **Sahariya Swang**, a folk dance performed during the festival of **Holi**, which features a male performer in female attire.

Didayi Tribe

Why in News?

- **Champa Raspeda**, a student from the **Didayi tribe** in Odisha's Malkangiri district, has become the first member of her community—a **Particularly Vulnerable Tribal Group (PVTG)**—to successfully clear the NEET 2025 examination.

About Didayi Tribe

- **Overview**: The Didayi tribe, also known as the Didai people, is an indigenous community residing in the **Malkangiri district of Odisha**. They are classified as one of the 13 **PVTGs** in the state due to their vulnerable social and economic conditions.
- **Ethnic and Linguistic Identity**: The Didayi belong to the **Proto-Australoid** racial stock. They speak a language that is part of the **Austroasiatic language family**, a group of languages widely spoken in Southeast Asia and parts of India.
- **Social Structure and Beliefs**: The Didayi follow a **patriarchal** social structure. Their religious beliefs are rooted in **animism**, which involves a deep reverence for the natural world and a belief in the spiritual essence of all living things. Villages are governed by a traditional council of elders who are responsible for settling disputes.
- **Livelihood and Habitat**: The Didayi live in small, remote forest villages, primarily in the **Eastern Ghats** hills. Their houses are typically simple thatched huts with walls made of mud and bamboo. Traditionally, their primary occupations include agriculture, hunting, gathering of forest produce, and fishing.

Integrated Food Security Phase Classification (IPC)

Why in News?

- The **Integrated Food Security Phase Classification (IPC)** recently published an analysis revealing that more than half a million people in Gaza are facing famine conditions. The report highlighted widespread starvation and destitution, bringing global attention to the severity of the hunger crisis.

About the Integrated Food Security Phase Classification

- **Overview**: The IPC is an independent, multi-stakeholder body and the primary global system for measuring the severity of food crises. It was established under the guidance of major humanitarian organizations and is funded by Western countries to provide early warnings and inform responses to prevent mass starvation. The IPC provides its analysis to governments and organizations, but it does not formally declare a famine itself.
- **Famine Classification Methodology**:
    - The IPC uses a **five-phase scale** to chart acute food insecurity. The most severe level is **Phase 5**, which includes the designations "catastrophe" and "famine."
    - For an area to be classified in a state of famine, three criteria must be met:
        1. At least **20%** of the population must be suffering from extreme food shortages.
        2. At least one in three children must be acutely malnourished.
        3. The daily mortality rate from starvation or malnutrition-related diseases must be at least **two people for every 10,000** individuals.
    - The IPC relies on data from various sources, including the **U.N. World Food Programme**, other relief organizations, and government agencies, to conduct its analyses.

Matua Community

Why in News?

- The **Matua community** recently organized a protest march in Habra, North 24-Parganas, West Bengal, to oppose a proposed special intensive revision (SIR) of electoral rolls. The community's concerns are centered around the potential for disenfranchisement of its members.

About the Matua Community

- **Origin and History**: The Matua community is a marginalized Hindu sect that originated in the 19th century in the Bengal region. It was founded by **Harichand Thakur** in the 1860s as a powerful social and religious reform movement to counter the deep-seated caste discrimination prevalent in Hindu society at the time.
- **Socio-Religious Identity**:
    - The community's followers are primarily from the **"Namashudra"** caste, which has been historically regarded as a lower-caste group in Hinduism.
    - Harichand Thakur's teachings focused on the principles of **social equality, human dignity**, and the empowerment of marginalized groups through education and religious reform.
- **Post-Partition Migration**: Following the partition of Bengal in 1947, many Matua

families migrated to India from what is now Bangladesh to escape religious and political persecution. Today, the Matua community forms the **second-largest Scheduled Caste (SC) population** in West Bengal and holds significant political influence.

National Awards to Teachers (NAT)

Why in News?

- The Ministry of Education's Department of Higher Education recently selected 16 educators from **Higher Educational Institutions (HEIs)** and **Polytechnics** for the **National Awards to Teachers (NAT) 2024**. The expansion of the awards to include teachers from higher education reflects a broader recognition of educators across the entire spectrum of the Indian education system.

About National Awards to Teachers

- **Overview**: First instituted in **1958**, the National Awards to Teachers (NAT) program is a prestigious initiative by the **Ministry of Education** to publicly acknowledge the unique contributions of outstanding teachers in the country. The awards are meant to celebrate those who have not only improved the quality of school education but also enriched their students' lives through dedication and innovative teaching.
- **Presentation**: The awards are presented annually on **September 5th** (Teacher's Day) by the **President of India** or the **Vice President of India**.
- **Eligibility Criteria**:
    - The awards are open to **regular teachers** and headmasters of primary, middle, and secondary schools with a minimum of **ten years of service**.
    - This includes schools run by state governments and union territories, local bodies, aided schools, and central government schools such as **Kendriya Vidyalayas (KVs)** and **Jawahar Navodaya Vidyalayas (JNVs)**.
    - Retired teachers are generally not eligible, but those who have served for at least four months in the award year may be considered.
    - **Ineligible** candidates include educational administrators, inspectors of education, training institute staff, contractual teachers, and "Shiksha Mitras," as well as any teacher or headmaster who has engaged in private tuitions.

EDITORIALS

Crus of The Hindu & Indian Express

Indian Society & Social Justice

LPG Subsidy Misuse and DBTL Scheme

PAHAL Scheme or Direct Benefit Transfer of LPG (DBTL) Scheme

Context:

- As of **July 1, 2025**, the **Direct Benefit Transfer of LPG (DBTL) / PAHAL scheme** has led to **blocking, suspension, or deactivation** of **4.08 crore** duplicate, fake, or inactive LPG connections.
- Aim: **Prevent misuse/diversion** of subsidised LPG, enhance **transparency**, and ensure **targeted subsidy delivery**.

Key Schemes Involved:

DBTL / PAHAL Scheme:

- **Launched:** January 2015.
- **Mechanism:** Subsidy for LPG cylinders is transferred **directly into the bank accounts** of eligible consumers.
- **Objective:** Eliminate leakages, identify 'ghost' beneficiaries, and prevent commercial misuse.

Pradhan Mantri Ujjwala Yojana (PMUY):

- Targets **poor households**, especially women, by providing subsidised LPG connections.

Achievements & Statistics (as of July 1, 2025):

- **4.08 crore** fake/duplicate/inactive LPG connections blocked.
- **33.05 crore** total active LPG consumers.
- **92.44%** Aadhaar seeding in OMC databases.
- **86.78%** DBTL consumers Aadhaar-transfer compliant.
- **67%** PMUY beneficiaries completed **biometric Aadhaar authentication**.

Technological & Policy Measures:

Common LPG Database Platform (CLDP):

- Facilitates **de-duplication** of LPG connections.
- Uses **Aadhaar, bank details, AHL TIN, ration card**, etc., for authentication.

Aadhaar-Based Verification:

- Enables **real-time, accurate, and cost-effective** beneficiary identification.
- Helps in **reducing leakages** and improving **targeted delivery**.

Biometric Authentication:

- Mandatory for **new PMUY connections**.
- Ongoing for existing PMUY and DBTL users to prevent misuse.

Challenges Noted:

- **Failed subsidy transfers** due to:
  - Aadhaar deseeding from bank accounts.
  - Inactive Aadhaar.
  - Bank mergers, account closures, or transfers.
- Ongoing **efforts to ensure Aadhaar-transfer compliance** for all users.

Way Forward:

- Strengthen digital infrastructure and grievance redressal.
- Ensure 100% Aadhaar-bank account seeding.
- Enhance awareness and digital literacy among rural consumers.
- Monitor real-time subsidy delivery and transaction failures.

Pradhan Mantri Matru Vandana Yojana (PMMVY) – Special Drive & UpdateS

Context:

- The **Ministry of Women and Child Development** has extended the **special registration drive** for PMMVY till **15 August 2025**.
- Focus: **Door-to-door awareness-cum-enrolment** campaign by Anganwadi and ASHA workers.
- Objective: Ensure all **eligible Pregnant Women & Lactating Mothers (PW&LM)** are registered and benefit from the scheme.

About PMMVY:

Feature	Details
Launched	2017
Type	**Centrally Sponsored Scheme**
Under	Mission Shakti → **Sub-scheme: *Samarthya***
Objective	Provide partial wage compensation, promote health-seeking behaviour, and improve maternal and child health outcomes
Mode of Payment	Direct Benefit Transfer (DBT)

Incentives Offered:

Child	Amount	Instalments
First Child	₹5,000	In **two instalments**
Second Child (Girl only)	₹6,000	In **one instalment post-birth**

Progress So Far (As of July 31, 2025):

- **4.05 crore** women have received at least one instalment.
- Total disbursed: **₹ 19,028 crore** via **DBT to Aadhaar-seeded bank/post office accounts**.

Technology & Implementation:

PMMVYSoft (Launched March 2023):

- Central digital platform for registration, tracking, and payments.
- Used by State/UT field officials for seamless implementation.

Digital Features:

- **Aadhaar authentication** via UIDAI.
- **NPCI verification** to ensure DBT success.
- **Integrated Grievance Module**.
- **Toll-free multilingual helpline**: 14408.
- **Facial Recognition System (FRS)** for Aadhaar-based biometric authentication.
- **Due-list of potential beneficiaries** for proactive enrolment.

Implementation Partners:

- **Frontline Workers**: Anganwadi Workers and ASHA Workers.
- **Banking Partners**: DBT-enabled, Aadhaar-seeded accounts via NPCI.

Challenges:

- Aadhaar-related issues (linking, biometric mismatches).
- Low awareness in remote/rural regions.
- Delay in registration or instalments.
- Exclusion due to digital divide.

Way Forward:

- Strengthen door-to-door campaigns.
- Monitor backend failures (Aadhaar seeding/ DBT errors).
- Expand PMMVYSoft analytics for real-time monitoring.
- Ensure timely grievance redressal via helpline and integrated modules.

Bibi Fatima SHG Wins UNDP Equator Initiative Award 2025

Context:

- The **Bibi Fatima Women's Self-Help Group (SHG)** from **Teertha village**, Kundgol taluk, **Dharwad district (Karnataka)**, has won the **Equator Initiative Award 2025** given by the **United Nations Development Programme (UNDP)**.
- This award is often described as the **"Nobel Prize for Biodiversity Conservation"**, recognizing **local and indigenous efforts** that promote **nature-based solutions**, **sustainable development**, and **climate resilience**

About the Equator Initiative Award

- Instituted by the **UNDP**.
- Announced every year on **International Day of the World's Indigenous Peoples** (August 9).
- Recognises **indigenous people and local communities** who lead **innovative, nature-based solutions**.
- **2025 Theme**: **Women and Youth Leadership for Nature-Based Climate Action**.
- **2025 Competition**: Around **700 entries** from **103 countries**.
- **Bibi Fatima SHG**: The **only Indian winner** among **10 global recipients**.

- **Award includes**: A **cash prize of $10,000** (approx. ₹ 8.5 lakh).

About Bibi Fatima Women's SHG

Formation and Vision

- **Formed in 2018** by **15 women**.
- Objective: **Improve livelihoods** of **small and marginal farmers** through **sustainable agriculture**.

Key Activities and Achievements

- **Eco-friendly Farming in Rainfed Lands**
  - Promoted **natural farming** and **climate-resilient practices**.
  - Implemented **millet-based mixed cropping systems** in **around 30 villages**.
- **Millet Promotion and Processing**
  - Encouraged **millet cultivation** as a climate-resilient food crop.
  - Established a **women-run millet processing unit**.
  - Supported by:
    - **Sahaja Samruddha** (mentoring organisation)
    - **Indian Institute of Millets Research (IIMR), Hyderabad**
    - **CROPS4HD initiative**
    - **Selco Foundation** (provided solar-powered energy)
- **Community Seed Bank**
  - Created to **preserve indigenous seed varieties**.
  - Distributed seeds **free of cost** to interested farmers.
- **Value Addition and Marketing**
  - Produced and marketed **value-added millet products** like **rotis and vermicelli**.
  - Participated in **farmers' markets** to promote millet-based food.
- **Livelihood and Nutrition Security**
  - Ensured **food and nutritional security** for farming families.
  - Promoted **livestock rearing** and **horticulture**.
  - Focused on **women-led rural enterprises** in collaboration with **Devadhanya Farmer Producer Company**.

Why is this Important?

- **1. Recognition of Grassroots Innovation**
- Highlights the role of **local, women-led initiatives** in addressing **climate change**, **sustainable farming**, and **rural development**.
- **2. Promoting Millets**
- Supports **India's millet revival movement**, aligned with the **International Year of Millets (2023)**.
- Helps tackle **malnutrition**, **climate stress**, and **soil degradation**.
- **3. Women's Empowerment**
- Demonstrates the **transformational role of SHGs** in rural India.
- Offers a successful model of **female leadership** in **climate action** and **economic upliftment**.
- **4. Nature-Based Solutions**
- Aligns with global environmental goals, especially **SDG 13 (Climate Action)** and **SDG 15 (Life on Land)**.

Conclusion

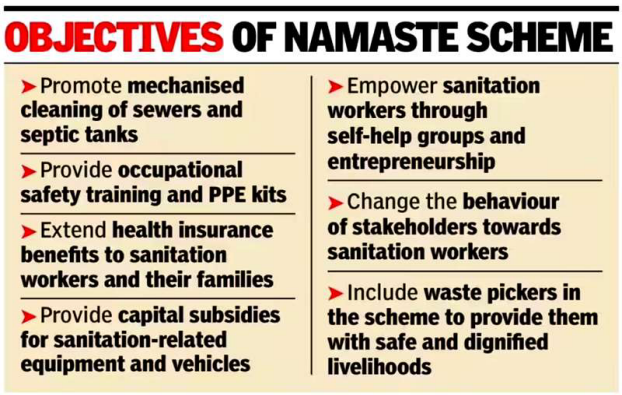
The award to **Bibi Fatima SHG** is a strong recognition of how **local community action**, especially led by **women**, can create impactful models of **sustainable agriculture**, **climate resilience**, and **biodiversity conservation**. It reflects the power of **bottom-up development**, and offers a replicable example for policymakers and civil society alike.

NAMASTE Scheme: Empowerment of Sanitation Workers

Why in news :

- The **Hon'ble Minister shared information about the NAMASTE scheme.**
- ***National Action for Mechanized Sanitation Ecosystem*** *was* **Launched by** Ministry of Social Justice & Empowerment (**MoSJE**), in collaboration with the Ministry of Housing & Urban Affairs (**MoHUA**)
- It was **launched in 2023-24 as a Central Sector Scheme with a budget allocation of 349.73 crores for the period from 2023-24 to 2025-26.**
- It aimed **at ensuring dignity, safety, and social-economic empowerment of sanitation workers.**

Objective:



- To **eliminate manual scavenging**, promote **mechanized sanitation**, and ensure the **safety, dignity, and socio-economic upliftment** of sanitation workers across India.

Key Achievements (as of August 2025):

- He informed that under the scheme, 85,819 Sewer & Septic Tank Workers have been profiled so far,

Indicator	Number Achieved
Sewer & Septic Tank Workers (SSWs) Profiled	85,819
PPE Kits Distributed	76,736
Ayushman Bharat Cards Issued	60,586

PPE = Personal Protective Equipment

State-Level Update: Bihar (Patna)

- **408** SSWs profiled in Patna.
- Symbolic distribution during the event:
  - **25 SSWs** + **25 Waste Pickers** given PPE Kits.
  - **25 Sanitation Workers** handed **Ayushman Bharat Cards**.
  - **Safety Equipment** handed over for Emergency Response Sanitation Units (ERSUs).

Rang Paridhan Program (Fashion Show):

- A unique initiative under NAMASTE to **promote awareness** on **PPE use** through a **fashion show featuring sanitation workers**.
- Objective: **Normalize safety gear** and **highlight the dignity of sanitation work**.
- Widely appreciated for innovative outreach.

Broader Significance:

Social Justice:

- **Target Group:** Sewer & septic tank workers – one of the most **marginalized and stigmatized occupational groups**.
- Focus on **"Priority to the Deprived"** – aligning with India's inclusive growth model.

Health & Safety:

- Ayushman Bharat cards ensure **healthcare access**.
- PPE kits and equipment promote **occupational safety**, preventing deaths from hazardous cleaning.

Livelihood & Dignity:

- Profiling workers enables **targeted skilling, credit access, and welfare services**.
- A step toward **eradicating manual scavenging**, in line with constitutional and legal mandates.

What is Manual Scavenging

- Manual scavenging refers to the manual handling and removal of human excreta from dry latrines, open drains, septic tanks, gutters, and sewers.
- In India, this practice is prohibited under the *Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 (PEMSR)*. The Act recognizes manual scavenging as a "dehumanizing practice" and aims to correct the systemic and historical injustices faced by those engaged in it.

What are Government Schemes Related to Manual Scavenging

Several initiatives have been launched to eliminate manual scavenging and support the rehabilitation of those previously engaged in it:

- Self Employment Scheme for Rehabilitation of Manual Scavengers (SESRM)
- National Safai Karamcharis Finance and Development Corporation (NSKFDC)
- Rashtriya Garima Abhiyaan
- Swachh Bharat Mission 2.0
- Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY-NULM)

These programs aim to provide financial support, alternative employment opportunities, skill development, and dignity to former manual scavengers.

Kuttimathan Kani, the forest elder who gave a wonder herb to the world but died in poverty

Why in News?

- On **August 23, 2025**, **Kuttimathan Kani**, a tribal elder from Kerala's **Kani community**, passed away in poverty despite **being globally recognized for sharing traditional knowledge of a medicinal plant — Arogyapacha** (*Trichopus zeylanicus*).
- He had once received international recognition for pioneering the world's first **benefit-sharing model** involving indigenous knowledge.
- However, he **died neglected, without healthcare, housing, or state support**.
- His story raises urgent questions about **how India treats its indigenous knowledge holders**, the failures of **benefit-sharing policies**, and the ethical dimensions of **scientific exploitation of tribal communities**.

Who was Kuttimathan Kani?

- **A tribal elder** from the **Kani community** in Kerala's Agasthyamalai forests.
- He **shared knowledge of a medicinal plant** used by his tribe: **Arogyapacha** (*Trichopus zeylanicus*).
- This plant was later made into a **commercial medicine** called *Jeevani*.
- He helped scientists, got some recognition, but **died in poverty** in 2025.

About the Kani Tribe :

- The Kani tribe, also known as **Kanikarars, is an indigenous community that was once nomadic but now lives a settled life in the forests of the Agasthyamalai hills** in the Western Ghats, located in the Thiruvananthapuram district of Kerala.
- Each Kani settlement functions with a traditional community council responsible for maintaining social order.
- This council includes the **Moottukani** (chief), **Vilikani** (convenor), and **Pilathi** (priest and physician), with all positions passed down through hereditary lines.

- Historically, the Moottukani held a central role, acting as the community's lawgiver, protector, judge, healer, and spiritual leader.
- The **Pilathis** are revered for their supposed magical abilities and conduct rituals and chants using a sacred instrument called the *Kokara*.
- Today, the Kanis live in small tribal hamlets, each comprising 10 to 20 families scattered across the forest regions of Thiruvananthapuram.
- **Occupations:** Their traditional livelihoods include crafting handicrafts, gathering minor forest produce such as honey and beeswax, and cultivating crops like tapioca, banana, millets, and various cash crops.
- **Language:** The Kanis speak both Tamil and Malayalam.
- **Traditional Knowledge:** The community possesses deep knowledge of medicinal plants.
- According to their customs, only the Pilathis are permitted to pass on this traditional medical knowledge.

What is Arogyapacha?

- **Arogyapacha** (*Trichopus zeylanicus*) is a small, green creeping plant found in the **Agasthyamalai forests of Kerala**.
- The Kani tribe had long used it to fight fatigue and maintain stamina during forest treks.
- Because of its rejuvenating qualities, it was later nicknamed the **"Ginseng of Kerala."**
- In 1987, Kuttimathan and a fellow tribesman named Mallan guided scientists from the **Tropical Botanic Garden and Research Institute (TBGRI)** to this plant.
- Recognising its potential, the scientists developed a herbal formulation from it called **Jeevani**, which was marketed for its anti-fatigue, antioxidant, and adaptogenic properties.

The Birth of a Benefit-Sharing Model

By the mid-1990s, Jeevani was being produced commercially. In 1995, TBGRI entered a licensing agreement with Arya Vaidya Pharmacy in Coimbatore, under which:

- ₹ 10 lakh was paid upfront to the institute.
- 2% royalty on sales was promised.
- A **Kani Samudaya Kshema Trust** was established to channel half of these benefits back to the Kani community.
- This was celebrated internationally as a **"model" for biodiversity benefit-sharing**, even before the **Convention on Biological Diversity (CBD)** and **Nagoya Protocol** were fully operational in India.
- Kuttimathan was even invited to **Johannesburg in 2002** to receive the **UN Equator Prize** for this contribution.

What Went Wrong?

- Despite all the praise, the model **failed on the ground**.
- First, the **trust was mismanaged**. Its funds were poorly used, its assets (like a welfare building and vehicle) fell into disrepair, and the initial licensing deal wasn't renewed after it expired.
- Meanwhile, other companies began manufacturing similar products using the same plant — **without paying anything to the Kani people**.
- Second, the Kani community, which is largely illiterate, had **no understanding of intellectual property rights or royalties**.
- They were not included meaningfully in decision-making. Kuttimathan himself later said, ***"We were kept in the dark right from the beginning."***
- Third, even within the tribe, only Kuttimathan was officially credited.
- Mallan, who co-discovered the plant with him, was sidelined — leading to **internal resentment**, similar to colonial-era divide-and-rule tactics.

- And finally, when Kuttimathan fell seriously ill and his family struggled with poverty, **no government official, scientist, or institution helped him**.
- He died in a leaking hut, surviving on forest tubers and free rations, while the plant he introduced continued to make money for others.

GS Paper IV: Ethics – Case Study Material

This is a strong **ethics case study**. It highlights:

- **Justice vs Exploitation**: Knowledge givers remained in poverty; takers gained recognition and profit.
- **Lack of Accountability**: No one took responsibility for ensuring that benefits reached the Kani community.
- **Empathy and Respect**: Institutions failed to treat Kuttimathan and his people with basic dignity.
- **Moral failure of the system**: The state's silence at his death speaks volumes

For Essay Writing

Kuttimathan's story fits perfectly in essays around:

- **"Conservation without justice is exploitation."**
- **"Recognition without empowerment is injustice."**
- **"India's tribal communities: guardians of knowledge, victims of neglect."**

Aspirants can use it as:

- A strong **real-life example** to support arguments on tribal rights, indigenous knowledge, and ethical development.
- A **contrast** between symbolic recognition (awards, conferences) and real-world neglect (poverty, sickness, death).

Lessons for Policy:

1. **Laws need teeth :** Benefit-sharing laws must be legally binding, enforceable, and monitored.
2. **Build legal & IP literacy in tribal communities :** They must be trained and educated about their rights.
3. **Transparent governance of benefit-sharing trusts :** Independent audits, community participation, and grievance redressal mechanisms are essential.
4. **Respect indigenous communities as equal partners :** Not just as "informants" but as co-creators of knowledge.
5. **Scientific ethics must improve :** Research must include long-term welfare planning, not just extraction of knowledge.

Practice Mains Questions

GS - III : Mains

Q. *What is biopiracy ? How can traditional knowledge be protected through effective laws and benefit-sharing mechanisms?*

GS - IV : Ethics

Q. *You are a district officer in a tribal area. A research institute wants access to a local medicinal plant known only to the community. How will you ensure ethical and fair benefit-sharing?*

❐❐❐

Economics

Grant in Aid to National Cooperative Development Corporation (NCDC) Scheme

The Union Cabinet, under the chairmanship of the Prime Minister, has recently approved a new Central Sector Scheme titled **"Grant in Aid to National Cooperative Development Corporation (NCDC)"**. This scheme is designed to support and strengthen the cooperative sector in India.

Key Features of the Scheme

- **Financial Outlay:** The scheme has a total outlay of **₹ 2,000 crore** over a period of four years, from **2025-26 to 2028-29**, with an annual allocation of ₹ 500 crore.
- **Funding Source:** The grant will be provided through **budgetary support from the Government of India**.
- **Fund Utilization:** This grant will enable the NCDC to raise an additional **₹ 20,000 crore** from the open market. These funds will be used to provide loans to cooperatives for:
    - Setting up new projects.
    - Expansion of existing plants.
    - Meeting working capital requirements.

Implementation and Benefits

- **Executing Agency:** The **NCDC** will be the sole executing agency for this scheme. Its responsibilities include the disbursement, monitoring, follow-up, and recovery of the loans.
- **Loan Disbursement:** NCDC will provide loans to cooperatives either **directly or through state governments**, based on its specific guidelines.
- **Beneficiaries:** The scheme is expected to benefit approximately **2.9 crore members** from **13,288 cooperative societies** across various sectors. These include:
    - Dairy
    - Livestock
    - Fisheries
    - Sugar
    - Textile
    - Food Processing
    - Storage and Cold Storage
    - Labour and women-led cooperatives.

Supply and Use Table

The **Ministry of Statistics and Programme Implementation (MoSPI)** recently released the **'Supply and Use Tables (SUTs) of 2020-21 and 2021-22'**. SUTs are a vital component of the National Accounts Statistics, offering a comprehensive and detailed view of an economy.

What are Supply and Use Tables?

- SUTs provide a **detailed snapshot of all economic activities** within an economy.
- They are a **powerful analytical tool** that illustrates the structure of the economy and the interlinkages between various economic actors (e.g., industries and consumers).
- SUTs are presented as two interlinked matrices: the **Supply Table** and the **Use Table**, structured in a product-by-industry format.

Purpose and Significance

- **Integration of GDP Approaches:** SUTs integrate the three methods of measuring Gross Domestic Product (GDP)—**production, income, and expenditure**—within a single, unified framework.
- **Data Reconciliation:** They are crucial for comparing and reconciling data from diverse sources, thereby improving the **coherence and consistency** between production and expenditure estimates. This process helps to reduce the "discrepancy" often found between the two sides of GDP calculation.
- **Granular Analysis:** SUTs provide detailed, product-level information by industry, enabling policymakers and researchers to conduct a granular analysis of the economy's structure, composition, and dynamics.

Components of the SUT

1. The Supply Table

The Supply Table captures the **total supply of goods and services** in the economy. It identifies the origin of these products, distinguishing between:

- **Domestic Production:** The output of various industries within the country.
- **Imports:** Goods and services sourced from the rest of the world.

2. The Use Table

The Use Table records how the supplied products are **utilized** across the economy. It details their consumption by various components:

- **Intermediate Consumption:** Products used as inputs by other industries to produce different goods and services.
- **Final Consumption:** Products consumed by households, the government, and non-profit institutions.
- **Gross Capital Formation:** Products used for investment, such as machinery, buildings, and changes in stocks.
- **Exports:** Products sold to the rest of the world.

Investor Education and Protection Fund Authority (IEPFA)

The **Investor Education and Protection Fund Authority (IEPFA)** is in the final phase of testing its **Integrated Portal**, a unified digital platform. This new portal is designed to streamline the claim process for unclaimed shares and dividends and enhance accessibility for investors and companies.

About IEPFA

- **Establishment:** The IEPFA was established in **2016** under **Section 125 of the Companies Act, 2013**.
- **Nodal Ministry:** It functions under the **Ministry of Corporate Affairs (MCA)**.
- **Mandate:** The authority is responsible for the administration of the **Investor Education and Protection Fund (IEPF)**. Its core purpose is to safeguard investor interests by:
    - Facilitating the refund of unclaimed shares, dividends, and other investments to rightful owners.
    - Promoting investor awareness and financial literacy across the nation.

Composition of the IEPF

The IEPF is a repository for amounts that have remained **unclaimed for seven consecutive years**. These include:

- Unpaid dividends on shares.
- Application money for securities that is due for a refund.
- Matured deposits and debentures.
- Interest earned on investments from the fund.
- Grants or donations received from the government or other entities.

Key Initiatives and Functions

The IEPFA undertakes various initiatives to fulfill its mandate:

- **Refunds:** It facilitates the return of unclaimed amounts and shares to investors, a process that is often complex and requires significant documentation. The new Integrated Portal is expected to simplify this.
- **Investor Awareness:** It runs flagship programs to educate the public and protect them from fraudulent schemes. These include:
    - **Niveshak Didi:** An initiative to promote financial literacy, especially among rural women.

- **Niveshak Panchayat:** Community-level events to resolve investor issues and spread awareness.
- **Niveshak Shivir:** Camps organized in collaboration with SEBI and other financial institutions to help investors claim their funds and update KYC details.

- **Research and Policy:** The IEPFA also sponsors research and advises the Central Government on matters related to investor interests and protection.
- **Grievance Redressal:** The upcoming launch of an Integrated Call Center aims to provide a more efficient and responsive grievance redressal system for investors.

Assets Under Management (AUM)

Why in News?

- The total **Assets Under Management (AUM)** for India's mutual fund industry has recently reached an estimated **₹ 74.40 lakh crore**. This figure represents a remarkable more than sevenfold growth over the last decade, highlighting the increasing trust and participation of Indian investors in the mutual fund sector.

About Assets Under Management (AUM)

- **Definition**: AUM is a fundamental metric in the financial sector, referring to the combined market value of all financial assets that a financial institution or investment company manages on behalf of its clients. These assets can include stocks, bonds, and other financial instruments.
- **Influencing Factors**: The value of AUM is not static and changes due to:
  - **Market fluctuations** in the value of underlying assets.
  - **Net investor inflows** from new investments.
  - **Redemptions** or withdrawals by existing investors.
  - **Dividend reinvestments**, which add to the fund's corpus.
- **Significance**: AUM serves as a key indicator for both investors and financial firms. For investors, a larger AUM can signal a fund's credibility and popularity, suggesting a well-established and stable investment. For financial institutions, a growing AUM demonstrates their expertise and ability to attract and retain clients.
- **AUM and Fees**: A fund's AUM can have a direct impact on the fees an investor pays. Larger funds may benefit from economies of scale, potentially leading to lower expense ratios and thus lower costs for investors.

Steel Import Monitoring System 2.0 Portal

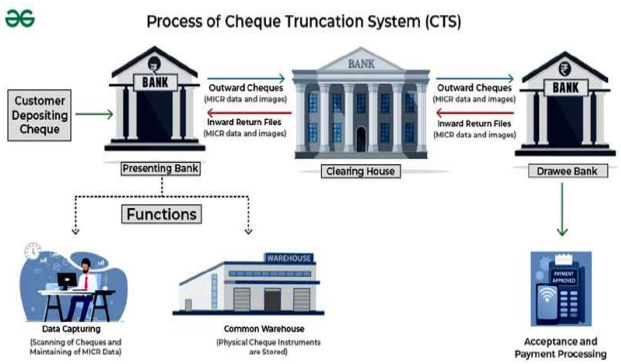
Why in News?

- The Government of India has recently adjusted the advance registration period required for importers to register on the **Steel Import Monitoring System (SIMS) 2.0 portal**.
- This change affects the import of almost all steel products.

About the Steel Import Monitoring System 2.0

- **Overview**: The SIMS 2.0 portal, launched by the **Union Ministry of Steel**, is an upgraded version of the original SIMS introduced in 2019. It is designed to provide detailed, advanced information on steel imports to both the government and relevant industry stakeholders.
- **Key Features**: The portal, revamped based on industry feedback, incorporates several key features to enhance efficiency and transparency:
    - It has **API integration** with various government portals, which helps in quality control and streamlining processes.
    - The system includes a **robust data entry mechanism** that ensures the authenticity and consistency of import data.
    - By integrating multiple databases, it allows stakeholders to identify potential risks and improve **risk management**.
- **Significance**: The portal is crucial for policymaking and for supporting the domestic steel industry. The detailed data it collects provides valuable insights for the government to formulate effective trade policies.
- Furthermore, this information signals potential areas for production and growth to domestic manufacturers, thereby supporting the "Make in India" initiative and helping to reduce the country's reliance on imports.

Cheque Truncation System (CTS)



Why in News?

- The **Reserve Bank of India (RBI)** has announced a plan to transition the **Cheque Truncation System (CTS)** from its current batch-based clearing model to a continuous clearing system with 'on-realization-settlement'. This new process will be implemented in two phases to expedite cheque clearance.

About the Cheque Truncation System (CTS)

- **Concept**: The CTS is a modern cheque clearing system that eliminates the need for the physical movement of cheques. The term "truncation" refers to the process of an electronic image of the cheque, along with its **Magnetic Ink Character Recognition (MICR)** data, being captured at the collecting bank and electronically transmitted to the paying bank.
- **Security and Standards**: The system is secured by a comprehensive **Public Key Infrastructure (PKI)**-based architecture. For a cheque to be processed through CTS, it must comply with **CTS-2010 standards**. These standards mandate specific security features, such as a watermark, a bank's logo in invisible ink, and standardized field placements, which help prevent fraud in the image-based clearing process.
- **Benefits**:
    - **Faster Clearing**: The new continuous clearing system is expected to reduce the clearing time from the current two days to just a few hours.
    - **Cost Savings**: It eliminates the high cost associated with the physical transport of cheques.
    - **Enhanced Security**: The system minimizes the risk of loss, theft, or tampering of physical cheques and includes robust security controls.
    - **Operational Efficiency**: CTS provides a centralized image archival system, making data storage and retrieval easy while reducing bottlenecks and delays.

Minimum Public Shareholding (MPS)

Why in News?

- The Securities and Exchange Board of India (**SEBI**) recently proposed to increase the flexibility of rules concerning **Minimum Public Shareholding (MPS)** and Minimum Public Offer (MPO) for companies seeking to get listed.
- This move is aimed at simplifying the process of fundraising for companies in India.

About Minimum Public Shareholding (MPS)

- **Regulatory Mandate**: MPS is a rule enforced by SEBI, based on the **Securities Contracts (Regulation) Rules, 1957**, and the **SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015**. It mandates that all companies listed on Indian stock exchanges must ensure that at least **25%** of their total issued and paid-up equity shares are held by the general public (i.e., non-promoter shareholders).
- **Objectives**: The main goals of the MPS rule are to:
    - **Enhance Liquidity**: Increase the number of shares available for trading, which makes the market more liquid.
    - **Promote Fair Price Discovery**: A wider pool of public shareholders leads to more efficient and fair price discovery of the company's stock.
    - **Improve Corporate Governance**: By reducing the concentration of power in the hands of promoters, the rule gives public shareholders a greater say in corporate decisions and ensures better oversight.
- **Compliance and Timelines**:
    - **New Listings**: Newly listed companies are required to achieve the 25% MPS threshold within **three years** of their listing date.
    - **Large Companies**: For companies with a post-issue market capitalization exceeding ₹ 1 trillion, the deadline to meet the 25% MPS requirement is extended to **five years**.
    - **Corrective Action**: If a company's public shareholding falls below 25% at any point, it must be restored to the required level within a maximum period of **12 months**.

Periodic Labour Force Survey (PLFS)

Why in News?

- According to the recently published Monthly Bulletin of the **Periodic Labour Force Survey (PLFS)**, India's unemployment rate decreased to **5.2%** in July 2025, a notable drop from 5.6% in June 2025.

About Periodic Labour Force Survey

- **Overview**: The PLFS is a key survey that provides regular estimates of employment and unemployment in India. It is conducted by the **National Sample Survey Office (NSO)**, which falls under the **Ministry of Statistics and Programme Implementation (MoSPI)**.
- **Key Indicators**: The survey provides estimates for crucial labour market indicators, including:
    - **Labour Force Participation Rate (LFPR)**
    - **Worker Population Ratio (WPR)**
    - **Unemployment Rate (UR)**

- **Revamped Methodology**: The survey's sample design was revamped in January 2025 to increase its frequency and improve data accuracy.
- The new design uses a monthly rotational panel scheme where selected households in both rural and urban areas are surveyed four times over four consecutive months.
- **Objectives of the Redesigned PLFS**:
    - To generate monthly estimates of key employment and unemployment indicators for both rural and urban areas at the all-India level, based on the **Current Weekly Status (CWS)**.
    - To provide quarterly estimates for rural areas for the first time, supplementing the existing urban data.
    - To produce annual estimates for both the **Usual Status (ps+ss)** and CWS for the entire country.

Anna-Chakra

Why in News?

- The Union Minister of State for Consumer Affairs, Food and Public Distribution recently announced the development of **Anna-Chakra**, a new tool designed to optimize the supply chain of the **Public Distribution System (PDS)**.

About Anna-Chakra

- **Overview**: Anna-Chakra is a supply chain optimization tool for India's Public Distribution System (PDS), which is the world's largest food security program.
- It was developed through a collaboration between the **Department of Food and Public Distribution**, the **World Food Programme (WFP)**, and the **Foundation for Innovation and Technology Transfer (FITT), IIT-Delhi**.
- **Working Mechanism**: The tool uses advanced algorithms to find the most efficient routes for the movement of food grains.
- It connects various stakeholders, from farmers to warehouses and over 4.37 lakh Fair Price Shops (FPSs), ensuring a seamless flow of essential commodities.
- **Key Integrations**: A significant feature of Anna-Chakra is its integration with other government digital platforms.
- It is linked to the **Railways' Freight Operations Information System (FOIS)** through the Unified Logistics Interface Platform (ULIP) for inter-state transport.
- Furthermore, it is integrated with the **PM Gati Shakti platform**, which provides geo-locations of warehouses and FPSs, facilitating precise and coordinated planning.
- **Benefits**: The platform is expected to bring several key advantages, including:
    - **Enhanced Efficiency**: Improves the speed and effectiveness of food grain delivery to more than 81 crore beneficiaries.
    - **Cost Reduction**: It helps reduce fuel consumption and logistics costs, leading to significant financial savings.
    - **Environmental Impact**: By optimizing routes and reducing fuel usage, the tool helps lower the carbon footprint from transportation, contributing to environmental sustainability.

Made in India Label Scheme

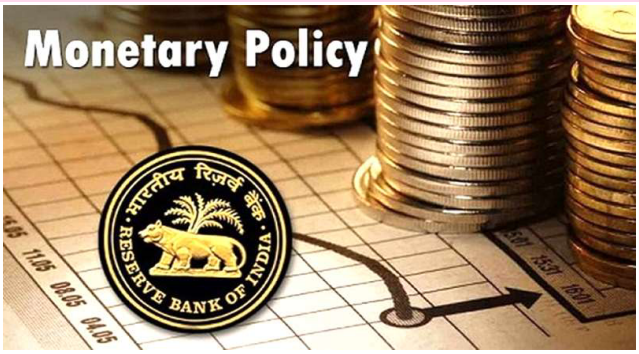
Why in News?

- The Government of India has proposed a budget of **INR 995 crores** over three years for the **Made in India Label Scheme**. This initiative aims to boost domestic manufacturing and provide consumers with clear information about the origin of products.

About Made in India Label Scheme

- **Overview**: The Made in India Label Scheme is a **voluntary certification initiative** spearheaded by the **Department for Promotion of Industry and Internal Trade (DPIIT)**. Its primary goal is to support the manufacturing industry by enhancing the brand reputation, authenticity, and market reach of products made in India.
- **Key Features and Objectives**:
    - The scheme provides a unique identity for products by certifying their Indian origin and quality.
    - The label includes a **QR code** and a logo that, when scanned, provide consumers with information about the manufacturing location, the label's validity, and other product-specific details, thereby guaranteeing authenticity.
    - This mechanism helps position Indian products competitively in both domestic and international markets.
    - The **Quality Council of India** and the **India Brand Equity Foundation** serve in an advisory capacity to the DPIIT for this scheme.
- **Eligibility Criteria**: Manufacturers and producers are eligible to apply for this label if their products are manufactured or assembled **wholly or substantially in India**. To receive certification, the products must also meet specific quality and manufacturing standards set by relevant regulatory bodies.

Monetary Policy Committee (MPC)



Why in News?

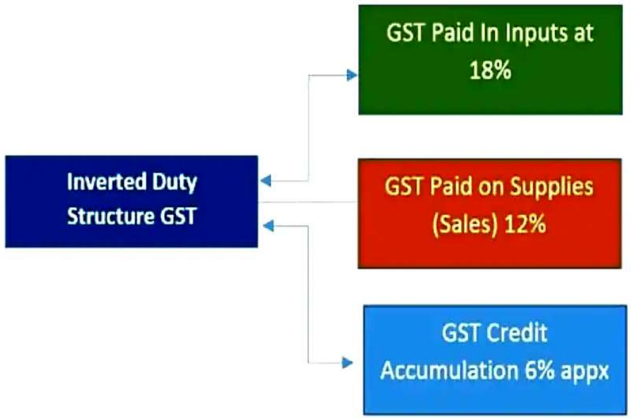
- The Reserve Bank of India (RBI) recently appointed **Indranil Bhattacharyya** as an Executive Director and a member of the **Monetary Policy Committee (MPC)**. This appointment brings the committee's composition to its full strength, as it continues to manage India's monetary policy.

About the Monetary Policy Committee (MPC)

- **Overview**: The **Monetary Policy Committee (MPC)** is a statutory body in India responsible for setting the country's key policy interest rates. It was constituted by the Central Government under **Section 45ZB of the RBI Act, 1934**, in 2016. The MPC's primary objective is to maintain **price stability**, which is considered essential for achieving sustainable economic growth. It replaced the previous system where the RBI Governor, with an advisory committee, had complete control over monetary policy decisions.
- **Composition and Function**:
    - The MPC is a **six-member committee**. Three members are from the RBI: the **Governor** (who acts as the ex-officio Chairperson), a Deputy Governor, and one official nominated by the RBI Board. The other three members are external experts appointed by the Central Government for a four-year term.
    - The committee's main function is to determine the benchmark policy

interest rate, primarily the **repo rate**, to keep inflation within a specified target level.
    - The MPC is required to meet at least four times a year.
- **Decision-Making**:
    - The MPC takes decisions based on a majority vote.
    - In the case of a tie, the RBI Governor has a **casting vote** to break the deadlock.
    - The decisions made by the MPC are **binding on the RBI**. The Monetary Policy Department of the RBI provides the necessary support and analysis to the committee.

Inverted Duty Structure under GST



Why in News?

- In a recent proposal for a two-tier **GST** rate structure, tax experts have emphasized the need to address the persistent problem of the **inverted duty structure**.
- Resolving this issue is considered crucial for the proposed tax reforms to be truly effective.

About Inverted Duty Structure under GST

- **What is it?** An inverted duty structure occurs when the tax rate on inputs or raw materials is **higher** than the tax rate on the finished goods or outputs. For example, in the textile industry, the tax on inputs can be 12-18%, while the final product is taxed at only 5%.
- **Impact on Businesses** This tax anomaly leads to an accumulation of **Input Tax Credit (ITC)**. ITC is the credit a business gets for the tax it has already paid on its purchases. When the tax on inputs is higher than the tax on outputs, the business is unable to fully utilize this credit, leading to its accumulation. This locked-up capital increases the overall tax costs for businesses and can be passed on to the consumer as a "hidden tax." The unutilized ITC must be carried forward to the next financial year until it can be adjusted.
- **Refund Mechanism and Exceptions** To mitigate this issue, the GST law allows for a **refund or reversal of the unutilized ITC**. The refund amount is calculated using a specific formula that considers the turnover of the inverted supply, net ITC, and overall turnover.

However, a refund of accumulated ITC cannot be claimed in the following cases:

- When output supplies are either **nil-rated** or fully **exempt** from GST (unless specifically notified by the government).
- When goods exported from India are subject to **export duty**.
- When the supplier has already claimed a refund of the output tax paid under the **IGST Act** or has availed **duty drawback**.

Matsya Shakti Project

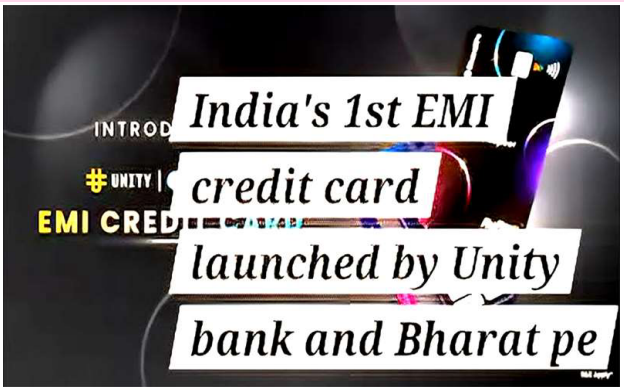
Why in News?

- The **'Matsya Shakti'** project is set to be launched by the Union Minister of State for Fisheries, Animal Husbandry & Dairying. This new initiative is a significant step towards empowering minority fishing communities by providing them with the necessary skills for improved livelihoods.

About Matsya Shakti Project

- **Overview**: The Matsya Shakti Project is a new initiative designed to uplift minority fisherfolk families by enhancing their socio-economic well-being. It will be implemented by the Vizhinjam Regional Centre of the **ICAR–Central Marine Fisheries Research Institute (CMFRI)** under the Ministry of Agriculture and Farmers' Welfare. The project has been conceived under the larger umbrella of the **Pradhan Mantri Virasat Ka Samvardhan (PM VIKAS)** scheme.
- **Key Features**:
    - The project provides a year-long, phased training program focused on sustainable livelihood practices and modern skill development.
    - The training is hands-on, covering areas such as integrated aquaculture, seed production, and advanced fisheries technologies.
    - The overall goal is to equip participants with the skills needed to improve their livelihoods and contribute to community welfare.
- **Context: Pradhan Mantri Virasat Ka Samvardhan (PM VIKAS) Scheme**
    - PM VIKAS is a central sector scheme under the **Ministry of Minority Affairs**.
    - It aims to provide skill development, leadership training, and entrepreneurship opportunities to minority and artisan communities across India.
    - The scheme is a consolidation of five existing schemes: **Seekho aur Kamao, USTTAD, Hamari Dharohar, Nai Roshni, and Nai Manzil**, which provides a single, integrated platform for holistic development.
    - It is expected to benefit around 9 lakh candidates during the 15th Finance Commission cycle (2025-26).

India's First EMI-Based Credit Card



Why in News?

BharatPe and **Unity Small Finance Bank** recently launched the "Unity Bank BharatPe Credit Card," which is being hailed as India's first EMI-driven credit card on the **RuPay network**. The card's unique feature is its ability to automatically convert all transactions into Equated Monthly Instalments (EMIs), which could significantly change consumer spending and credit management.

About India's First EMI-Based Credit Card

- **Launch and Partnership**: This new credit card is a joint venture between **Unity Small Finance Bank** and fintech company **BharatPe**, developed in collaboration with the **National Payments Corporation of India (NPCI)**. It allows customers the flexibility to either pay their full balance or automatically convert their purchases into EMIs, a feature that distinguishes it from traditional credit cards.
- **Key Features**:
    - **Zero Fees**: The card is a lifetime free product with no joining, annual, or foreclosure charges, making it highly attractive to a broad user base.
    - **Auto-EMI Conversion**: A primary feature is the ability to instantly split any purchase into EMIs, with flexible repayment options of up to 12 months.
    - **UPI Integration**: It can be seamlessly linked to the **Unified Payments Interface (UPI)**, enabling payments at a vast network of merchants across the country, both online and offline.

- **Digital Onboarding**: The entire application process, including KYC and credit eligibility checks, is fully digital and can be completed through the BharatPe app, making it accessible to both salaried and self-employed individuals.
- **Rewards and Benefits**: The card offers a flat 2% reward on all EMI transactions, which can be redeemed via the BharatPe app. It also includes premium perks like complimentary domestic and international lounge access and preventive health checkups.

International Monetary Fund (IMF)

Why in News?

- Former Reserve Bank of India (RBI) Governor **Urjit Patel** has been appointed as the Executive Director at the **International Monetary Fund (IMF)** for a three-year tenure. In this role, he will represent a constituency that includes **India, Bangladesh, Sri Lanka, and Bhutan**, at the IMF headquarters in Washington, D.C.

About the International Monetary Fund (IMF)

- **Overview**: The IMF is a global financial institution established in **1944** at the **Bretton Woods Conference**. Its core mission is to promote international monetary cooperation, ensure global financial stability, facilitate international trade, and reduce poverty worldwide. It currently has **191 member nations**, with Liechtenstein being the newest addition as of late 2024.
- **Core Mission and Role**: The IMF's central functions include:
  - **Lender of Last Resort**: Providing financial assistance to member countries facing balance-of-payments crises. This is often accompanied by mandatory economic policy reforms known as **"structural adjustment"** programs, which are designed to address the underlying causes of the economic instability.
  - **Surveillance**: Monitoring the global economic and financial system and the economic policies of its member countries.
  - **Capacity Development**: Providing technical assistance and training to help countries manage their economies more effectively.
- **Governance Structure**: The IMF's decision-making is based on a **quota system**, where a country's financial contribution and voting power are proportional to its economic size. The governance structure includes:
  - **Board of Governors**: The highest decision-making body, comprising a governor from each member country. It meets annually to approve major decisions, such as quota revisions and new memberships.
  - **International Monetary and Financial Committee (IMFC)**: An advisory body with 24 members who provide guidance on the management of the international monetary and financial system.
  - **Executive Board**: Responsible for the day-to-day business of the IMF and working closely with the Managing Director, who currently is **Kristalina Georgieva**.

EDITORIALS

Crux of The Hindu & Indian Express

Economics

India's Semiconductor Push – New Projects Approved under ISM

Context:

- On **August 12, 2025**, the **Government of India** approved **four new semiconductor manufacturing projects** under the **India Semiconductor Mission (ISM)**.
- These projects will be located in the states of **Odisha**, **Punjab**, and **Andhra Pradesh**, with a total investment of **₹ 4,600 crore**.
- The projects are expected to:
    - Generate **employment for 2,034 skilled professionals**.
    - Contribute to India's **first commercial chip production**, possibly **within 2025**.

India Semiconductor Mission (ISM) – A Quick Recap

- **Launched**: **2021**
- **Objective**: To establish a **robust semiconductor ecosystem** in India.
- **Incentive Outlay**: **₹ 75,000 crore**
- **Focus Areas**:
    - **Wafer fabrication (fabs)**
    - **Assembly, Testing, Marking & Packaging (ATMP/OSAT)**
    - **Compound semiconductors**
    - **Display manufacturing**

With the new approvals, **10 projects** have now been sanctioned under ISM across **6 Indian states**, involving total investments of **~₹ 1.60 lakh crore**.

New Projects Approved (August 2025)

Company	Location	Key Highlights
SiCSem Pvt. Ltd.	**Info Valley, Bhubaneswar, Odisha**	India's **first commercial compound semiconductor fab** focused on **Silicon Carbide (SiC)** devices. Annual capacity: **60,000 wafers** + **96 million units packaging**. In collaboration with **Clas-SiC Wafer Fab Ltd. (UK)**
3D Glass Solutions Inc. (3DGS)	**Info Valley, Bhubaneswar, Odisha**	US-based firm setting up **embedded glass substrate** & **advanced packaging** unit
CDIL (Continental Device India Pvt. Ltd.)	**Mohali, Punjab**	**Brownfield expansion** of existing fab to manufacture **high-power discrete devices** (MOSFETs, IGBTs, Schottky diodes, etc.) using **Silicon & SiC**. Capacity: **158.38 million units annually**
ASIP Technologies	**Andhra Pradesh**	In partnership with **APACT Co. Ltd. (South Korea)**. Products to serve **mobiles, set-top boxes, automobiles**, etc. Annual capacity: **96 million units**

Significance of These Projects

1. Strengthening Domestic Chip Manufacturing

- India has **no commercial chip fabrication units** yet.
- This marks a **breakthrough in indigenous manufacturing** of both **wafers** and **packaged chips**.

2. Technological Advancements

- Focus on **compound semiconductors (SiC)**, which are critical for:
    - **Electric vehicles**
    - **5G telecom equipment**
    - **High-performance computing**
    - **Defense & aerospace**

3. Foreign Collaboration

- Collaborations with companies from **UK**, **US**, and **South Korea** bring in:
    - **Technology transfer**
    - **Global best practices**
    - **Faster operationalisation**

India's Semiconductor Journey So Far

Key Approved Projects (Pre-2025)

Project	Location	Details
Tata-PSMC Fabrication Unit	**Dholera, Gujarat**	JV with **Taiwan's PSMC**, producing **50,000 wafers/month** for automotive & AI by **2026** ₹91,526 crore
Micron ATMP Facility	**Sanand, Gujarat**	**DRAM & NAND packaging**, operational by **late 2025** ₹22,900 crore
Tata TSAT OSAT Unit	**Jagiroad, Assam**	To produce **48 million chips/day**
Kaynes Technology OSAT	**Sanand, Gujarat**	Production of **6 million chips/day** for industrial & telecom use
HCL-Foxconn JV	**Uttar Pradesh**	To produce **36 million display driver chips/month** by **2027**

Why This Matters

1. Reducing Import Dependency

- India imports over **90% of its semiconductor needs**.
- Semiconductor imports are **strategic and expensive**, especially post-COVID and amid **global chip shortages**.

2. National Security & Strategic Autonomy

- Semiconductors power everything from **missiles to mobiles**.
- Indigenous capacity is critical for **cybersecurity**, **defense**, and **sovereign control** over supply chains.

3. Boosting Electronics & EV Sector

- India aims to become a **global electronics manufacturing hub**.
- **EVs, IoT, AI, 5G, and defense equipment** all rely on **advanced semiconductor devices**.

4. Job Creation & Skill Development

- The approved projects will generate **thousands of high-skill jobs**, boosting **R&D**, **manufacturing**, and **design capabilities**.

Conclusion

India's semiconductor mission is entering a critical phase with real production units being set up. The latest approvals signal **strong policy intent**, **international collaboration**, and **technological upgrading**. If timelines hold, **India could soon join the elite club of nations with domestic chip fabrication**, a milestone with profound implications for **economic growth**, **strategic autonomy**, and **global competitiveness**.

Pradhan Mantri Viksit Bharat Rozgar Yojana (PM-VBRY)

Why in News

On **15th August 2025**, during his **12th Independence Day address** from Red Fort, **Prime Minister Narendra Modi** announced a major employment initiative:

Pradhan Mantri Viksit Bharat Rozgar Yojana (PM-VBRY)

- **Aim**: Generate **3.5 crore jobs** in 2 years
- **Outlay**: ₹ 1 lakh crore

Pradhan Mantri Viksit Bharat Rozgar Yojana (PM-VBRY)

Objective:

To boost youth employment and accelerate India's transition from **Swatantra Bharat to Samriddha Bharat** by:

- Creating **massive job opportunities**
- Supporting **first-time workers**
- Encouraging **employers to hire** more workers
- **Formalizing the workforce**

Key Features of the Scheme

Part A – Support to First-Time Employees

- **Target Group**: First-time employees registered with **EPFO**
- **Incentive**: Up to ₹ 15,000 (in **two instalments**)
- **Eligibility**: Salary up to ₹ 1 lakh/month

- **Payment Conditions**:
  - **1st instalment** after **6 months** of continuous service
  - **2nd instalment** after **12 months** and completion of **financial literacy program**
- **Savings Component**: Part of the incentive to be deposited in a **locked savings instrument**
- **Expected Beneficiaries**: Approx. **1.92 crore youth**

Part B – Incentives for Employers

- **Objective**: Encourage **additional job creation**, especially in **manufacturing sector**
- **Incentive**: Up to **₹ 3,000/month per new employee**, for **2 years**
- **Eligibility**:
  - New employees with salary up to ₹ 1 lakh/month
  - Employment sustained for at least **6 months**
- **Manufacturing Sector Boost**: Incentives extended to **3rd & 4th years**
- **Expected Employment Generated**: Approx. **2.6 crore jobs**

Incentive Payment Mechanism

- **Part A (Employees)**: Payments through **DBT** using **Aadhar-Based Payment System (ABPS)**
- **Part B (Employers)**: Payments to **PAN-linked bank accounts**

Strategic Significance

Economic Impact:

- Boosts **job creation** and **formal employment**
- Focus on **youth empowerment**, especially first-time job seekers
- Targets **manufacturing-led growth**
- Reinforces **Make in India** and **Atmanirbhar Bharat** objectives

Workforce Formalization:

- Brings more workers into the **formal economy**
- Expands **EPFO and social security coverage**

PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) Scheme – Restructuring & Extension (2025)

Why in News?

- On **August 27, 2025**, the **Union Cabinet** chaired by **Prime Minister Narendra Modi** approved the **restructuring** and **extension** of the **PM SVANidhi Scheme** beyond **31st December 2024** to **31st March 2030**.
- The revamped scheme aims to deepen the impact of financial inclusion, promote digital transactions, expand geographic and beneficiary coverage, and strengthen socio-economic welfare support for **street vendors and their families**.

Background: What is PM SVANidhi?

- Launched on **1st June 2020**, the **PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi)** is a **micro-credit scheme** under the **Ministry of Housing and Urban Affairs (MoHUA)**.
- It was designed to support **urban street vendors** who faced income loss during the **COVID-19 lockdown**.
- The original scheme provided **collateral-free working capital loans**, along with incentives for **digital transactions** and ensured vendors received **recognition and formal identity**.

Restructuring & Extension Highlights (2025)

New Lending Timeline

- Previous deadline: **31 December 2024**
- **Extended up to: 31 March 2030**

Total Outlay

- **₹ 7,332 crore** approved for the extended and restructured scheme.

Target Beneficiaries

- **1.15 crore total beneficiaries**
  - Includes **50 lakh new beneficiaries**
- Enhanced focus on **digitally active**, **entrepreneurial**, and **underserved street vendors**

Key Features of the Restructured Scheme

1. Enhanced Loan Tranches

Tranche	Old Limit	New Limit
1st Loan	₹10,000	₹15,000
2nd Loan	₹20,000	₹25,000
3rd Loan	₹50,000	₹50,000 (unchanged)

- Loan is **collateral-free**
- Designed to encourage vendors to **repay and graduate** to higher loan amounts

2. UPI-linked RuPay Credit Card

- For vendors who **successfully repay the second loan**
- Provides **flexible, instant credit access**
- Can be used for **emergency business or personal needs**

3. Digital Transaction Incentives

- Vendors using **UPI** for transactions eligible for **cashback incentives**
- **Cashback up to ₹ 1,600** per vendor
- Aims to deepen **digital adoption** in the informal sector

4. Geographic Expansion

- Earlier: Limited to **statutory towns**
- Now extended to:
  - **Census towns**
  - **Peri-urban** and **rural areas** (in a graded manner)

Capacity Building & Welfare Measures

- **Entrepreneurship and financial literacy training** for vendors
- **Digital and marketing skill development**
- **Food safety & hygiene training** for food vendors in partnership with **FSSAI**

SVANidhi se Samriddhi (Welfare Component)

- Strengthened through **monthly Lok Kalyan Melas**
- Ensures **convergence** with other Government welfare schemes
- Targets **families** of street vendors for **holistic inclusion**

Achievements (as of July 30, 2025)

- **96 lakh loans disbursed** worth ₹ 13,797 crore
- Over **68 lakh unique street vendors** benefited
- **47 lakh digitally active vendors**
- **557 crore+ digital transactions** worth **₹ 6.09 lakh crore**
- **₹ 241 crore** earned in cashback by vendors
- **46 lakh beneficiaries** profiled under **'SVANidhi se Samriddhi'** across **3,564 Urban Local Bodies (ULBs)**
- Led to **1.38 crore scheme sanctions**

Recognition & Awards

- **Prime Minister's Award for Excellence in Public Administration (2023)** – *Innovation (Central Level)*
- **Silver Award (2022)** for *Government Process Re-engineering for Digital Transformation*

Significance

Economic

- Supports **micro-entrepreneurship** and **financial independence**
- Enables **business expansion** and reinvestment
- Promotes **inclusive economic growth**

Digital Empowerment

- Drives **UPI adoption** in the informal economy
- Encourages vendors to **go digital**, increasing transparency and creditworthiness

Social Upliftment

- Enhances **livelihood security**
- Empowers entire families through **access to multiple government schemes**
- Provides **identity and dignity** to street vendors, long ignored by formal systems

Mains Practice Questions

GS Paper 2 – Welfare Schemes / Governance

Q. *The PM SVANidhi Scheme has evolved from a COVID-19 relief initiative to a tool for urban socio-economic transformation. Discuss the key features of its recent restructuring and its role in inclusive development.*

GS Paper 3 – Inclusive Growth / Economy

Q. *Micro-credit and digital tools can act as catalysts for informal sector empowerment. Examine in light of the PM SVANidhi Scheme.*

Export Promotion Mission (EPM), 2025 – Government's ₹ 25,000 Cr Support for Exporters

Why in News? ***(August 2025)***

- The Government of India is considering a major support package worth **₹ 25,000 crore** for exporters under the proposed **Export Promotion Mission (EPM)**.
- The scheme will span **six financial years (FY 2025–2031)** and aims to build resilience among Indian exporters amid **global trade uncertainties**, including the imposition of **50% tariffs by the US** on Indian goods (from August 27, 2025).
- The proposal has been submitted by the **Ministry of Commerce** to the **Expenditure Finance Committee (EFC)** under the Ministry of Finance. Upon EFC's approval, the **Union Cabinet** will consider the final clearance.

What is the Export Promotion Mission (EPM)?

The **Export Promotion Mission** is a flagship initiative announced in the **Union Budget 2025–26**. It is designed as a **comprehensive, collaborative, and multi-ministerial effort** to drive:

- **Broad-based**
- **Inclusive**
- **Sustainable export growth**

It aims to support **Indian exporters**, especially **MSMEs**, by moving beyond traditional incentive mechanisms and tackling systemic bottlenecks in financing, compliance, logistics, and market access.

Key Features of the Proposed Mission

Duration & Budget

- Timeframe: **6 years** (FY **2025–2031**)
- Total proposed outlay: **₹ 25,000 crore**

Institutional Anchors

The EPM will involve a **multi-stakeholder framework**, coordinated by the **Department of Commerce**, in partnership with:

- Ministry of MSME
- Ministry of Finance
- Exim Bank
- ECGC (Export Credit Guarantee Corporation)
- CGTMSE (Credit Guarantee Fund Trust for Micro and Small Enterprises)
- NCGTC (National Credit Guarantee Trustee Company Ltd)
- Export Promotion Councils, Industry Associations
- Commodity Boards and State Governments

Mission Structure: Two Sub-Schemes

1. Niryat Protsahan – Over ₹ 10,000 crore

Focus: **Export Finance Support**

Proposed components:

- **Interest Equalisation Support**: ₹ 5,000+ crore for 6 years

  (To make credit affordable for exporters, especially MSMEs)
- **Support for alternative trade finance instruments**
- **Credit card facility for e-commerce exporters**
- **Bridging short-term liquidity gaps** via innovative financing tools

2. Niryat Disha – Over ₹ 14,500 crore

Focus: **Market Access & Capacity Building**

Proposed components:

- **Export quality compliance assistance** (~₹ 4,000 crore)
- **Overseas market development**, including participation in fairs, exhibitions, etc. (~₹ 4,000 crore)
- **Branding, warehousing, logistics** support
- **Capacity building** to help integrate Indian firms into **global value chains (GVCs)**

Context: Why This Mission Now?

1. Global Trade Challenges

- **"Trump Tariffs"**: The US imposed **50% tariffs** on Indian goods from **August 27, 2025** (earlier 25%)
- Sectors like **textiles, chemicals, leather, and footwear** are likely to face severe impact
- Rising **protectionism** and **geopolitical fragmentation** in trade

2. Export Performance

- **July 2025**: Exports rebounded **7.29%** to **USD 37.24 billion**
- **Trade Deficit** widened to **USD 27.35 billion** – an 8-month high
- **April–July FY26**:
  - Exports up **3.07%** (USD 149.2 billion)
  - Imports up **5.36%** (USD 244.01 billion)

Significance of the Mission

For Exporters

- Eases access to **affordable credit**
- Provides **financial instruments tailored** to MSME exporters
- Reduces dependence on conventional bank loans

For Indian Economy

- Strengthens **export competitiveness**
- Aims to reduce **trade deficit**
- Diversifies India's **export base** in terms of sectors, products, and geographies

For MSMEs

- Focused capacity building
- **Branding and market access support** '& greater integration into **global value chains**
- Enhances **formalisation and financial inclusion**

Mains Practice Questions

GS Paper 3 – Economy / Trade

Q.1. *India's export sector is facing renewed external challenges. Discuss the relevance and design of the proposed Export Promotion Mission in overcoming financing and market access barriers for Indian exporters.*

Q.2. *Critically evaluate the role of targeted support schemes such as Niryat Protsahan and Niryat Disha in promoting inclusive and sustainable export growth.*

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Science & Technology

Human Outer Planet Exploration (HOPE) Station

In a significant stride towards India's space ambitions, the Bengaluru-based space tech company **Protoplanet**, in collaboration with the **Indian Space Research Organisation (ISRO)**, has developed an analogue station called the **Human Outer Planet Exploration (HOPE) station** in Ladakh's Tso Kar region.

About the HOPE Station

- **What it is:** The HOPE station is an **analogue research site**, designed to closely mimic the geological and environmental conditions of the Moon and Mars.

- **Location:** It is located in the **Tso Kar basin** in Ladakh, a high-altitude cold desert at over **14,500 feet**. This site was chosen due to its terrain, low atmospheric pressure, and extreme cold, which closely resemble extraterrestrial environments.
- **Objective:** The station is designed to conduct critical research for future crewed interplanetary journeys. Its primary purpose is to help scientists and researchers study the **physiological, psychological, and epigenetic aspects** of long-duration space travel under isolated and harsh conditions.

Significance for India

- **First of its kind:** HOPE marks India's **first dedicated analogue space mission**, placing it among a select group of nations with such research capabilities.
- **Supporting Future Missions:** The data and insights gained from the HOPE station will be crucial for the development of India's ambitious human spaceflight programs, including:
    - The **Gaganyaan mission**.
    - The proposed **Bharatiya Antariksh Station** (India's own space station) by 2035.
    - India's planned **crewed lunar mission** by 2040.
- **Advancing Technology:** The station serves as a testbed for key technologies like life support systems, habitat modules, and rover movement, helping to advance their **Technology Readiness Levels (TRL)**.
- **Public-Private Partnership:** The collaboration between Protoplanet and ISRO highlights the growing role of private players in India's space sector, in line with the government's space policy reforms.

Analogue Research Stations Globally

- An analogue research station is a site on Earth with conditions (topography, environment, etc.) that are similar to a planet or other celestial body.
- These stations are used for testing new technologies, conducting human studies, and training astronauts.
- Notable examples include:
    - **Mars Desert Research Station (MDRS)** in Utah, USA.
    - **HERA** (Human Exploration Research Analog) at NASA's Johnson Space Center, USA.
    - **BIOS-3** in Russia.
    - **SHEE** in Europe.

Darwin Tree of Life (DToL) Project

The **Darwin Tree of Life (DToL) Project** is a major scientific initiative, and its first phase is nearing completion. It represents a significant step in the global effort to create a comprehensive genetic library of all life on Earth.

About the DToL Project

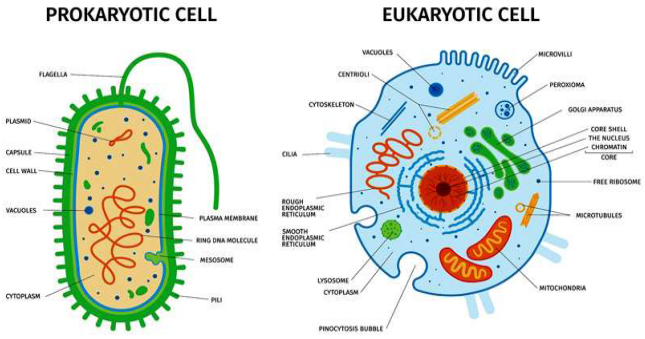
- **Objective:** The project aims to sequence the **genomes of 70,000 species of eukaryotic organisms** found in Britain and Ireland.
- **Global Context:** The DToL is a key contributor to the larger **Earth BioGenome Project (EBP)**, a worldwide venture with the ultimate goal of sequencing all complex life on the planet.
- **Process:** The project involves several steps:
    - Careful collection of species samples.
    - Using advanced **DNA sequencing technologies** to generate high-quality genome sequences.
    - Employing **cutting-edge computational tools** to analyze how the DNA sequence translates into the vast diversity of life.

- **Collaboration:** It is a collaborative effort involving ten biodiversity, genomics, and analysis partners, including the Wellcome Sanger Institute and the Natural History Museum.

What are Eukaryotes?

Eukaryotes are organisms whose cells contain a **clearly defined, membrane-bound nucleus**. This distinguishes them from prokaryotes (like bacteria and archaea) which lack a nucleus.

- **Cellular Structure:** Eukaryotic cells are more complex than prokaryotic cells. They contain various internal, membrane-bound structures called **organelles**, each with a specific function.
- **Key Organelles:** Examples include:
    - **Mitochondria:** The "powerhouses" of the cell, responsible for cellular energy (ATP) production.
    - **Golgi apparatus:** Involved in processing and packaging proteins and lipids.
    - **Endoplasmic reticulum:** A network of membranes involved in protein and lipid synthesis.
- **Examples:** Eukaryotic organisms include all animals, plants, fungi, and protists.

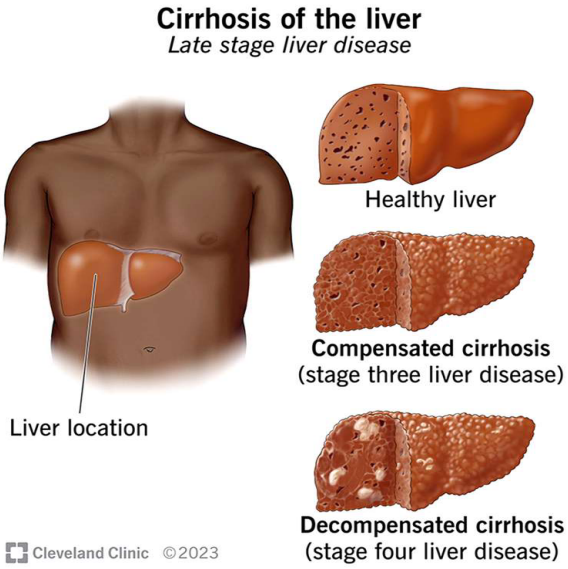


- **Reproduction:** Eukaryotes can reproduce both asexually through **mitosis** and sexually through **meiosis** and gamete fusion.

Significance of the Project

- **Conservation:** The genomic data will be a powerful tool for **biodiversity conservation**, helping to identify genetic markers of endangered species and inform conservation strategies.
- **Scientific Research:** The project will provide a comprehensive "digital library of life" that can be used to study evolution, species relationships, and ecosystem functions.
- **Applications:** The genomic information can lead to breakthroughs in medicine, agriculture, and biotechnology by identifying genetic traits that could be used for drug development, disease-resistant crops, and more.

Liver Cirrhosis



A team of scientists from the **Institute of Liver and Biliary Sciences (ILBS), New Delhi**, and the **National Institute of Pharmaceutical Education and Research (NIPER), Guwahati**, has discovered a new approach to treat liver cirrhosis. This research could offer a ray of hope for patients with advanced stages of the disease, for whom few effective treatments currently exist.

About Liver Cirrhosis

- **Definition:** Cirrhosis is the advanced stage of **scarring of the liver** caused by long-term inflammation from various diseases and conditions. At this point, a significant amount of healthy liver tissue is replaced by scar tissue, which is irreversible.

- **Pathology:** The scarring distorts the liver's internal structure and disrupts the flow of blood and lymph, leading to complications like **portal hypertension** (increased pressure in the blood vessels) and **ascites** (fluid accumulation in the abdomen).
- **Common Causes:** The primary causes of liver cirrhosis include:
    - Chronic **alcoholism**.
    - **Hepatitis B and C viral infections**.
    - **Non-alcoholic Steato-Hepatitis (NASH)**, a type of non-alcoholic fatty liver disease.
- **Symptoms:** Cirrhosis often presents no symptoms until the damage is severe. When symptoms appear, they may include extreme tiredness, easy bleeding or bruising, loss of appetite, and swelling in the legs, feet, or ankles (edema).

The New Treatment Approach

- **The Problem:** In advanced cirrhosis, the lymphatic vessels, which drain excess fluid and immune cells from the gut, become dysfunctional, leading to ascites (fluid in the abdomen).
- **The Solution:** The scientists have developed a therapeutic approach using **nanocarriers** loaded with a powerful protein called **Vascular Endothelial Growth Factor-C (VEGF-C)**.
- **Mechanism:** These nanocarriers are designed to be administered orally. Once in the body, they specifically target and improve the **drainage capacity of dysfunctional lymphatic vessels** in the gut. This process is known as **therapeutic lymphangiogenesis** (the growth of new lymphatic vessels).
- **Outcomes:** In initial animal studies, this method significantly **reduced ascites**, lowered portal pressures, and improved immune responses.
- **Significance:** The research, funded by the **Department of Science and Technology's Nano Mission**, is a groundbreaking step towards a potential alternative treatment for patients with decompensated cirrhosis, which currently has limited effective therapies.

Leap-1 Mission

Why in News?

- **Dhruva Space**, a developing Indian space technology startup, is set to launch its inaugural commercial satellite mission named **LEAP-1**. This mission represents a significant step for the company from technology demonstration to a customer-driven commercial venture.

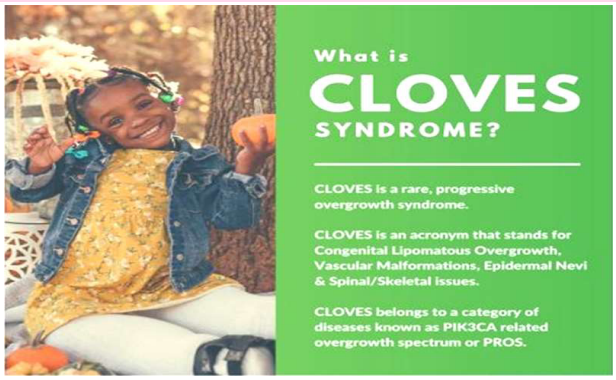
About the LEAP-1 Mission

- **Mission Partners**: The LEAP-1 mission is a collaborative effort between Dhruva Space and its Australia-based partners, **Akula Tech** and **Esper Satellites**.
- **Satellite Platform**: The mission utilizes Dhruva Space's indigenously designed **P-30 satellite platform**. This platform has already been successfully validated in space during the **LEAP-TD mission**, which flew on an ISRO **PSLV-C58** rocket in January 2024.
- **Key Payloads**: The mission carries two distinct and advanced payloads:
    - **Nexus-01**: An advanced Artificial Intelligence (AI) module from Akula Tech. This module provides unprecedented on-orbit intelligence by enabling data processing and AI/ML model retraining directly in space, allowing for rapid, near-real-time insights. It can be used for applications like fire detection and spectral analysis.

- **OTR-2 Mission**: An advanced hyperspectral imager from Esper Satellites. This instrument captures spectrally-rich Earth observation data, setting a new benchmark for remote sensing technology.

- **Significance**: The fusion of these two payloads offers enhanced capabilities for a wide range of applications, including **defense, disaster response, agriculture, mining, and environmental monitoring**. This mission highlights India's growing role in the global private space economy.

CLOVES Syndrome



Why in News?

- Recent research has established that **CLOVES Syndrome** is believed to be caused by mutations in the **PIK3CA gene**. The extreme rarity of the condition has also been highlighted, with fewer than 200 cases thought to have been reported globally.

About CLOVES Syndrome

- **Full Name**: CLOVES is an acronym for a rare congenital disorder: **C**ongenital **L**ipomatous **O**vergrowth, **V**ascular malformations, **E**pidermal nevi, and **S**coliosis/skeletal anomalies.
- **Genetic Cause**: The syndrome is a rare genetic disorder caused by a spontaneous mutation in the **PIK3CA gene**. This gene is responsible for producing a protein that is part of the **PI3K enzyme**, which plays a vital role in cellular functions. A mutation can cause this enzyme to become overactive, which may lead to abnormal cell growth.
- **Spontaneous Occurrence**: The genetic mutations are not hereditary and are believed to occur spontaneously while a person is in the womb.
- **Related Conditions**: CLOVES Syndrome is classified as an overgrowth disorder and is part of a larger group of similar conditions known as the **PIK3CA-related overgrowth spectrum (PROS)**.
- **Symptoms**: Patients with the syndrome may exhibit a variety of symptoms, including:
  - The growth of soft, fatty tissue masses on areas like the abdomen and back.
  - **Vascular anomalies**, such as dilated veins, which may increase the risk of blood clots.
  - Distinctive physical features like enlarged hands or feet with wide gaps between the digits, as well as **"port-wine stain" birthmarks**.
  - Skeletal issues like **scoliosis** and other spinal problems.
- **Treatment**: Currently, there is no known cure for CLOVES Syndrome. However, a correct diagnosis allows healthcare professionals to help patients effectively manage their symptoms.

CATCH Grant Program

Why in News?

- The **IndiaAI Independent Business Division (IBD)** and the **National Cancer Grid (NCG)** have jointly launched the **Cancer AI & Technology Challenge (CATCH) Grant**

Program. This initiative aims to foster the development of Artificial Intelligence (AI) solutions to improve cancer care in India.

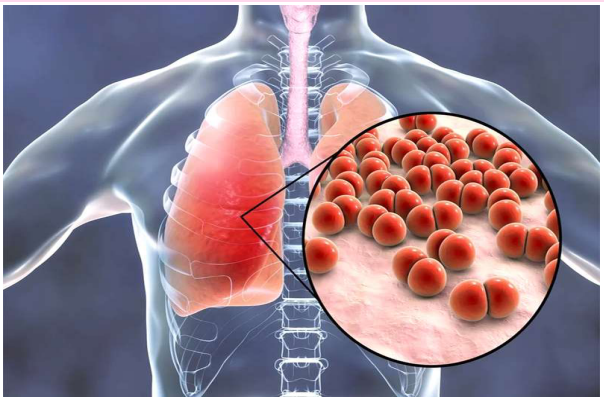
About the CATCH Grant Program

- **Objective**: The program is designed to support the creation and deployment of innovative AI solutions focused on enhancing **cancer screening, diagnostics, treatment support, and overall healthcare operations** across India.
- **Funding and Scale-up**: Selected teams, which typically consist of technology innovators and clinical institutions, are eligible for an initial grant of up to **₹ 50 lakh per project**, co-funded by IndiaAI and NCG. Successful pilots may receive an additional scale-up grant of up to **₹ 1 crore** to facilitate wider deployment within the NCG network or through national implementation pathways.
- **Focus Areas**: The challenge will concentrate on high-impact areas, including AI-enabled:
    - Screening and diagnostics.
    - Clinical decision support systems.
    - Patient engagement and operational efficiency.
    - Research and data curation.
- **Eligibility**: The program is open to a range of applicants, including startups, health technology companies, academic institutions, and both public and private hospitals. Joint applications from technology developers and clinical leads are particularly encouraged.

Key Facts about India AI

- **Administrative Body**: IndiaAI operates as an Independent Business Division under the **Digital India Corporation (DIC)**, which falls under the **Ministry of Electronics and IT (MeitY)**.
- **Mission**: It serves as the implementation agency for the **IndiaAI Mission**. Its core goals are to democratize the benefits of AI across society, enhance India's global leadership in the field, promote technological self-reliance, and ensure the responsible and ethical use of AI.

Pneumococcal Disease



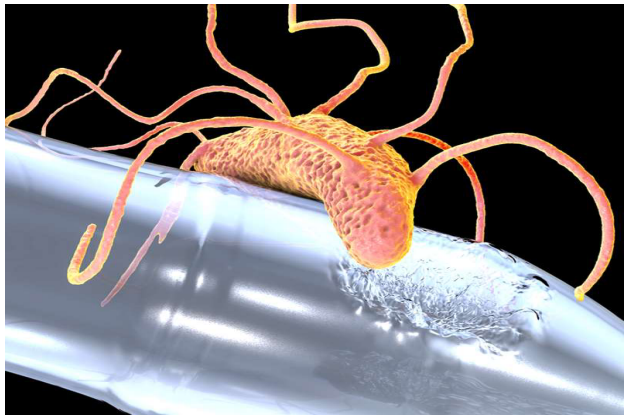
Why in News?

- The pharmaceutical company **Pfizer** has launched its new **20-valent pneumococcal conjugate vaccine (PCV20)** for adults in India. This vaccine provides protection against 20 serotypes of the bacteria that cause most pneumococcal diseases.

About Pneumococcal Disease

- **What it is**: Pneumococcal disease is a range of illnesses caused by the bacterium ***Streptococcus pneumoniae***, often referred to as pneumococcus. The bacteria's virulence is largely due to its **polysaccharide capsule**, and over 90 different serotypes have been identified worldwide.
- **Spectrum of Illnesses**: The infections can vary from mild, such as **ear infections**, to severe and life-threatening conditions like **pneumonia**, as well as infections of the bloodstream and central nervous system, such as **meningitis**.
- **Transmission and Vulnerability**: The disease is transmitted through **direct contact with respiratory secretions** from both sick patients and healthy carriers. It is a major global public health concern, with **young children and the elderly** being the most affected populations in developing countries. An estimated one million children die from this disease annually.
- **Treatment and Prevention**: While the disease is typically treated with **antibiotics**, there is a serious and growing problem of **antimicrobial resistance**. Vaccines, therefore, are a critical tool for reducing the risk of infection, especially for vulnerable groups.

Ideonella Sakaiensis



Why in News?

- Researchers have identified a promising microbe, ***Ideonella sakaiensis***, which has the unique capability to degrade **polyethylene terephthalate (PET)** plastic.
- This discovery holds significant potential for tackling the global plastic waste crisis.

About *Ideonella Sakaiensis*

- **Overview**: This bacterium, belonging to the genus *Ideonella*, was discovered by a team of researchers in Japan. It can break down and consume PET plastic, using it as its sole **carbon and energy source**.
- **Key Characteristics**:
    - It is a **Gram-negative**, rod-shaped, and motile bacterium.
    - It is non-sporing and does not produce pigment.
    - The bacteria are typically found in oxygen-rich, moist soil and sewage sludge, particularly in areas with high concentrations of plastic waste.
- **Mechanism of Action**: *Ideonella sakaiensis* secretes special enzymes, **PETase** and **MHETase**, that work sequentially to break down PET plastic. PETase initially degrades the plastic into an intermediate compound, which MHETase then further breaks down into its original, harmless building blocks (monomers). These monomers are then absorbed and metabolized by the bacterium.
- **Significance**: The discovery of this bacterium and its enzymes is a major breakthrough in the field of bioremediation, offering a natural and sustainable alternative to traditional recycling methods for addressing PET plastic pollution.

What is Polyethylene Terephthalate (PET)?

- **Composition**: PET is a synthetic **condensation polymer** formed from the reaction of **ethylene glycol** and **terephthalic acid**. The byproduct of this reaction is water.
- **Properties**: PET is a **thermoplastic synthetic substance**, which means it can be repeatedly melted and reshaped with heat, making it highly versatile for various products, including beverage bottles, food containers, and synthetic fibers.

IN-SPACe

Why in News?

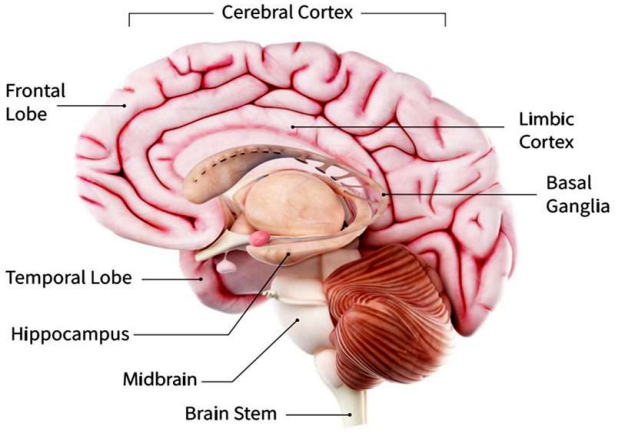
- A Pune-based space technology startup, **Astrophel Aerospace**, recently signed a memorandum of understanding (MoU) with **IN-SPACe**.
- The agreement allows the startup to access **ISRO facilities** for technical reviews and testing of its semi-cryogenic propulsion systems.

About IN-SPACe

- **Overview**: The **Indian National Space Promotion and Authorization Center (IN-SPACe)** is a single-window, independent, and autonomous nodal agency that functions under the Department of Space (DOS).

- It was established as part of India's space sector reforms to provide a level playing field and facilitate the participation of private players, also known as Non-Governmental Entities (NGEs).
- **Key Functions**:
    - It acts as the primary **interface between ISRO and NGEs**, assessing their needs and demands for space-related activities.
    - The agency is responsible for promoting, enabling, authorizing, and supervising various private space activities, including the building of **launch vehicles, satellites**, and providing space-based services.
    - It also facilitates the sharing of **ISRO's infrastructure and premises** with private players and educational and research institutions.
- **Organizational Structure**: The functions of IN-SPACe are carried out through three main directorates:
    - Promotion Directorate (PD)
    - Technical Directorate (TD)
    - Program Management and Authorization Directorate (PMAD)

Lewy body Dementia (LBD)

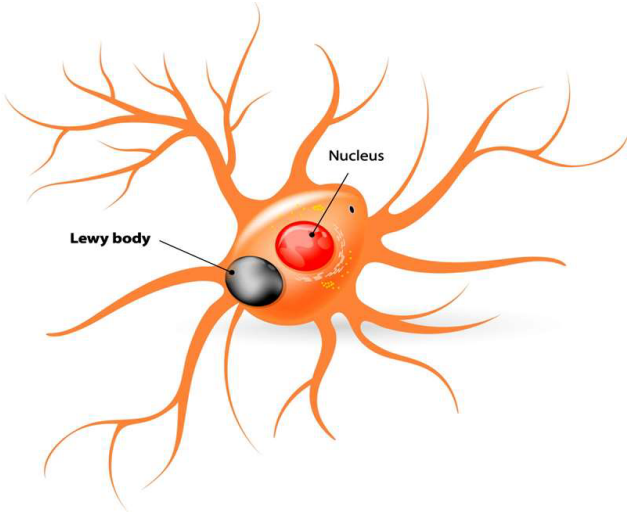


Why in News?

- The death of **Jackie Bezos**, the mother of Amazon founder Jeff Bezos, recently brought attention to **Lewy body dementia (LBD)**, the complex brain disorder she passed away from.

About Lewy body Dementia

- **Overview**: LBD is the **second most common type of dementia** after Alzheimer's disease. It is a progressive brain disorder characterized by a decline in a person's mental abilities, which gradually worsens over time.
- **Cause**: LBD is caused by the abnormal buildup of a protein called **alpha-synuclein** in the brain's nerve cells. These deposits, known as **Lewy bodies**, disrupt brain function and affect thinking, movement, behavior, and mood.



- **Forms and Symptoms**: There are two forms of LBD: **dementia with Lewy bodies** and **Parkinson's disease dementia**. The symptoms often overlap and can include:
    - **Visual Hallucinations**: Seeing things that are not actually there.
    - **Cognitive Fluctuations**: Unpredictable changes in alertness, attention, and concentration.
    - **Parkinson's-like Symptoms**: Slow movement, muscle rigidity, tremors, and difficulty walking.
- **Progression and Treatment**: The disease typically begins at age 50 or older and has an average duration of five to seven years from diagnosis.

- As LBD progresses, individuals require increasing assistance with daily activities.
- Currently, there is **no cure** for LBD, but medications and therapies can help manage the symptoms for a period.

Australopithecus

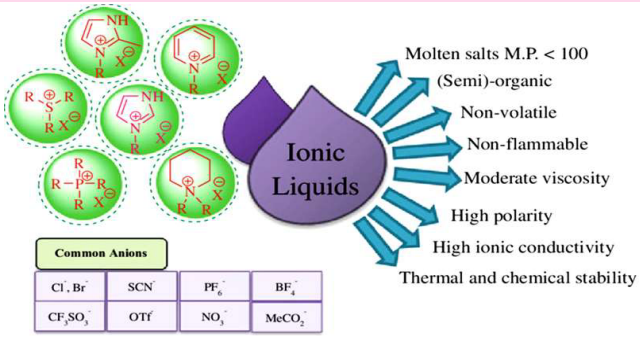
Why in News?

- The recent discovery of a new early hominin fossil in Africa has challenged previous ideas about human evolution.
- The fossil confirms that species from the genera ***Australopithecus*** and ***Homo*** coexisted in the same region of Africa during the same time period.

About Australopithecus

- **Overview**: The genus ***Australopithecus*** is a group of extinct primates and is considered the closest known relative to our own genus, ***Homo***. They lived between 4.4 and 1.4 million years ago in eastern, north-central, and southern Africa. The genus name translates to "southern ape," referencing where the first fossils were found.
- **Key Features**: Members of this genus exhibited a fascinating blend of apelike and humanlike characteristics. They had apelike facial proportions with a small braincase, typically less than one-third the size of a modern human brain. Conversely, they possessed small canine teeth like modern humans and were capable of bipedalism, regularly walking upright. They were roughly 1.2-1.5 meters tall and had a mainly plant-based diet.
- **Famous Specimen**: Perhaps the most renowned fossil is **"Lucy,"** a remarkably well-preserved skeleton discovered in Ethiopia that is approximately 3.2 million years old.
- **Sexual Dimorphism**: A notable feature of this genus is the significant sexual dimorphism, with males being almost twice the size of females. This degree of size difference is greater than in modern humans or chimpanzees.

Ionic Liquids (ILs)



Why in News?

- In a recent discovery, scientists have proposed that life could potentially exist on certain rocky **super-Earths**, even those with volcanic activity and little water. This is made possible by the presence of **ionic liquids**, which can serve as a solvent for life in environments where liquid water cannot.

About Ionic Liquids (ILs)

- **Overview**: Ionic liquids are a class of **salts** that are in a liquid state at or near room temperature, with a melting point typically below 100°C. Unlike ordinary liquids like water, which are made of neutral molecules, ILs are composed entirely of ions and short-lived ion pairs. They are also known by various names such as liquid electrolytes, ionic melts, and fused salts.

- **General Properties**:
    - **Non-volatile and Non-flammable**: A key feature is their extremely low vapor pressure, which prevents them from evaporating. This makes them highly stable and resistant to combustion.
    - **High Thermal and Chemical Stability**: They can remain stable at very high temperatures and are resistant to chemical degradation by water and oxygen.
    - **Tunable Properties**: The physical and chemical properties of an ionic liquid can be precisely customized by altering the type and size of the two ions that form it. This allows them to be either hydrophobic or hydrophilic.
- **Applications and Significance**:
    - Due to their unique properties, ILs are widely used in fields like **synthesis, catalysis, electrochemistry, and biotechnology**.
    - They are considered a more **environmentally friendly alternative** to many conventional organic solvents because they are non-volatile and can be recycled. Their stability at high temperatures makes them suitable for use in industrial processes where other liquids would vaporize.

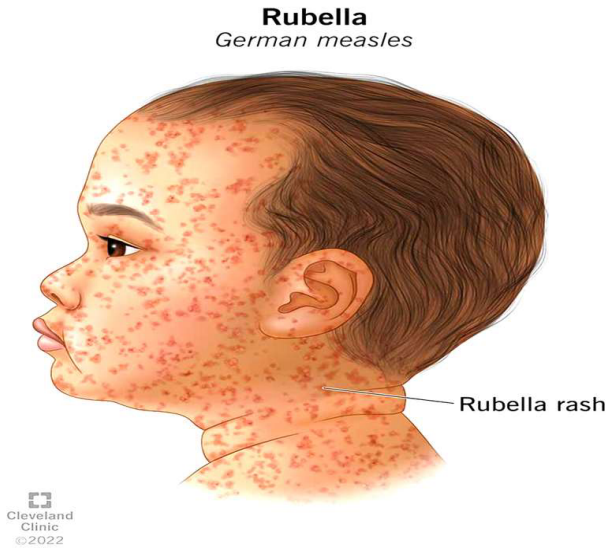
Why in News ?

- **Larsen & Toubro (L&T)**, through its green molecules division, was recently awarded a tender to construct India's largest **green hydrogen plant** for Indian Oil Corporation Ltd. (IOCL) at its Panipat refinery.
- This development is significant as green hydrogen is the key component required for producing green ammonia.

About Green Ammonia

- **Overview**: Ammonia (NH_3) is a chemical compound widely used in the production of fertilizers and industrial chemicals. Conventionally, it is produced from natural gas, a process that releases a substantial amount of carbon dioxide (CO_2), earning it the name **grey ammonia**. In contrast, **green ammonia** is produced entirely without carbon emissions.
- **Production Process**: Green ammonia production is a two-step process:
    - **Green Hydrogen Production**: First, **green hydrogen** is obtained by a process called **electrolysis**, where water is split into hydrogen and oxygen using electricity generated exclusively from **renewable sources** like solar, wind, or hydropower.
    - **Haber-Bosch Synthesis**: The green hydrogen is then combined with nitrogen from the atmosphere using the **Haber-Bosch synthesis** method. This process, which uses a catalyst at high temperature and pressure, results in a final product that is 100% renewable and carbon-free.
- **Applications**:
    - **Agriculture**: Green ammonia is a vital source of nitrogen for plant growth and is a primary ingredient in the production of agricultural fertilizers.
    - **Industrial Use**: It serves as a raw material for various chemical products, including nitric acid, synthetic fibers, explosives, dyes, and pharmaceuticals.
    - **Fuel**: It is emerging as a clean fuel source for engines, capable of replacing diesel in locomotives and marine fuel oil in shipping. It can also be used to generate electricity.

Rubella



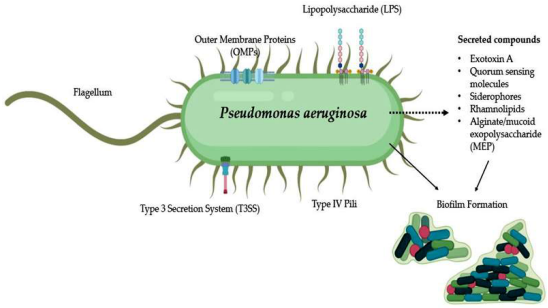
Why in News?

- The World Health Organization (WHO) recently certified that **Nepal** has successfully eliminated **rubella** as a public health problem, a significant milestone in the country's efforts to control this viral infection.

About Rubella

- **Overview**: Also known as **German measles** or **three-day measles**, rubella is a highly contagious viral infection. While it shares some symptoms with measles, such as a characteristic red rash, it's caused by a different virus (**Rubella virus**, an enveloped, single-stranded RNA virus) and is generally less severe.
- **Transmission**: The rubella virus spreads from person to person through respiratory droplets from coughs or sneezes. A person can be contagious even without showing symptoms. Crucially, it can also be transmitted from an infected pregnant woman to her fetus, posing a serious risk.
- **Symptoms and Complications**:
    - In most people, rubella causes mild or no symptoms. The primary sign is a spotty rash that begins on the face and spreads to the rest of the body, appearing about 2-3 weeks after infection.
    - The most dangerous consequence of rubella is its effect on unborn babies. If a woman is infected with the virus early in her pregnancy, there is a high chance (up to 90%) of passing it to the fetus, which can lead to fetal death or **Congenital Rubella Syndrome (CRS)**. Infants born with CRS may suffer from hearing impairment, eye and heart defects, and other lifelong disabilities.
- **Prevention and Treatment**: There is currently no specific medication to treat rubella. However, it is preventable with the **measles-mumps-rubella (MMR) vaccine**. The vaccine is safe, highly effective, and provides lifelong protection against the disease.

Pseudomonas Aeruginosa



Why in News?

- A team of researchers recently reported a significant finding that a gene in the bacterium ***Pseudomonas aeruginosa*** exhibits **bistable expression**. This discovery offers new insights into how this microbe survives and adapts to different conditions.

About *Pseudomonas Aeruginosa*

- **Overview**: ***P. aeruginosa*** is a gram-negative, rod-shaped bacterium that thrives in moist environments, particularly freshwater. It is an opportunistic pathogen, meaning it can cause a wide range of infections, especially in individuals with compromised immune systems or those in healthcare settings.

- **Types of Infections**: This versatile bacterium is responsible for both community-acquired and nosocomial (hospital-acquired) infections.
    - **Community-Acquired Infections** include conditions like otitis externa (swimmer's ear), folliculitis, and pneumonia.
    - **Nosocomial Infections** are often severe and include ventilator-associated pneumonia and catheter-associated urinary tract infections. Burn victims are particularly vulnerable to life-threatening secondary infections from this bacterium.
- **Bistable Expression**: This phenomenon, observed in a gene of ***P. aeruginosa***, refers to a situation where genetically identical bacterial cells show different stable levels of gene expression. In a single colony, some cells might express a gene at a high level while others express it at a low level or not at all. This variation is passed on to their offspring through a process called **epigenetic inheritance**. Scientists believe this bistability is a crucial survival strategy, allowing single-celled organisms to adapt to rapidly fluctuating environmental conditions.

Huntington's Disease

Why in News?

- Patients and caregivers in India have recently demanded that **Huntington's Disease (HD)** be categorized as a rare disease under the **National Policy for Rare Diseases**. This recognition would make it eligible for government support and specialized care, a request that has not yet been met by the Union and state governments.

About Huntington's Disease

- **Overview**: Huntington's disease is a genetic and inherited neurological disorder. It causes brain cells to progressively lose function and die. An individual with a parent who has HD has a **50% chance** of also developing the condition.
- **Causes and Mechanism**: HD is caused by a genetic mutation in the **HTT gene**. This gene is responsible for producing the huntingtin protein, which is vital for the proper function of nerve cells (neurons). The mutation results in an abnormally shaped protein that, instead of helping neurons, destroys them. This neurodegeneration particularly affects the **basal ganglia**, a region of the brain that controls voluntary movement, and the brain cortex, which is responsible for memory and cognitive functions.
- **Symptoms and Progression**: The disease is characterized by a range of symptoms, including uncontrollable, dance-like movements known as **chorea**, abnormal body postures, and unusual eye movements. It also leads to cognitive and behavioral problems, such as memory loss, mood swings, and personality changes. The symptoms worsen over time, eventually leading to a loss of the ability to move, speak, and care for oneself. People typically die within 15 to 20 years of the onset of symptoms.
- **Treatment**: Currently, there is **no cure** or treatment that can stop or reverse the progression of Huntington's disease. However, medical professionals can prescribe medications to help manage some of the symptoms, offering a degree of relief to patients.

Hand, Foot, and Mouth Disease (HFMD)

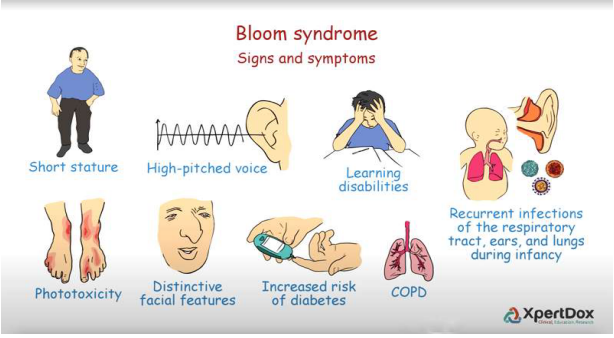
Why in News?

- The national capital is currently experiencing a significant rise in cases of **Hand, Foot, and Mouth Disease (HFMD)**, particularly among children, raising concerns about its rapid spread in schools and daycare centers.

About Hand, Foot, and Mouth Disease

- **Overview**: HFMD is a common viral illness that primarily affects infants and young children. It is most frequently caused by the **Coxsackievirus A16**. While adults with a strong immune system are generally resistant, those with weakened immunity can be susceptible to the infection.
- **Key Characteristics and Symptoms**: The illness is characterized by sores in the mouth and a distinctive rash on the hands and feet. It is a highly contagious disease that spreads quickly among children in close-contact environments.
- **Important Clarification**: It is crucial to note that **Hand, Foot, and Mouth Disease** is not related to **Foot-and-Mouth Disease (FMD)**, which affects cattle, sheep, and swine. The two are caused by entirely different viruses.
- **Treatment and Complications**: There is no specific treatment available for HFMD, and most individuals recover on their own within 7 to 10 days. Complications are rare, though in some cases, the Coxsackievirus A16 infection can lead to viral meningitis, which may require a short period of hospitalization.

Bloom Syndrome



Why in News?

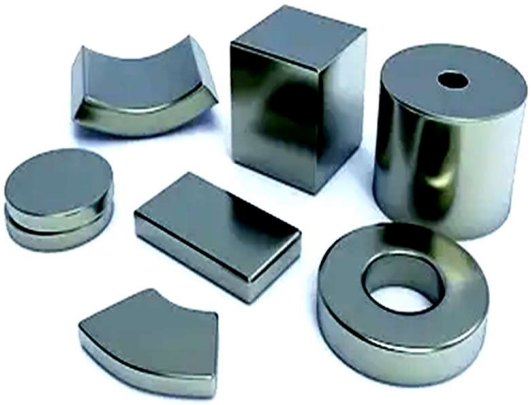
- **Bloom Syndrome** recently gained attention after a 12-year-old girl with the condition underwent a successful bone marrow transplant using stem cells from her younger brother. The procedure was performed at a private hospital in Chennai.

About Bloom Syndrome

- **Overview**: Bloom Syndrome (BSyn) is a rare **genetic disorder** characterized by growth delays, sun sensitivity, immune deficiencies, and a significantly increased risk of developing cancer at an early age. It is caused by a faulty **BLM gene**, which is responsible for producing a protein vital for maintaining the structure and integrity of DNA during cell replication and repair.
- **Inheritance and Prevalence**:
    - The disorder is inherited in an **autosomal recessive pattern**. This means a child must inherit two mutated copies of the gene—one from each parent—to develop the syndrome.
    - It is most commonly found within the **Eastern European (Ashkenazi) Jewish population**.

- **Key Symptoms**:
    - **Growth and Physical Features**: Individuals with Bloom Syndrome experience poor growth from birth, often resulting in below-average height. They may also have distinctive physical features such as a narrow face, prominent ears and nose, and long arms and legs.
    - **Health Vulnerabilities**: Patients have a compromised immune system, making them susceptible to recurring infections. They also exhibit extreme sensitivity to sunlight, which can lead to the development of red skin rashes. The disease can also lead to **insulin resistance** and an increased risk of **diabetes**.
    - **Long-Term Complications**: One of the most severe consequences is a high predisposition to various cancers. Additionally, in adulthood, it can lead to male sterility and female infertility.
- **Treatment**: There is no specific cure for Bloom Syndrome. The medical approach is multi-disciplinary and focuses on managing the symptoms to improve the patient's quality of life.

Rare Earth Magnets



Why in News?

- In a recent development, automakers have begun reducing the use of **rare earth magnets** in vehicles by eliminating certain non-essential equipment. This move is a strategic response to the global supply chain vulnerabilities and potential shortages of these critical materials, which are largely processed and controlled by China.

About Rare Earth Magnets

- **Overview**: Rare earth magnets are a type of **permanent magnet** made from alloys of rare earth elements. They are highly valued for their exceptional magnetic strength, high energy density, and superior performance, allowing them to generate powerful magnetic fields in a compact size. The global processing of these magnets is heavily concentrated, with China accounting for roughly **90% of the world's processing capacity**, giving it a dominant position in the global supply chain.
- **Types and Properties**:
    - The two most common types are **Neodymium (Nd-Fe-B)** and **Samarium Cobalt (SmCo)** magnets.
    - Neodymium magnets are primarily composed of neodymium, boron, and iron.
    - Samarium Cobalt magnets are made from samarium and cobalt.
    - Both types are incredibly strong, but they are also brittle and susceptible to corrosion. To combat oxidation, manufacturers often apply a nickel plating to the magnets.
- **Applications**: Due to their unique properties, rare earth magnets are used across a wide range of high-tech industries and applications, including:
    - **Medical**: MRI machines, X-rays, and positron emission tomography (PET) imaging.

- **Defense and Electronics**: Aviation, national defense systems, hard drives, and smartphones.
- **Consumer Goods**: Various consumer electronics, jewelry, and audio devices.
- **Automotive**: Critical for **electric vehicles (EVs)**, where they are used in motors to provide high torque, energy efficiency, and a compact design.

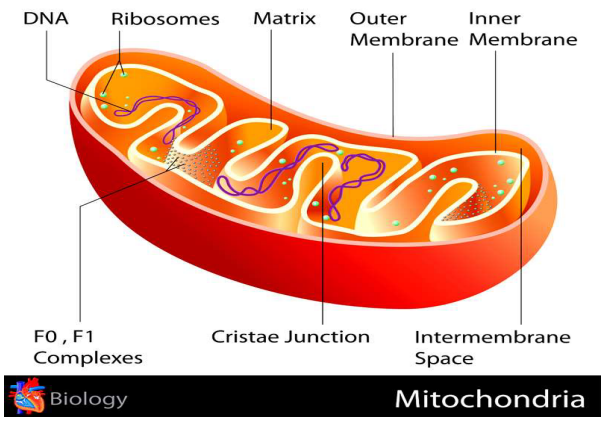
Mitochondrial Protein Import

Why in News?

Researchers at **Caltech University** have published new findings that revise the long-standing model of mitochondrial protein import. Their study reveals that a significant portion of mitochondrial proteins are imported while they are still being synthesized, a process known as **cotranslational import**. This discovery challenges the traditional view that all proteins are imported only after their synthesis is complete.

About Mitochondrial Protein Import

- **Mitochondria**: Mitochondria are double-membraned organelles that function as the "powerhouses" of the cell, generating **ATP** (adenosine triphosphate). They are thought to have originated from an ancient symbiotic relationship between a primitive archaeal cell and a bacterium. Over evolutionary time, mitochondria transferred most of their genes to the host cell's nucleus, making them reliant on the host cell for their protein supply.



- **Traditional Vs. New Model of Protein Import**:
  - **Traditional Model**: For decades, it was believed that proteins were only imported into mitochondria **post-translationally**—that is, after the entire protein had been fully synthesized by ribosomes in the cytoplasm.
  - **New Findings**: The Caltech study found that around **20%** of mitochondrial proteins undergo **cotranslational import**. This means they are imported into the mitochondria while the ribosome is still in the process of synthesizing them.
- **Mechanism of Cotranslational Import**:
  - This cotranslational mechanism is crucial for **large and structurally complex proteins**. If these proteins were allowed to fully fold in the cytosol, they could form irreversible structures that would be too large to pass through the mitochondrial membrane channels.
  - The process requires two distinct signals:
    1. A **mitochondrial targeting sequence**, which acts as a general signal for mitocho-ndrial import.
    2. A **second signal**, which is the first large protein domain that emerges from the ribosome. This domain acts as a "code" that ensures the protein is immediately guided to the mitochondria while it is still being translated. Experiments have shown that transplan-ting these domains onto other proteins can reroute them for cotranslational import.

LUPEX Mission

Why in News?

- The Prime Minister of India recently endorsed a new agreement between the **Indian Space Research Organisation (ISRO)** and the **Japan Aerospace Exploration Agency (JAXA)** for the **Chandrayaan-5 mission**. This joint venture, part of the **Lunar Polar Exploration (LUPEX)** program, signifies a major step in the ongoing strategic space partnership between India and Japan.

About LUPEX Mission

- **Objective**: The primary goal of the LUPEX mission is to explore the Moon's **south polar region** to investigate for the presence of **water** and other key elements, potentially in the form of surface ice. It also aims to demonstrate advanced technologies for lunar surface exploration, particularly related to vehicular transport and surviving the extremely cold lunar nights.
- **Collaborative Design**:
  - The mission is a joint project between **ISRO** and **JAXA**, with clear roles for each agency.
  - **ISRO** is responsible for developing and operating the **lander**, which will safely deliver the rover to the lunar surface.
  - **JAXA** will develop and operate the **rover**, a mobile robotic vehicle designed to navigate and study the lunar terrain.
  - The rover will be equipped with instruments not only from ISRO and JAXA but also from the US space agency **NASA** and the **European Space Agency (ESA)**, making it a truly international effort.
- **Rover Capabilities**: The rover will independently search for areas where water is likely present. It will use a **drill** to dig into the lunar soil (known as **regolith**) and collect samples. The onboard observation equipment will then analyze these samples to measure their water content and composition, providing crucial data for future lunar missions and the potential for long-term human presence.

EDITORIALS

Crux of The Hindu & Indian Express

Science & Technology

India-U.S. Space Collaboration: BlueBird Satellite Launch and Beyond

1. Introduction:

- The Indian Space Research Organisation (ISRO) is preparing to launch the **Block 2 BlueBird communication satellite**, developed by **AST SpaceMobile**, a U.S.-based space technology firm.
- The launch is expected to take place in the **next three to four months**, as per ISRO Chairman **V. Narayanan**.

- This mission represents another major milestone in India–U.S. space collaboration following the successful **NASA-ISRO Synthetic Aperture Radar (NISAR)** mission in July 2025.

2. About the BlueBird Satellite Mission

2.1 Launch Details

- The **BlueBird satellite** will be launched from the **Satish Dhawan Space Centre (SDSC), Sriharikota**.
- The satellite will be carried on board **LVM3**, **ISRO's heaviest launch vehicle**, formerly known as **GSLV Mk III**.

2.2 Satellite Specifications

- The satellite weighs around **6,500 kg**.
- It is a **communications satellite** developed by **AST SpaceMobile**, a U.S. company focused on space-based broadband networks.
- The satellite was **originally scheduled to arrive in India three months ago** but faced delays due to **developmental issues**.
- It is now expected to reach India by **September 2025**.

3. Strategic Importance of the Mission

- This mission strengthens **India–U.S. bilateral cooperation** in the field of **space technology** and **commercial satellite launches**.
- It reinforces **ISRO's position as a competitive commercial launch provider**, especially for **heavy payloads**.
- The use of **LVM3** underlines India's capability in **launching large-scale communication satellites**, improving its global space services market share.

4. Follow-Up to the NISAR Mission

- The **BlueBird satellite launch** follows ISRO's successful launch of the **NASA-ISRO Synthetic Aperture Radar (NISAR)** mission on **July 30, 2025** using the **GSLV**.
- **NISAR** is one of the world's most advanced Earth observation satellites for studying climate change, ice-sheet dynamics, and natural disasters.
- Together, NISAR and BlueBird reflect a **deepening India–U.S. partnership** in both **scientific research** and **commercial space ventures**.

5. Trade Policy and Technology Cooperation

- When asked whether trade policies under U.S. President **Donald Trump** could impact science and technology collaborations, ISRO Chairman Mr. Narayanan affirmed that **existing technology contracts with the U.S. would be executed as planned**.
- This highlights the resilience of India–U.S. cooperation in critical areas despite potential geopolitical uncertainties.

6. Gaganyaan Mission: India's Human Spaceflight Programme

6.1 Uncrewed Missions

- ISRO plans to conduct the **first uncrewed Gaganyaan mission in December 2025**.
- This will be followed by **two additional uncrewed missions in 2026**.
- These preparatory missions are essential for testing systems and ensuring the safety and reliability of the human spaceflight programme.

6.2 Crewed Mission Timeline

- The **crewed Gaganyaan mission** is scheduled for the **first quarter of 2027**, subject to the performance outcomes of the uncrewed trials.

6.3 Key Technical Developments

- The **human-rating** of the launch vehicle (LVM3) has been successfully completed.
- The **orbital module**, which will carry astronauts, is in an **advanced stage of development**.
- The **crew escape system**, critical for astronaut safety, is also **nearing completion**.

7. India's Space Station: Bharatiya Antariksh Station

ISRO has reiterated its long-term plan to establish **India's own space station**, named **Bharatiya Antariksh Station**, by **2035**.

Key Features:

- The total mass of the station will be **52 tonnes**.
- It will be developed in **five modular phases**.
- The **first module is expected to be launched into orbit by 2028**.
- This project signifies India's ambition to become a full-spectrum space power, including **manned missions**, **space habitats**, and **long-term space research facilities**.

8. Broader Implications for India's Space Diplomacy

- The BlueBird and NISAR missions highlight the **strategic convergence** of India–U.S. interests in **space-based infrastructure**, **scientific exploration**, and **global communications**.
- These missions also contribute to India's image as a **trusted launch partner**, especially for **non-geopolitically aligned countries and private companies**.
- India's growing space capabilities offer the potential for **greater participation in multilateral forums** such as the **Artemis Accords** and **Quad space initiatives**.

Bio-fortified Potatoes in India

Topic relevance: GS II (Governance, Health) | GS III (Agriculture, Biotechnology, Food Security)

Why in news :

- India is set to introduce **bio-fortified potatoes** with **added iron content** into its agricultural and nutrition landscape.
- This is a result of collaboration with the **International Potato Center (CIP)**, based in **Peru**.
- The initiative aims to address micronutrient malnutrition and promote agricultural development through scientific advancements.

What is Bio-fortification?

- **Definition:** Bio-fortification is the process of increasing the nutritional value of crops through **biological techniques**, such as **selective breeding or genetic modification**.
- **Purpose:** To combat **micronutrient deficiencies** (iron, Vitamin A, zinc, etc.) especially in **vulnerable populations** like women and children.
- **Unlike food fortification**, which adds nutrients during processing, **bio-fortification adds nutrients during crop development** itself.

Bio-fortified Potatoes – What's New?

Iron-fortified Potatoes

- Developed by **CIP (International Potato Center)**, Peru.
- Targeted at combating **iron deficiency anaemia**, common in India.
- **Germplasm shared with ICAR – Central Potato Research Institute (CPRI), Shimla.**
- First variety released in **Peru**; under **evaluation in India** for agro-climatic suitability.

Vitamin A-rich Sweet Potatoes

- Already being cultivated in:
    - **Odisha, Karnataka, West Bengal, Assam**
- Characterised by **bright orange flesh**.
- Highly nutritious, especially for **child health and vision**.
- Can be **stored for up to 2 years** without refrigeration or chemicals.

Scientific & Agricultural Relevance

Feature	Iron-fortified Potatoes	Vitamin A-rich Sweet Potatoes
Nutrient Added	Iron	Vitamin A
Stage	Under Evaluation	Already Cultivated
Areas	Indo-Gangetic Plains	East & South India
Shelf Life	Standard	2 Years without refrigeration
Key Benefit	Tackles anaemia	Improves vision, immunity

Institutional Framework

CIP's South Asia Centre in Agra

- **Location:** Near Agra, Uttar Pradesh – in the **heart of India's potato belt**.
- **Reason:** Indo-Gangetic plains = **World's largest potato-producing region.**
- **Land provided by:** Government of Uttar Pradesh.
- **Facilitated by:** National Horticulture Board.
- **Agreement with:** Union Ministry of Agriculture, signed in **July 2025**.

Benefits to Indian Agriculture

1. Better Seed Quality

- Farmers face problems with **low-quality or late-arriving seeds**.
- CIP aims to **build seed multiplication capacity** in India.

2. Reduced Input Dependency

- New varieties designed to grow with **fewer agrochemical inputs**.

3. Market Chain Integration

- Focus on enabling farmers to be part of **value-added chains**, including **food processing**.

4. Global Investment Potential

- Growing interest from **European and North American companies** in Indian potato sector.

Nutritional Security for Vulnerable Groups

- Collaboration with government schemes like **Mid-day Meals**.
- Objective: Introduce **nutritious potatoes** into **public procurement systems**.
- Focus on:
    - **School children**
    - **Low-income groups**
    - **Malnourished populations**

Regional Cooperation

- A **Coordination Committee** to govern CIP's regional activities includes:
    - Secretaries of Agriculture from **India, Nepal, Bhutan, and Bangladesh**.
- Goal: Promote **regional seed exchange, research collaboration**, and **market studies**.

Market Stabilization & Price Security

- Address problems like:
    - **Price volatility**
    - **Supply gluts or shortages**
- Suggestions:
    - Introduce **varieties with different harvesting times** to avoid market floods.
    - Involve **market boards** to **anticipate supply-demand cycles**.

Global Potential of Indian Sweet Potatoes

- Sweet potatoes are **tropical crops** – ideal for Indian conditions.
- Can be used directly (e.g. in school meals) or in **processed food industry** (baking, confectionery).
- Opportunity for India to become a **global supplier**, especially to **Africa**.

Conclusion :

The launch of bio-fortified potatoes and expansion of vitamin-A-rich sweet potatoes reflect India's commitment to tackle **malnutrition** through **science-led agriculture**. With institutions like **CIP** and **ICAR** collaborating, India is not only enhancing **domestic food security** but also positioning itself as a **global leader in agri-nutrition innovation**.

Kenya Eliminates Human African Trypanosomiasis (HAT)

- Recently, Kenya has been certified by the **World Health Organization (WHO)** for eliminating **Human African Trypanosomiasis (HAT)**, also known as **sleeping sickness**, as a **public health problem**.
- **Significance**: Kenya becomes the **10th country** to achieve this milestone.
- **Earlier Achievement**: In **2018**, Kenya was also certified free of **Guinea worm disease** (another **Neglected Tropical Disease - NTD**).

About HAT:

- **Full Name**: Human African Trypanosomiasis (Sleeping Sickness)
- **Cause**: Blood parasite **Trypanosoma brucei**
- **Vector**: Spread by **tsetse flies**
- **High-Risk Groups**: Rural populations – farmers, fishermen, livestock keepers, hunters
- **Geographical Presence**: Only in **Africa**
- **Forms**:
    - **Gambiense HAT**: Chronic, in West and Central Africa
    - **Rhodesiense HAT (R-HAT)**: Acute, found in Eastern and Southern Africa (incl. Kenya), caused by **Trypanosoma brucei rhodesiense**
    - **R-HAT Progression**: Rapid organ failure including the brain; **fatal in weeks if untreated**

Other Countries Certified Free of HAT:

- Benin
- Chad
- Côte d'Ivoire
- Equatorial Guinea
- Ghana
- Guinea
- Rwanda
- Togo
- Uganda

India Eliminates Trachoma

- **Event**: At the **78th World Health Assembly**, WHO awarded **India** a certificate for the **elimination of trachoma** as a **public health problem**.
- **Position**: India becomes the **third country** in the **WHO South-East Asia Region** to achieve this milestone.
- **Programme**: Achieved under the **National Programme for Control of Blindness and Visual Impairment (NPCBVI)**.

About Trachoma:

- **Cause**: Bacterium **Chlamydia trachomatis**
- **Effect**: Infectious disease affecting the **conjunctiva** of the eye
- **Impact**: Leading cause of infectious blindness globally

WHO Declares Suriname and Georgia Malaria-Free (2025)

- **Suriname**: First country in the **Amazon region** certified **malaria-free** by WHO
- **Georgia**: Second country to receive malaria-free status in **2025**
- **India's Target**:
    - **Zero malaria cases** by **2025**
    - **Malaria elimination** by **2030**

WHO Adopts First Global Pandemic Agreement

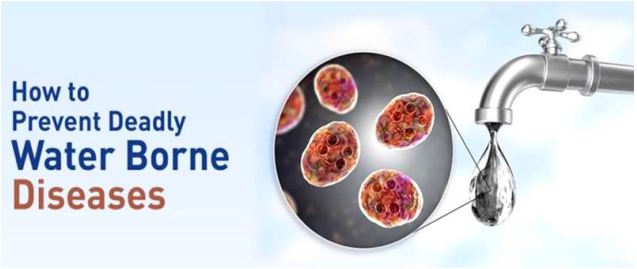
- **Event**: 78th World Health Assembly (2025)
- **Adopted Under**: **Article 19** of the WHO Constitution

- **Purpose**: Strengthen **global health security** and ensure **equitable pandemic response**
- **Significance**:
    - First such legal instrument since the **Framework Convention on Tobacco Control (2003)**
    - Focus on preparedness, response equity, and resource sharing

About World Health Organization (WHO) :

- **Established**: 1948
- **Headquarters**: **Geneva, Switzerland**
- **Parent Organization**: **United Nations**

NCDC Issues SoPs to Prevent Water-Borne Diseases



GS II: Health & Governance | GS III: Public Health, Water Resources, Environmental Pollution

Context

- The **National Centre for Disease Control (NCDC)** has issued **Standard Operating Procedures (SoPs)** to address:
    - **Water contamination**
    - **Water-borne and water-washed diseases**
- The SoPs aim to ensure **inter-ministerial coordination**, **community awareness**, and **early outbreak response**.

Objectives of the SoPs

1. **Early detection, prevention & control** of water-related diseases.
2. **Joint monitoring** of water quality by health and water departments.
3. Leverage laboratory networks for **water testing & disease surveillance**.
4. Enable **community engagement and awareness** on safe water practices.
5. Build **resilience during disasters** (floods, droughts, cyclones, etc.).

Key Components of the SoPs

1. Multi-Level Institutional Framework

Level	Responsibilities
National	Creation of **Water and Health Committee** (MoJS, MoHFW & others); quarterly meetings; policy-making; financial assistance to States/UTs.
State	Joint **IEC (Information, Education & Communication) campaigns**; setup of **State Rapid Response Teams** for water testing, advisories, and corrective action.
District	Regular testing of water in **healthcare facilities**; share results with health teams; field visits to hotspots.
Block	Identify **water quality hotspots**, outbreaks; community sensitisation; promote **safe water practices**.
Community	Water testing at **schools, anganwadis, PHCs, HWCs**; maintain and display records; train **health workers & women** on water safety.

Diseases Targeted

- **Water-borne diseases**:
    - Acute diarrhoea, **cholera**, **dysentery**, **hepatitis A**
- **Water-washed diseases**:
    - **Scabies**, **skin infections**, **eye infections**
- **Vector-borne risks from poor storage**:
    - **Dengue**, **malaria**
- **Geogenic contaminants**:
    - **Fluoride**, **arsenic**, **iron**, **nitrates**, **phosphates**, etc

3. Water Quality Testing & Surveillance

- Test at both **source** and **household level**.
- Use of **field-testing kits** by community health workers.
- **Additional testing** during:
    - Floods, droughts, cyclones, heatwaves, **saltwater intrusion**.
- Monitor discharge from **Effluent Treatment Plants (ETP)** and **Sewage Treatment Plants (STP)**, especially from healthcare facilities.

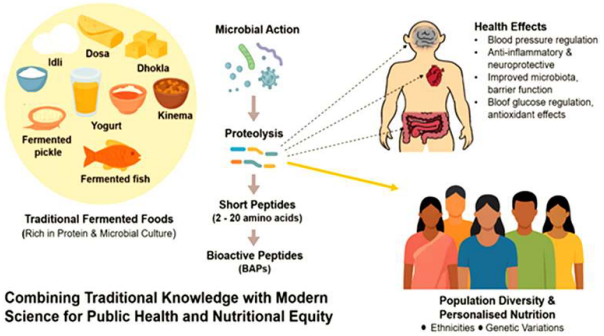
4. Community Participation and Training

- Train **healthcare workers and women volunteers** in:
  - Water testing, cleaning, disinfection
  - Public health awareness
- Ensure visible **display of water quality results** in villages.
- Promote **community ownership** of clean water and hygiene.

Related Initiative: Jal Jeevan Mission (JJM)

- **Implemented by**: Ministry of Jal Shakti (MoJS)
- Vision: Ensure **clean tap water to every rural household**.
- Established the **Drinking Water Quality Monitoring and Surveillance Framework**.
- Promotes **community-led water quality surveillance**.

Fermented Food and Personalized Nutrition in India



Why in News?

- A recent study by the **Institute of Advanced Study in Science and Technology (IASST), Guwahati**, under the Department of Science & Technology (DST), has highlighted that **bioactive peptides** in **traditional fermented foods** have **population-specific health effects**.
- And it could be used to develop **personalized nutrition strategies** tailored to **India's genetically and culturally diverse population**.

What Are Bioactive Peptides (BAPs)?

- **Short chains of amino acids** (2–20 amino acids) produced during the **fermentation process** in foods.
- Found in fermented foods like **yogurt, idli, kimchi, miso, natto, and fermented fish**.
- They interact with human cells through:
  - **Electrostatic forces**
  - **Hydrogen bonding**
  - **Hydrophobic interactions**

Health Benefits of BAPs

- **Antimicrobial**: Helps fight harmful bacteria
- **Antihypertensive**: Regulates blood pressure
- **Antioxidant**: Reduces oxidative stress
- **Immunomodulatory**: Balances immune responses
- **Anti-inflammatory**: Helps reduce chronic inflammation
- May support **cardiac health, metabolic balance**, and **gut microbiome diversity**

Personalized Nutrition for India's Diversity

- Effects of BAPs **vary across individuals** due to:
  - **Genetic polymorphisms** (e.g. ACE, IL-6 genes)
  - **Gut microbiota composition**
  - **Cultural dietary patterns**
  - **Pre-existing health conditions**

This opens the door for **precision nutrition** — dietary interventions tailored to **individual biology and ethnicity**.

Scientific and Policy Implications

1. R&D and Innovation

- Emphasizes **omics-based research** (genomics, proteomics, metabolomics).
- Highlights the need to improve **fermentation techniques**, **peptide stability**, and **interaction mapping** with gut microbiota.

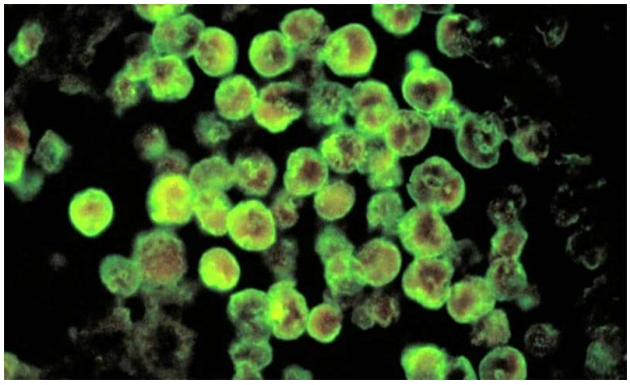
2. Public Health Integration

- Suggests incorporating **fermented foods** into **national nutrition programs**, especially in **rural and tribal areas**.
- Supports **low-cost, culturally acceptable** nutrition interventions.

3. Global Leadership Potential

- India's **traditional food diversity** positions it as a **potential leader in global personalized nutrition** solutions.

9-year-old girl dead as Kerala's Kozhikode sees 3 cases of 'brain eating amoeba'



Context

- Recently, Kerala's Kozhikode district has reported 3 back-to-back cases of the rare disease Primary Amoebic Meningoencephalitis (PAM), caused by the "brain-eating amoeba" ***Naegleria fowleri*.**
- A 9-year-old girl has died, while a 3-month-old infant and another patient remain critical.

What is Primary Amoebic Meningoencephalitis (PAM):

- Caused mainly by *Naegleria fowleri*, a **free-living amoeba found in warm freshwater,** soil, and dust.
- **Enters the human body via nose**, migrates to the brain, causing severe, often fatal inflammation.
- Other amoebae (e.g., *Acanthamoeba*) may also cause encephalitis with longer incubation periods.
    - **First case in India:** 1971
    - **First Kerala case:** 2016
    - **Till 2023:** Only 8 cases in Kerala
    - **2024:** 36 cases, 9 deaths
    - **2025 (till August):** 8 cases, 2 deaths

Key Facts

- **Fatality Rate:**
    - **Global:** ~97%
    - **Kerala:** reduced to ~25% (due to early detection & state protocols).
- **India's first PAM survivor:** July 2024, 14-year-old Kozhikode boy (11th survivor globally).
- **Symptoms:** Severe headache, fever, stiff neck, seizures, rapid progression '! coma & death.
- **Transmission:**
    - Contaminated freshwater (lakes, ponds, baths) entering nose.
    - Also from dust/soil particles (not necessarily water exposure).

Reasons for Rising Cases in Kerala

1. Increased testing for AES **(Acute Encephalitis Syndrome).**
2. **Climate change – higher temperatures** = favorable conditions for amoeba growth.
3. **Environmental pollution** – contaminated water sources.
4. Improved surveillance & reporting.

Government Response (Kerala Model)

- **Kerala:** first Indian state to issue
    - **Special Treatment Protocol (2024).**
    - **Standard Operating Procedure (SOP) for PAM management.**
- Strengthened laboratory diagnosis (molecular tests).
- Awareness campaigns on safe water usage.

Significance

- **Public Health Concern:** Extremely high mortality rare disease, needing early detection.
- **Climate–Health Linkages:** Demonstrates how climate change alters disease patterns.
- **Kerala's proactive role:** Model of how states can innovate protocols for rare diseases.

- UPSC Relevance: Links to GS Paper II (Health policies, governance) + GS Paper III (Climate change, Science & Tech, Disease ecology).

Challenges

- **Diagnosis**: Often delayed, symptoms mimic meningitis/encephalitis.
- **Treatment: Limited drug effectiveness; few survivors worldwide.**
- **Public Awareness:** Low, especially regarding water/dust transmission.
- Balancing Resources: Rare diseases compete with priority illnesses (TB, Malaria).

Way Forward

- National Surveillance: Include PAM under Integrated Disease Surveillance Programme (IDSP).
- Research: Develop rapid diagnostic kits & effective drugs.
- Public Awareness: Safe use of freshwater bodies, hygiene campaigns.
- Climate Preparedness: Link environmental monitoring with health risk warnings.
- Replication of Kerala Model: Protocols and SOPs should be adapted across states for rare diseases.

❐❐❐

Ecology & Environment

Red Panda

The **Red Panda** is a small arboreal mammal facing significant conservation challenges. In a recent positive development, cubs were born at the **Himalayan Zoological Park** near Gangtok, Sikkim, after a seven-year gap, highlighting the success of ongoing conservation breeding programs.

About the Red Panda

- **Classification & Traits:** Also known as the lesser panda, the Red Panda is the sole living species of the genus *Ailurus* and belongs to its own family, **Ailuridae**. It is a shy, solitary, and primarily herbivorous animal.
- **Appearance:** It is roughly the size of a domestic cat and is characterized by its reddish-brown fur, a bushy tail with ringed patterns, and distinctive facial markings. Its long, bushy tail serves both for balance and as a covering for warmth during winter.
- **Distribution:** It is found in the temperate forests of the **Eastern Himalayas**, including parts of **Bhutan, China, India, Myanmar, and Nepal**. In India, its habitat is confined to Sikkim, Arunachal Pradesh, and the Darjeeling and Kalimpong districts of West Bengal. It is the **State Animal of Sikkim**.
- **Threats:** The primary threats to the Red Panda are habitat loss and fragmentation due to deforestation, the loss of nesting trees and bamboo (its main food source), and poaching for its distinctive fur and the illegal pet trade.

Conservation Status

- **IUCN Red List: Endangered**
- **CITES: Appendix I**
- **Wildlife Protection Act, 1972 (India): Schedule I**

Indicator Species

The Red Panda is considered an **indicator species** for ecological change.

- **Definition:** An indicator species is an organism whose presence, absence, or abundance reflects the overall health and condition of its ecosystem.

- **Significance:**
    - **Early Warning System:** They can provide an early warning of environmental changes, such as pollution or climate change.
    - **Bioindicators:** They are often referred to as "bioindicators" because they are highly sensitive to environmental stressors, and their well-being directly reflects the health of the entire ecosystem.
    - **Management Tool:** The state of an indicator species can be used by conservation managers to assess and guide efforts to protect the broader habitat.

Matri Van Initiative

The **Matri Van initiative**, a key urban afforestation project, was ceremonially launched by the Union Minister for Environment, Forest and Climate Change and the Union Minister for Housing and Urban Affairs. It is a significant step towards creating sustainable green spaces in urban areas and is part of a larger national campaign.

About Matri Van Initiative

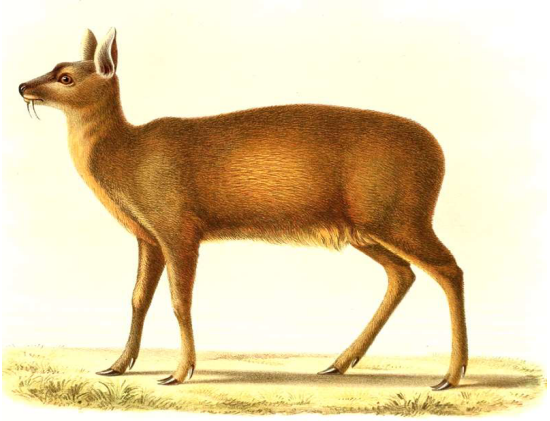
- **Program:** Matri Van is a theme-based urban forest initiative under the "Ek Ped Maa Ke Naam" (One Tree in Mother's Name) program. This program, launched on World Environment Day 2024, encourages people to plant trees as a tribute to their mothers and to promote environmental conservation.
- **Location and Scale:** The initiative will develop a theme-based urban forest spanning **750 acres** in the **Aravalli Hill area** along the Gurugram-Faridabad Road in Haryana.
- **Vision:** The project is envisioned as a unique ecological and cultural space that will contribute to biodiversity, public well-being, and urban sustainability. The new green cover is expected to act as the "heart and lungs" of the Delhi-NCR region, helping to combat pollution and climate stress.
- **Collaboration:** The project will be a multi-stakeholder collaboration involving **CSR partners, Resident Welfare Associations (RWAs), NGOs, multinational corporations (MNCs), school children, and government organizations**.

Key Components and Features

- **Ecological Restoration:** A core component of the initiative is the removal of existing invasive species like **Kabuli Kikar (Prosopis juliflora)** and their replacement with native tree species such as **Dhak (Flame of the Forest), Amaltash (Golden Shower Tree)**, Neem, Bargad, Peepal, and other species endemic to the Aravalli region.
- **Thematic Groves:** The forest will feature specialized plantation groves like Bodhi Vatika, a Bamboosetum, an Aravalli Species Arboretum, and gardens for medicinal and flowering plants.
- **Public Amenities:** The area will also be developed with various facilities to encourage public engagement and well-being, including:
    - Nature trails and cycle tracks.
    - Yoga and meditation spaces.
    - Waterbodies for water conservation and urban flood control.
    - A treated water irrigation system for sustainable maintenance.

The initiative aligns with the government's broader environmental campaigns, such as **Mission LiFE (Lifestyle for Environment)** and **Van Mahotsav 2025**, emphasizing community participation in climate action.

Alpine Musk Deer



A recent report by the **Central Zoo Authority (CZA)** has highlighted a critical conservation error: Indian zoos have been mistakenly breeding the **Himalayan musk deer** instead of the **Alpine musk deer** for conservation programs. This mix-up, which has hampered efforts for the truly endangered species, underscores the challenges in species identification and management.

About Alpine Musk Deer (Moschus chrysogaster)

- **Classification:** The Alpine musk deer is a species of musk deer found only in Asia. It is not a true deer but belongs to the family **Moschidae**, which is more closely related to Bovidae (the family of antelopes, bovines, goats, and sheep).
- **Characteristics:**
    - **Musk Sac:** Males possess a highly valuable, externally visible musk sac between their testes, which is the primary reason for poaching.
    - **Fangs:** Males also have long, tusk-like upper canines that grow during the mating season and are used for sparring with other males.
    - **Behaviour:** They are generally solitary and **crepuscular**, meaning they are most active during the twilight hours of dawn and dusk.
- **Habitat:** It inhabits coniferous and deciduous forests in mountainous regions at elevations of **3,000–5,000 meters**.
- **Diet:** As a ruminant herbivore, it primarily feeds on forbs, grasses, moss, lichens, and the leaves and twigs of shrubs.
- **Distribution:** It is mainly found in India, Nepal, Bhutan, and China. In India, its habitat includes parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh.

Conservation Status and Threats

- **IUCN Red List: Endangered**.
- **CITES: Appendix I** (prohibits international commercial trade).
- **Wildlife Protection Act, 1972 (India): Schedule I** (provides the highest level of legal protection).
- **Threats:**
    - **Poaching:** The main threat is the illegal hunting of males for their highly sought-after musk, which is used in traditional medicine and cosmetic products. The value of musk is often compared to that of gold.
    - **Habitat Loss:** Deforestation and human disturbance, including livestock grazing, lead to habitat degradation and fragmentation, further threatening the species' survival.

Asian Giant Tortoise

Why in News?

- The Asian giant tortoise, the largest tortoise in mainland Asia, has recently been reintroduced into the Zeliang Community Reserve in Nagaland's Peren district.

About Asian Giant Tortoise

- **Scientific Name**: *Manouria emys phayrei*
- **Size**: It is the largest tortoise in Asia.
- **Unique Behavior**: They are considered one of the oldest tortoise lineages in the world. These ancient tortoises protect their eggs and maintain appropriate temperatures for incubation.
- **Appearance**: Hatchlings are grayish brown and become more charcoal-colored as they mature.
- **Habitat**: Found in tropical and subtropical hill forests.
- **Distribution**: They are found in Bangladesh, India, Indonesia, Malaysia, and other places.
- **Diet**: Consists of bamboo shoots, tubers, other juicy vegetation, and some invertebrates and frogs.
- **Threats**: The primary threats are hunting for consumption, habitat loss, and anthropogenic activities such as construction and slash and burn.

Conservation Status

- **IUCN**: Critically Endangered
- **CITES**: Appendix II

Indri Lemur

Why in News?

- Recent joint research has, for the first time, successfully determined the composition of the intestinal microbiome of the **indri**, a critically endangered lemur species found exclusively in northeastern Madagascar.

About the Indri Lemur

- **Names**: Known locally as *babakoto*, the Indri (*Indri indri*) is the largest of all surviving lemur species.
- **Habitat and Distribution**: This species is endemic to Madagascar, inhabiting the remote coastal and montane rainforests of the island's northeastern region, from sea level up to 1,800 meters.
- **Physical Characteristics & Behavior**:
    - It measures between 60–70 cm in length and is distinguished by a rudimentary tail and large, robust hands and feet.
    - Its body is covered in smooth, silky fur, typically black with white markings on the head, throat, forearms, and buttocks.
    - The indri is a diurnal and arboreal animal, meaning it is active during the day and lives exclusively in trees. It climbs in an upright position and feeds on a diet of leaves, fruits, flowers, and other vegetation.
    - In the wild, their lifespan is approximately 15 to 18 years.

Conservation Status

- The Indri Lemur is classified as **'Critically Endangered'** on the IUCN Red List of Threatened Species, facing severe threats from habitat loss and fragmentation.

Biochar

Why in News?

- With India's carbon market scheduled to launch in **2026**, **biochar** and other carbon removal technologies are expected to become key components in the nation's climate change mitigation strategy.

About Biochar

- **Nature and Production**: Biochar is a type of charcoal that is rich in carbon. It is produced from agricultural residue and organic municipal waste through a process called **pyrolysis**, which involves heating the biomass at temperatures of **400°C to 600°C** in the absence of oxygen.
- **Key Advantage**: A major benefit of biochar is its stability. Due to its unique properties, it can lock carbon in the soil for a long duration, from **100 to 1,000 years**, making it an effective and long-term carbon sink.
- **Potential Applications**:
    - **Agriculture**: When added to soil, biochar improves **water retention**, particularly in dry or nutrient-depleted areas. It can also enhance soil organic carbon and reduce nitrous oxide emissions by **30-50%**, a significant step toward climate action.
    - **Industry**: Modified biochar can be used to **adsorb CO,** from industrial exhaust gases, though its efficiency is currently lower than traditional carbon capture methods.
    - **Construction**: It can serve as a low-carbon alternative in building materials, creating a stable carbon sink within the construction sector.
    - **Wastewater Treatment**: Biochar is a low-cost and effective material for reducing pollution in wastewater.

Bandipur Tiger Reserve (BTR)

Why in News?

- The **Bandipur Tiger Reserve** recently made headlines after a tourist from Kerala miraculously survived an elephant attack within the reserve. The incident highlighted the importance of safety and awareness in wildlife sanctuaries.

About Bandipur Tiger Reserve

- **Location and Geography**: BTR is located in the **Mysore and Chamarajanagar** districts of southern Karnataka. Situated at the tri-junction of **Karnataka, Tamil Nadu, and Kerala**, it serves as an "ecological confluence" where the Western and Eastern Ghats meet.
- **Protected Area Status**: It is part of the larger **Nilgiri Biosphere Reserve**, which is recognized as a **UNESCO World Heritage Site**. BTR was once a private hunting ground for the rulers of the Kingdom of Mysore before becoming a protected area.

- **Surrounding Reserves**: BTR forms a crucial wildlife corridor with several other protected areas, including:
    - **Nagarahole Tiger Reserve** (Karnataka) to the northwest.
    - **Mudumalai Tiger Reserve** (Tamil Nadu) to the south.
    - **Wayanad Wildlife Sanctuary** (Kerala) to the southwest.
- **Rivers and Climate**: The reserve is bordered by the **Kabini River** in the north and the **Moyar River** in the south. It has a typical tropical climate with distinct wet and dry seasons.
- **Flora and Fauna**:
    - **Flora**: The vegetation is diverse, ranging from dry deciduous to tropical mixed deciduous forests. Notable trees include **rosewood, sandalwood, and various types of** bamboo.
    - **Fauna**: BTR is home to the **largest population of wild Asian elephants in South Asia**. It also provides a critical habitat for other mammals like the **Bengal tiger, gaur (Indian bison), sloth bear, dhole (wild dog)**, and the four-horned antelope.

Palamau Tiger Reserve

Why in News?

- The **Palamau Tiger Reserve (PTR)**, which serves as the last remaining habitat for **gaur** (*Bos gaurus*) in Jharkhand, is currently facing an alarming decline in the population of this wild bovid.

About the Palamau Tiger Reserve

- **Location & Status**: Situated on the Chhotanagpur plateau in the Latehar district of **Jharkhand**, the Palamau Tiger Reserve is the state's only tiger reserve. It was among the **first nine reserves** established in India at the launch of **'Project Tiger'** in 1973. It is also part of the larger **Betla National Park**.
- **Historical Significance**: The reserve has a notable history in wildlife conservation; it was the first in the world to conduct a tiger census using the pugmark (footprint) count method, which was carried out in 1932.
- **Geography**: The terrain is characterized by undulating hills, valleys, and plains. Three major rivers—the **North Koyal, Auranga, and Burha**—flow through the reserve. The **Burha River** is the only perennial one, making it a critical water source, particularly during the dry season.
- **Biodiversity**: The reserve's vegetation consists of **moist and dry deciduous forests**, with **Sal** and **bamboo** as dominant species. It is home to a rich variety of fauna, including the Bengal tiger, Asiatic elephant, leopard, grey wolf, sloth bear, and gaur.

Dibru Saikhowa National Park

Why in News?

- A recent study has revealed that certain native plants, such as **Bombax ceiba** and **Lagerstroemia speciosa**, are contributing to the alteration of the riverine ecosystem in **Dibru-Saikhowa National Park**, along with invasive species.

About Dibru-Saikhowa National Park

- **Location and Status**: Located in the Dibrugarh and Tinsukia districts of Assam, Dibru-Saikhowa was designated a **Biosphere Reserve** by UNESCO in 1997. It is bounded by the Brahmaputra and Lohit Rivers to the north and the Dibru River to the south.
- **Vegetation and Climate**: The park's vegetation consists mainly of moist mixed semi-evergreen and deciduous forests, canebrakes, and grasslands. It is notable for having the largest **salix swamp forest** in North-Eastern India, with a tropical monsoon climate.
- **Flora and Fauna**: The park is a haven for rich biodiversity. It is the only habitat in India for **feral horses**, which are a key attraction. Its fauna also includes tigers, elephants, Gangetic dolphins, leopards, and several species of primates.
- **Avian Diversity**: As an identified **Important Bird Area (IBA)**, the park is home to more than 382 species of birds, including the Greater Adjutant Stork and Lesser Adjutant Stork

Ambergris

Why in News?

- The Ahmedabad Rural Special Operations Group (SOG) recently seized nearly **3 kg of ambergris** with a value of close to ₹ 3 crore in the international market, leading to the arrest of two individuals.

About Ambergris

- **Overview**: Ambergris, often called "whale vomit" or "floating gold," is a rare, waxy substance formed in the digestive system of **sperm whales** (*Physeter macrocephalus*). It is one of the most valuable animal products in the world, prized for its use as a fixative in the perfume industry.
- **Formation Process**:
  - It forms in a whale's intestine to protect it from the sharp, indigestible beaks of squid and cuttlefish that it consumes.
  - When first expelled from the whale, it is black and sticky with a strong, unpleasant fecal odor.
  - After years of floating in the ocean, exposed to sun, air, and saltwater, it oxidizes and hardens, becoming a grey, waxy lump. During this process, it loses its foul smell and develops a unique, earthy, and sweet fragrance.
- **Uses**: Its primary use is in the luxury perfume industry, where it acts as a **fixative**, helping to make scents last longer. It has also been used in traditional medicines and, in some cultures, as a spice.
- **Legal Status**: The possession and trade of ambergris are strictly **prohibited in India** under the **Wildlife Protection Act, 1972**. The sperm whale is a protected species, and the ban is in place to prevent the exploitation and hunting of these marine mammals. Similar bans exist in countries like the USA and Australia.

Snow Leopard

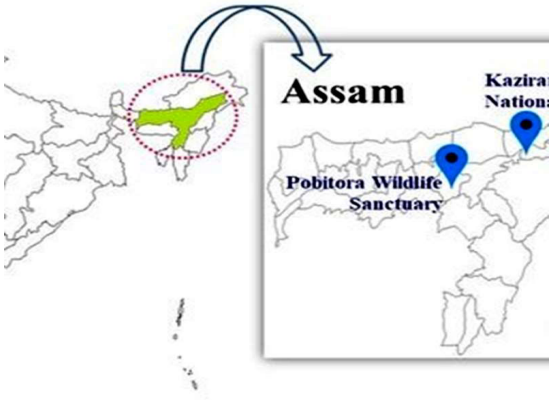
Why in News?

- A recent three-year camera trapping study has confirmed the **year-round presence and breeding** of the **snow leopard** in the **Kishtwar Himalayas** of Jammu & Kashmir. This study highlights the region's importance as a critical stronghold for the species in India.

About Snow Leopard

- **Overview**: The snow leopard (*Panthera uncia*) is a medium-sized big cat known as the "**ghost of the mountains**" due to its elusive nature. It is a solitary animal that lives in the steep, rugged, high-altitude terrains of Central and South Asia.
- **Geographical Distribution**:
    - **Global**: They are found in 12 countries, including China, Bhutan, Nepal, India, Pakistan, Russia, and Mongolia.
    - **In India**: Their habitat is concentrated in the high-altitude, cold, and arid regions of **Jammu & Kashmir**, **Himachal Pradesh**, **Uttarakhand**, **Sikkim**, and **Arunachal Pradesh**.
- **Key Features**: The snow leopard is well-adapted to its cold environment. Its thick, pale grey fur with dark rosettes provides excellent camouflage against rocky terrain. A remarkable feature is its long, bushy tail, which can be almost half the length of its body. This tail helps the cat maintain balance while navigating steep, rocky slopes and also provides warmth when wrapped around its body during rest.
- **Conservation Status**:
    - **IUCN**: **Vulnerable**
    - **CITES**: **Appendix I**
    - **Wildlife (Protection) Act, 1972 (India)**: **Schedule I**

Pobitora Wildlife Sanctuary



Why in News?

- **Pobitora Wildlife Sanctuary**, located in Assam's Morigaon district, recently hosted an awareness program on **"Conservation and Coexistence"**. The event was organized by a leading conservation group, Aaranyak, in partnership with other organizations to highlight the importance of protecting the sanctuary's biodiversity.

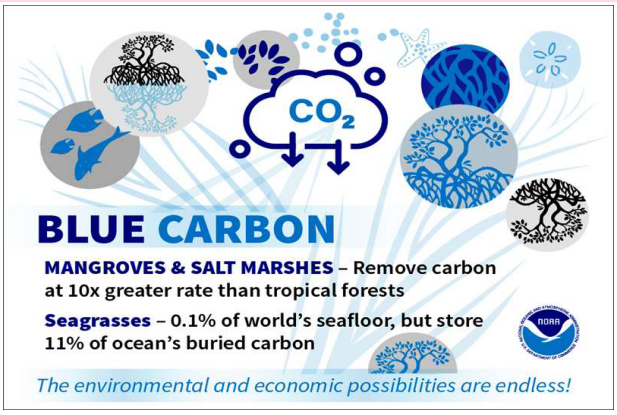
About Pobitora Wildlife Sanctuary

- **Location and Status**: Situated on the eastern side of Guwahati, Assam, Pobitora was first established as a reserved forest in 1971 and was designated as a wildlife sanctuary in **1998**. The sanctuary, covering an area of 48.81 sq. km., includes the Rajamayong and Pobitora Reserve Forests.
- **Conservation Significance**: Pobitora is particularly renowned for having the **highest density of the Greater One-Horned Rhinoceros** in the world. It is also an important site for the "**Indian Rhino Vision**

2020," a program aimed at increasing the wild rhino population and distributing them across various protected areas in Assam to ensure their long-term survival.

- **Ecology**: The sanctuary's habitat is predominantly a **wet savannah**, characterized by a variety of tall grasses. However, the invasive species **water hyacinth** (*Eichornia crassipes*) poses a significant problem by forming dense mats on the water surface, which threatens aquatic life and bird species.
- **Fauna**: In addition to its large rhino population, Pobitora is home to other animals such as leopards, wild boars, wild buffaloes, and barking deer. The sanctuary is also a significant habitat for over 2,000 **migratory birds** and various reptiles.

Blue Carbon



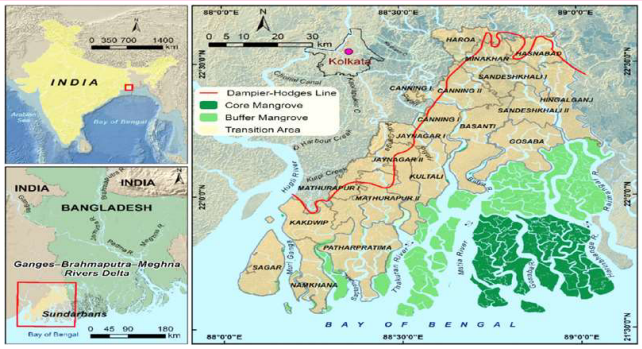
Why in News?

- **Seaweed farming** has recently been identified as a potential **Blue Carbon** strategy, a significant development in climate change mitigation efforts. However, there is a recognized need for more empirical data to accurately estimate the amount of carbon that can be sequestered through such farming.

About Blue Carbon

- **Definition and Storage**: **Blue carbon** refers to the organic carbon that is naturally captured and stored by the ocean's vegetated coastal ecosystems. The term "blue" distinguishes this from "green carbon," which is stored by terrestrial ecosystems. The vast majority of carbon in the ocean is dissolved carbon dioxide (CO_2). However, smaller, yet significant, amounts are stored in underwater sediments, coastal vegetation like **mangrove forests**, **salt marshes**, and **seagrass meadows**, as well as in marine life.
- **Significance in Climate Mitigation**: Despite covering only **2% of the total ocean surface**, these vital coastal ecosystems are responsible for over **50% of the carbon absorption** from the atmosphere into the ocean's sediments. This remarkable efficiency in sequestering and storing carbon makes them an integral part of global strategies to combat climate change. The carbon stored in these ecosystems can remain buried for centuries or even millennia.

Sundarbans Tiger Reserve (STR)



Why in News?

- The **Sundarbans Tiger Reserve** has officially become India's **second-biggest tiger reserve** after the standing committee of the National Board of Wildlife (NBWL) approved a proposal to expand its area. This expansion solidifies its position as a critical conservation zone for tigers in India.

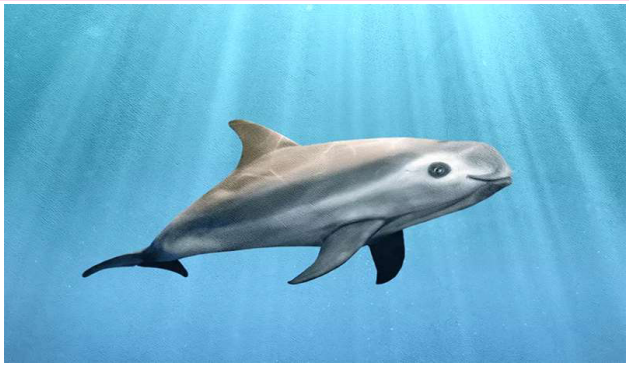
About Sundarbans Tiger Reserve

- **Location and Significance**: Located in the coastal districts of West Bengal, the STR is a part of the **Sundarbans**, which is the world's largest delta. This unique landform is created

by the confluence of the Ganga and Brahmaputra rivers as they flow into the Bay of Bengal. The reserve holds the distinction of being the **only mangrove forest in the world** (outside of Bangladesh) to support a significant tiger population. Beyond its status as a tiger reserve, the area is also a designated **National Park** and a **Biosphere Reserve**.

- **Geographical Boundaries**:
    - **East**: The international border with Bangladesh, defined by the Harinbhanga, Raimangal, and Kalindi rivers.
    - **South**: The Bay of Bengal.
    - **West**: The Matla River, which forms a common boundary with the territorial Forest Division of South 24-Parganas.
    - **North-West**: The Bidya and Gomdi rivers.
- **Flora and Fauna**: The reserve is a haven for biodiversity, with a rich mix of plants and animals.
    - **Flora**: The plant life includes true **mangroves**, as well as other mangrove associates, shrubs, non-mangrove plants, epiphytes, and parasitic species.
    - **Fauna**: It is home to the iconic **Royal Bengal Tiger**, along with other notable species such as the fishing cat, estuarine crocodile, Gangetic and Irrawaddy dolphins, king cobra, and water monitor lizard.

Vaquita



Why in News?

- A recent report by the North American Environmental Commission has brought renewed attention to the plight of the **vaquita**, criticizing Mexico's conservation efforts. The report highlights the alarming fact that only an estimated **10 vaquitas** remain, making it the world's most critically endangered marine mammal.

About Vaquita

- **Overview**: The vaquita (Phocoena sinus) is a shy and elusive porpoise that holds the distinction of being the smallest and most endangered member of the cetacean family (which includes whales, dolphins, and porpoises). Its conservation status is **Critically Endangered** on the **IUCN Red List**.
- **Habitat and Features**:
    - It has the smallest geographic range of any cetacean, living exclusively in the northern part of the **Gulf of California, Mexico**. It is typically found in shallow waters.
    - The vaquita is characterized by a chunky body, a rounded head without a snout, and a taller and wider dorsal fin compared to other porpoises.
    - It uses **echolocation** to communicate and navigate, emitting high-frequency clicks.
- **Primary Threats**: The vaquita's population has plummeted due to being a victim of **bycatch** in fishing nets. The main threat comes from illegal gillnets used to catch the **totoaba**, a large fish whose swim bladder is highly valued in the black market. The vaquitas, which are similar in size to the totoaba, get entangled in these nets and drown.

National Designated Authority (NDA) to Enable Carbon Emissions Trading Regime

Why in News?

- The Ministry of Environment, Forest and Climate Change recently established a **National Designated Authority (NDA)**. This move is a crucial step towards fulfilling a mandatory requirement under **Article 6** of the Paris Agreement, which allows for a global **carbon emissions trading regime**.

About the National Designated Authority (NDA)

- **Mandate and Background**: The creation of an NDA is a prerequisite for countries to participate in the international carbon market, as outlined in **Article 6 of the Paris Agreement**. This provision, which enables an emissions trading system to take shape, was a key topic of discussion for several years and was finally formalized at **COP29** in Baku, Azerbaijan, in November 2024.
- **Structure and Functions**:
    - The NDA is a 21-member committee chaired by the Secretary of the Ministry of Environment, Forest and Climate Change. Its members include representatives from other key ministries and organizations like **NITI Aayog**.
    - The primary responsibilities of the NDA include:
        * Recommending and modifying a list of activities that can generate **emission reduction units** for trading under Article 6.
        * Evaluating, approving, and authorizing projects that produce these units.
        * Authorizing the use of these units toward achieving India's **Nationally Determined Contributions (NDCs)**.
- **Link to India's NDCs**: The NDA's work is directly tied to India's climate commitments under the Paris Agreement. India's NDC targets are:
    - Reducing the **emissions intensity of its GDP by 45%** by 2030, compared to 2005 levels.
    - Ensuring **50% of its electric power capacity** comes from non-fossil fuel sources by 2030.
    - Creating an additional **carbon sink** equivalent to 2.5–3 billion tonnes of carbon dioxide by 2030 through afforestation.

What is E-20 Fuel?

Why in News?

- The Society of Indian Automobile Manufacturers (SIAM), a prominent carmaker lobby, has recently assured that vehicle

warranties will remain valid even if older vehicles, not originally designed for it, use **E20 fuel**. This statement was made amid growing public debate about the potential impact of the new fuel blend on older engines.

About E-20 Fuel

- **Definition and Blending**: **E20 fuel** is a fuel blend consisting of **20% ethanol** and **80% gasoline**. This is a significant increase from the previous standard of E10 and is a core component of India's long-term strategy for energy security.
    - **Ethanol**, also known as ethyl alcohol (C_2H_5OH), is a clear, biodegradable, and renewable biofuel primarily derived in India from agricultural sources like sugarcane, maize, and rice.

The process of **ethanol blending** involves mixing this biofuel with petrol to create a cleaner and more sustainable fuel.

- **India's Ethanol Blending Journey**:
    - India's Ethanol Blended Petrol (EBP) Programme was launched in **2003**.
    - The country achieved its **10%** ethanol blend target in 2021-22.
    - In a landmark achievement, India reached the **20%** blending target in July 2025, which was five years ahead of the original 2030 deadline.
- **Benefits of Ethanol Blending**:
    - **Environmental**: Blending ethanol with petrol increases the fuel's oxygen content, leading to a more complete combustion. This results in **lower emissions** of pollutants like carbon monoxide and hydrocarbons, improving air quality.
    - **Economic**: By reducing dependence on high-value crude oil imports, ethanol blending helps conserve foreign exchange.
    - **Agricultural**: It provides an additional market for surplus agricultural produce, such as sugarcane molasses, thereby supporting the income and prosperity of India's farmers.

EDITORIALS

Crux of The Hindu & Indian Express

Ecology & Environment

Ramsar COP15: India's Leadership in Global Wetland Conservation

CONVENTION ON WETLANDS COP15
23-31 July 2025
Victoria Falls, Zimbabwe

1. Introduction:

- The **15th meeting of the Conference of Parties (COP15) to the Ramsar Convention** on Wetlands was held in **Zimbabwe in 2025.**
- It marked a pivotal moment in global wetland conservation, drawing international **attention to the degradation of wetland ecosystems.**
- The conference concluded with the adoption of **13 resolutions** and the **5th Strategic Plan for 2025–2034**.

- The overarching theme of the conference was **"Protecting Wetlands for Our Common Future"**.
- **India emerged as a prominent leader in this conference** by spearheading a landmark resolution linking **sustainable lifestyles to wetland conservation**, aligning it with its domestic and international climate action frameworks.

2. Outcomes of Ramsar COP15

2.1 Resolutions Adopted

- Ramsar COP15 resulted in the **adoption of 13 key resolutions**.
- These addressed several pressing concerns related to wetlands, including:
    - Wetland restoration and ecological rehabilitation
    - Conservation of migratory birds via **Flyway Conservation Initiatives**
    - Strengthening global databases through the **Global Waterbird Estimates Partnership**
- These resolutions represent a collective **commitment by the 172 member countries to protect and sustainably** manage wetlands at local, national, and international levels.

2.2 5th Strategic Plan (2025–2034)

The 5th Strategic Plan of the Ramsar Convention sets out **four overarching goals and 18 specific targets**, to be achieved during the 2025–2034 period:

- **Goal 1**: Address and reverse wetland loss and degradation.
- **Goal 2**: Achieve the wise use of wetlands through **integrated policy planning** and inclusive stakeholder participation.
- **Goal 3**: Ensure effective conservation and **management of wetlands** of international importance (Ramsar Sites).
- **Goal 4**: Enhance the implementation of the Convention through **scientific cooperation, institutional capacity-building**, and improved resource mobilization.

2.3 Financial Allocation

- Despite the ambitious scope of the resolutions and strategic plan, the overall budget of the Ramsar Secretariat saw only a **4.1% increase**, bringing the total **15.5 million** for the 2025–2027 period.
- This modest increment **underlines the persistent challenge of financing global** conservation efforts adequately

3. India's Historic Leadership at COP15

3.1 India's Resolution on Sustainable Lifestyles

- India presented a resolution titled **"Promoting Sustainable Lifestyles for the Wise Use of Wetlands"**, which was unanimously adopted by all **172 Ramsar** Parties.
- This resolution draws directly from India's **Mission LiFE (Lifestyle for Environment)** initiative, launched by the Indian Prime Minister at **COP26 in Glasgow in 2021**.
- The resolution emphasizes the role of **individual behavior** and **community-driven conservation** in ensuring the wise use and protection of wetlands.
- It proposes a shift from government-centric approaches to a **whole-of-society model**, involving local communities, NGOs, and citizens.

3.2 Significance of India's Resolution

- India's resolution introduced the concept of a **"Pro-Planet Lifestyle"**, which respects ecological boundaries and promotes sustainability at the grassroots level.
- The resolution demonstrates how lifestyle choices can be a part of environmental policy.

- It positions India as a global leader in integrating **behavioral change** into conservation policy and aligns environmental governance with **social participation**.

4. Understanding the Wise Use Principle

- The principle of **"wise use"** lies at the core of the Ramsar Convention.
- Originally, it referred to the sustainable utilization of wetlands for economic and human benefits.
- However, over time, the principle has evolved to mean **maintaining the ecological character of wetlands through ecosystem-based approaches**, aligned with the broader framework of **sustainable development**.
- The wise use principle now applies to **all wetlands in a country**, not just those designated as Ramsar Sites.
- This broader application reflects a more advanced ecological understanding of wetlands as multifunctional ecosystems providing critical services like water filtration, flood control, carbon storage, and biodiversity support.

5. India's Implementation of the Wise Use Principle

India has operationalized the wise use principle through several national programs:

- **National Plan for Conservation of Aquatic Ecosystems (NPCA)**: A central scheme supporting state governments in the protection and management of wetlands.
- **Integrated Management Plans (IMPs)**: Wetland-specific plans designed to balance ecological and socio-economic aspects of wetland use.
- **Wetlands (Conservation and Management) Rules, 2017**: Issued under the **Environment (Protection) Act, 1986**, these rules provide a robust regulatory framework. They have established **State/UT Wetland Authorities** and a **National Wetland Committee**, replacing the earlier centralized model.

6. Ramsar Convention: Global Framework

- The **Ramsar Convention on Wetlands**, adopted in **1971 in Ramsar, Iran**, is the **only global environmental treaty** focused specifically on wetlands.
- It initially aimed to protect migratory waterfowl habitats but now covers **all types of wetlands**, recognizing their importance for **biodiversity, climate regulation, water security, and human livelihoods**.

As of 2025, the Convention has:

- **2,544 Ramsar Sites**
- Covering **257 million hectares** worldwide
- With the mission to **ensure conservation and wise use of all wetlands** through local to global action

7. Wetlands: Definition, Types, and Importance

7.1 Definition

- Wetlands are areas where water is the primary factor controlling the environment and associated plant and animal life.
- These include areas where water is present either at or near the surface of the soil permanently or seasonally.

7.2 Types of Wetlands

- **Marshes and Swamps**: Contain standing water and thick vegetation
- **Mangroves**: Coastal forests thriving in saline water
- **Peatlands**: Waterlogged lands rich in organic matter
- **Rivers, Lakes, and Ponds**: Freshwater systems
- **Coastal Wetlands**: Including estuaries and tidal flats

7.3 Ecological and Economic Significance

Wetlands:

- Filter and purify water
- Store floodwaters and recharge groundwater
- Act as carbon sinks, mitigating climate change
- Support unique biodiversity
- Sustain local livelihoods through fisheries, agriculture, and tourism

8. Challenges and Threats to Wetlands

According to the **Global Wetland Outlook 2025**, wetlands are disappearing **three times faster than forests**, risking an estimated **$39 trillion loss in ecosystem services** if current trends persist.

Major Threats:

- **Urban expansion and land encroachment**
- **Agricultural intensification and irrigation**
- **Industrial and domestic pollution**
- **Climate change and altered precipitation**
- **Introduction of invasive specieS**
- **Unsustainable resource extraction**

9. India's Wetlands and Ramsar Sites

- India became a signatory to the Ramsar Convention on **February 1, 1982**.
- As of 2025, India has **91 Ramsar Sites**, covering a total area of **1,359,951 hectares**.
- These sites span diverse ecological zones, from **Himalayan lakes** in Ladakh to **mangrove forests** in the Sundarbans.
- India ranks among the **top countries globally in the number of Ramsar Sites**, reflecting its strong commitment to international wetland conservation.

10. India's Conservation Model: A Case Study

10.1 Amrit Sarovar Mission

- This mission aimed at reviving small and often overlooked wetlands. In just one year, **68,827 small wetlands** (mostly under 1 hectare) were restored.
- The initiative demonstrated that **numerous small-scale efforts**, when coordinated, can have a **large cumulative ecological impact**.

10.2 Mission Sahbhagita and 'Save Wetlands' Campaign

Over **2 million volunteers** participated in these campaigns. They contributed to:

- **Mapping over 170,000 wetlands**
- **Marking boundaries of 120,000 wetlands** in just three years

These programs showcase **community-led conservation**, emphasizing public engagement and local stewardship.

10.3 Use of Technology

India has integrated modern technology in wetland management through:

- **GIS-based Mapping** and **Remote Sensing** for monitoring
- **National Wetlands Portal** for data sharing and transparency
- **Citizen engagement apps** for reporting encroachments or issues

These innovations make India's model highly replicable, especially for **Global South nations** facing similar challenges.

Key Recommendations for India and the World:

1. **Integrate Ramsar COP15 resolutions into national wetland policies and strategies**.
2. **Promote behavioral change** through education, awareness, and public participation.
3. **Leverage community engagement** to ensure inclusive and localized wetland management.
4. **Increase international cooperation** for migratory species and transboundary wetlands.
5. **Develop financial mechanisms** to bridge the gap in wetland conservation funding.

As the **President of COP15** noted in the closing session, the success of these initiatives depends on their translation into **actionable, adequately funded, and community-supported frameworks**.

India's First Indigenous 1 MW Green Hydrogen Plant at Kandla Port

Topic Relevance:

- **GS Paper II** – Government Policies & Interventions
- **GS Paper III** – Environment, Energy, Infrastructure, Science & Technology

What's the News?

- On **July 31, 2025**, **Union Minister Sarbananda Sonowal** inaugurated **India's first Make-in-India 1 MW Green Hydrogen Plant** at **Deendayal Port Authority (DPA), Kandla, Gujarat**.
- The project is part of a larger **10 MW green hydrogen initiative**, the foundation for which was laid by **PM Narendra Modi** in May 2025 in Bhuj.
- The project is a major milestone in implementing the **National Green Hydrogen Mission**.

Objectives of the Project

- Accelerate India's move toward **green hydrogen adoption**.
- Reduce carbon emissions at ports and maritime operations.
- Promote **Aatma-Nirbhar Bharat** through indigenous technology.
- Serve as a model for other Indian ports under **Maritime India Vision 2030**.

Key Features of the 1 MW Green Hydrogen Plant

Parameter	Details
Capacity	1 Megawatt (MW)
Location	Kandla, Gujarat (Deendayal Port Authority)
Completion Time	Just **4 months**
Annual Output	~**140 metric tonnes** of Green Hydrogen
Technology	Fully **indigenous** – electrolyzer & components made in India
Execution Partner	**Larsen & Toubro (L&T)**
End-Use	Powering port operations: EVs (buses), street lights, and possibly ships

Why It Matters: Significance of the Project

1. Supports National Green Hydrogen Mission

- Aligns with India's goal to become a **global hub for green hydrogen**.
- Strengthens the country's **energy independence** and **climate resilience**.

2. Maritime Sector Decarbonisation

- Ports are major emitters due to diesel-based logistics and shipping.
- Green hydrogen offers a **clean energy alternative** to power maritime activities.

3. First-of-its-Kind Innovation

- **Make-in-India achievement**: All technology sourced and developed locally.
- Promotes **indigenous manufacturing and engineering excellence**.

4. Model for Other Ports

- Could inspire **replication at other ports**, transforming the port sector into a **green corridor**.
- Helps meet **Maritime India Vision 2030** and India's **Net Zero by 2070** targets.

Technical and Policy Backing

Linked to the National Green Hydrogen Mission

- Approved in January 2023
- Budget: ₹ 200 crores till FY 2025–26

- Objective: Promote **domestic electrolyzer manufacturing** and **hydrogen production** via renewable sources.

Other Green Maritime Initiatives

- Deployment of **India's first all-electric Green Tug** at Kandla
- Green Hydrogen hubs being identified under the mission
- Encourages **Public-Private Partnerships (PPPs)** and **indigenous R&D**

Challenges Ahead

- Need for **continued investment** to scale from pilot to national grid-level production.
- Establishing **supply chains** for hydrogen transport, storage, and usage.
- Balancing **economic feasibility** with technological advancement.
- Raising **public and institutional awareness** on green hydrogen applications.

What is Green Hydrogen?

- **Hydrogen** is called "green" when it is produced through **electrolysis of water** using **renewable energy sources** (like solar, wind).
- Unlike grey or blue hydrogen, **green hydrogen emits no greenhouse gases** during production.

About the National Green Hydrogen Mission (NGHM)

Feature	Details
Launched by	Government of India
Date Approved	January 4, 2023
Implementing Agency	**National Institute of Solar Energy (NISE)**
Budget Outlay	₹200 crore (till FY 2025–26)

Objective of the Mission

- To **make India a global hub** for **production, utilization, and export** of **Green Hydrogen** and its derivatives.

Key Components of the Mission

1. SIGHT Programme

(Strategic Interventions for Green Hydrogen Transition)

- **Two incentive mechanisms**:
  - **Domestic manufacturing of electrolysers**
  - **Production of green hydrogen**

Objective: Promote local value chain & reduce reliance on imported technology.

2. Pilot Projects

- Support for pilot projects in:
  - **Emerging end-use sectors** (e.g., steel, mobility, fertilizers)
  - **New production technologies** (like biomass-based hydrogen)

Objective: Promote early adoption and demonstration of green hydrogen applications.

3. Green Hydrogen Hubs

- Identification and development of **geographical regions** with potential for:
  - Large-scale **production**
  - Large-scale **consumption** (e.g. industrial clusters)

Objective: Create integrated ecosystems for hydrogen economy.

4. R&D via SHIP

(Strategic Hydrogen Innovation Partnership)

- Establish a **public-private partnership** for:
  - Cutting-edge **research**
  - Technology development
  - Innovation in green hydrogen ecosystem

Objective: Strengthen India's tech leadership in hydrogen technologies.

5. Skill Development

- Launch of a **coordinated skill development programme** to train workforce in:
  - Hydrogen production
  - Electrolyser operation

- Safety standards
- Infrastructure maintenance

Objective: Build skilled manpower for the green hydrogen sector

Conclusion

The **National Green Hydrogen Mission** is a landmark step toward India's **energy transition**, aiming to position the country as a **leader in the global green energy economy**. With strong government support, innovation, and industrial adoption, India can turn the hydrogen revolution into a powerful engine for **sustainable growth** and **climate leadership**.

Discovery of New Freshwater Crabs in Western Ghats, Kerala

GS III: Biodiversity | Conservation | Environment

Context

- In 2025, researchers from the **University of Kerala** and **National University of Singapore** discovered:
  - **A new genus and species**: *Kasargodia sheebae*
  - **A new species**: *Pilarta vaman*
- Both belong to the **freshwater crab family Gecarcinucidae**.
- Discovered in the **Western Ghats**, a global biodiversity hotspot.

Taxonomic Details

1. Kasargodia sheebae

- **New Genus + Species**
- **Location**: Ranipuram Hill Station, **Kasaragod district**
- **Published in**: *Journal of Crustacean Biology*
- **Etymology**:
  - *Genus name* **Kasargodia**: Derived from *Kasaragod* district.
  - *Species name* **sheebae**: Named after **Sheeba Smrithy Raj**, who assisted in fieldwork.
- **Description**:
  - Brownish-orange **carapace** with **black spots**.
  - Orange limbs with black spots.
  - Found in a **mountain stream** in grassland ecosystems.

2. Pilarta vaman

- **New Species** (existing genus: *Pilarta*)
- **Location**: **Gavi**, Pathanamthitta district
- **Published in**: *Zootaxa*
- **Etymology**:
  - *Vaman*: Named after **Vamana avatar** of Lord Vishnu, referencing its **small size**.
- **Description**:
  - More **quadrate carapace** (square-shaped).
  - Only **two specimens** found – indicating **rarity**.

Western Ghats: A Global Biodiversity Hotspot

- Recognised as one of the **eight 'hottest hotspots'** of biodiversity in the world.
- Extremely rich in **endemic species** — especially **freshwater crabs**.
- Many species remain **undiscovered or undescribed** due to:
    - **Nocturnal habits**
    - **Secretive behavior**
    - **Deep burrow dwelling**

***Prelims Fact*:** Over **70% endemism** in freshwater crabs in Kerala's Western Ghats – higher than any other faunal group in the region.

Conservation Concerns

- **Anthropogenic threats** to habitats:
    - Increasing **tourist activity** in **Ranipuram** and **Gavi**.
    - Disturbance of **mountain stream ecosystems** and **grasslands**.
- Species are already rare and habitat-specific — making them highly vulnerable.
- **Urgent need** for:
    - **Microhabitat protection**
    - **Sustainable ecotourism**
    - **In-situ conservation** strategies

NASA's CO_2 Satellites and Their Possible Shutdown

Context:

- The Trump-era U.S. administration reportedly asked **NASA** to prepare for the **shutdown of two key satellites** — **OCO-2** and **OCO-3** — that monitor **atmospheric carbon dioxide (CO_2)** and **crop health** from space.
- While NASA stated the missions were **"beyond their prime"** and needed to align with **budget priorities**, many scientists and experts argue these satellites remain **scientifically valuable and cost-effective**.

What are OCO Satellites?

- **OCO = Orbiting Carbon Observatory**
- These are **Earth-observing satellites** specifically designed to measure **CO_2 levels** in the atmosphere and support **climate change research**.

Timeline and Development

1. **OCO-1 (2009)**:
    - Launch failed due to a **fairing separation issue**, preventing it from reaching orbit.
2. **OCO-2 (2014)**:
    - Successfully launched.
    - Measures **CO_2 concentrations**, identifies **sources and sinks**, and detects **plant photosynthesis** through **solar-induced fluorescence**.
3. **OCO-3 (2019)**:
    - Installed on the **International Space Station (ISS)**.
    - Built using **spare components** from OCO-2.
    - Offers **time-variable observations** due to the ISS's orbit.

How Do They Work?

- **OCO-2** follows a **sun-synchronous polar orbit**, observing each location at the **same local time daily**. This ensures consistent data for long-term trends.

- **OCO-3** is mounted on the **ISS**, which orbits Earth every 90 minutes. It observes the same area at **different times of day**, providing **dynamic CO_2 data**.

Why Are OCO Missions Important?

1. Global CO_2 Monitoring

- Before the OCO missions, scientists mostly relied on **ground-based stations**, which gave **limited regional data**.
- OCO satellites enabled **global, high-resolution monitoring** of **CO_2 emissions**, their **sources**, and **absorption zones (sinks)**.

2. Climate Change Research

- CO_2 is the **primary greenhouse gas** responsible for **global warming**.
- The data helps:
  - Track **emission levels**.
  - Evaluate **carbon sinks** like forests and oceans.
  - Improve **climate models** and guide **climate policy**.

3. Scientific Discoveries

- It was traditionally believed that **tropical rainforests** absorbed the most CO_2.
- OCO-2 data revealed the crucial role of **boreal forests** (northern coniferous forests) in CO_2 absorption.
- Showed that **forests can become carbon sources** during **droughts**, **deforestation**, or **ecosystem stress**.

4. Agricultural Applications

- OCO satellites detect the **"glow"** emitted by plants during **photosynthesis** (solar-induced fluorescence).
- Benefits include:
  - Monitoring **crop health** and **growth cycles**.
  - Assessing **drought conditions**.
  - **Forecasting yields**.
- Used by agencies like **NASA**, **US Department of Agriculture**, and **private agricultural firms**.

What is the Cost?

Development Cost

- Approximately **$750 million** was spent to **design, build, and launch** OCO-2 and OCO-3.

Annual Operating Cost

- Around **$15 million per year**, including:
  - Data download
  - Calibration
  - Maintenance

Expert Views

- Scientists argue that the **operational costs are minimal** compared to the **value of the data**.
- Ending these missions would be **economically and scientifically shortsighted**.

What Happens Next?

- Both satellites are currently funded **until September 30, 2025**.
- The **U.S. Congress** may decide to **extend** or **terminate** the funding.

Conclusion

The OCO missions represent a **major leap in climate science** and **agricultural monitoring**. With climate change accelerating, these satellites provide **critical data** for understanding and managing Earth's carbon budget. Shutting them down could undermine **global scientific progress** and limit the **evidence-based approach** needed for environmental policymaking.

Collapse of Global Plastics Treaty Talks – August 2025

Why in News?

- The **5th round of negotiations** for a **Global Plastics Treaty** held in **Geneva, Switzerland** in August 2025 ended in failure after 11 days of closed-door meetings.
- **No consensus** was reached on the **revised draft treaty**, despite participation from **184 countries**.
- **India reiterated its opposition** to binding commitments on product phase-outs, aligning with a bloc of oil-producing nations.
- The failure is seen as a **major setback** in the global effort to combat plastic pollution.

Background: The Global Plastics Treaty Initiative

- In **2022**, the **United Nations Environment Assembly (UNEA)** adopted a resolution to **negotiate a legally binding global treaty** to end plastic pollution by **2025**.
- Since then, negotiations have taken place in:
    - **Uruguay**
    - **France**
    - **Kenya**
    - **Canada**
    - **Republic of Korea**
    - **Switzerland (Geneva) – August 2025**

Aim of the Treaty

- Address **global plastic pollution** through:
    - Life-cycle approach (production to disposal)
    - Reduction in plastic production
    - Control of hazardous chemicals
    - Promotion of sustainable alternatives

Key Issues in the Geneva Negotiation

Issue	High Ambition Coalition (HAC)	Like-Minded Bloc (incl. India, Kuwait)
Scope of Treaty	Entire life-cycle of plastics	Focus only on pollution and waste management
Production Cuts	Strongly supported	Opposed; concerns over development
Chemical Regulations	Ban on harmful additives	Opposed global phase-outs
Decision-making	Open to voting	Insist on **consensus only**
Legally Binding Measures	Strong preference	Prefer nationally driven, flexible approach

Details of the Draft Treaty (August 2025)

Chair's First Draft (Aug 13, 2025):

- Criticized for being **vague and inadequate**.
- Excluded:
    - Life-cycle approach
    - Definitions of plastics
    - Production cuts
    - Human health impacts
    - Transparency on chemicals

Revised Draft (Aug 14, 2025):

- Included:
    - Acknowledgement that "**current levels of plastic production and consumption are unsustainable**".
    - Reintroduction of language on **chemicals of concern**.
    - References to need for **global action**.
- Still failed to gain consensus; **no action taken**.

India's Position

> "There should not be a global listing of products or chemicals with phase-out dates at this stage." – **Joint Secretary, MoEFCC**

Key Points:

- **Opposes global product bans or phase-out mandates.**
- Treaty must respect **national circumstances** and be **implemented nationally**.

- Insists on **consensus-based decision-making**.
- Aligned with **Like-Minded Group of Developing Countries (LMDCs)** and **oil-exporting nations** such as **Kuwait**.

Global Positions

High Ambition Coalition (HAC) – ~100 Countries

- Includes: **EU (27 countries), UK, Norway, France, Canada, Rwanda, Kenya, Mexico, Panama**
- Call for:
  - **Legally binding** treaty
  - **Production caps**
  - Control of **toxic chemicals**
  - Full **life-cycle approach**

Like-Minded Bloc

- Includes: **India, Kuwait, other petrochemical producers**
- Oppose:
  - Production limits
  - Mandatory phase-outs
  - Inclusion of product-specific bans

Key Data and Facts

- **UNEA (2022)**: Initiated plastics treaty process.
- **OECD Projections**:
  - By **2040**, global plastic **production, use and waste** could rise by **70%** over 2020 levels (Business-as-usual scenario).
- **Microplastic Sources**:
  - Over **60%** of **primary microplastics** come from:
    * Synthetic textiles
    * Tyres

Implications of the Collapse

Missed Opportunity:

- Treaty could have been the **Montreal Protocol** of plastics.
- Missed chance to:
  - Protect **public health**
  - Regulate **toxic additives**
  - Promote **circular economy**

Scientific Concerns:

- Harmful chemicals in plastics linked to:
  - **Cancer**
  - **Hormonal disruption**
  - **Neurotoxicity**

Comparative Treaties: Lessons to Learn

Treaty	Outcome	Relevance
Montreal Protocol (1987)	Success	Phased out ozone-depleting substances; model for plastics
Kyoto Protocol (1997)	Mixed	Weak ambition; limited participation
Plastics Treaty (2025)	Collapsed	At risk of repeating Kyoto's failures

What Can Consumers Do?

Reduce Plastic Use:

- Say no to **single-use plastics**
- Choose **natural fibres**
- Wash clothes less frequently
- Prefer **cycling/walking** over cars

Demand Industry Change:

- Example: Microbeads banned due to **consumer pressure**
- Shift in demand can **influence manufacturers**

India's First Sustainable Aviation Fuel (SAF) Plant

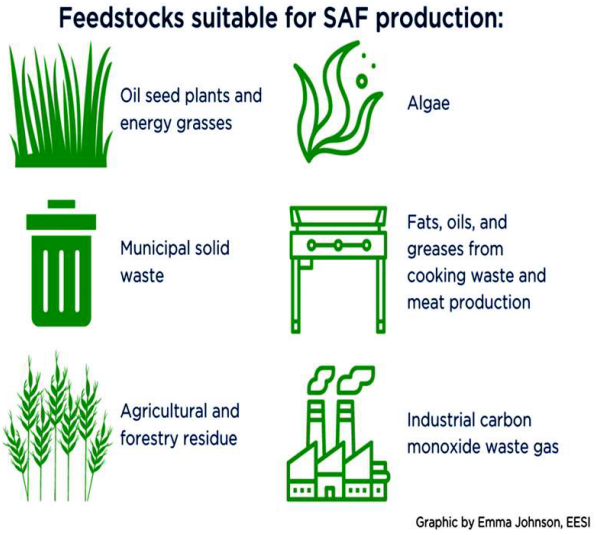
Sustainable Aviation Fuel (SAF) – India's First Plant at Panipat

Context

- On **August 18, 2025**, Indian Oil Corporation (IOC) announced that its **Panipat refinery** will begin **commercial-scale production** of **Sustainable Aviation Fuel (SAF)** by **December 2025**.
- The project marks a **major step in India's green transition** in aviation fuel and supports **global decarbonisation goals**.

What is SAF?

- SAF is a **biofuel** made from **sustainable feedstocks** (e.g. **used cooking oil**, agricultural waste, ethanol).
- It is like conventional **aviation turbine fuel (ATF)** and can be used in current aircraft engines.
- **Airbus** and others claim their aircraft can fly on **up to 50% SAF-ATF blends**.



Key Highlights of the IOC Project

- Location: **Panipat Refinery, Haryana**
- Production capacity: **35,000 tonnes/year** SAF from **used cooking oil** (UCO)
- Feedstock Sources: Major restaurant chains, hotels, food companies (e.g. **Haldiram's**)
- Challenge: **Collection from small users** and households

Certifications & Compliance

- IOC is the **first Indian company** to receive **ISCC CORSIA** certification.
  - **ISCC CORSIA**: A globally recognized sustainability certification required for SAF under:

    CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation).
  - This certification **authorizes commercial SAF production** and sets a **benchmark for other Indian refiners**.

Global & National Relevance

- **CORSIA Compliance**:
  - From **2027**, international airlines must **offset CO, emissions** beyond 2020 levels.
  - SAF blending is a key method to comply.
- **India's SAF Blending Targets** (set by the **National Biofuel Coordination Committee**):
  - **1% by 2027** (international flights)
  - **2% by 2028**
- **Potential Buyers**: European airlines (already subject to SAF mandates)
- **Export Prospects**: SAF demand is **expected to surge globally** in the coming years.

Future Pathways

- **Used Cooking Oil Pathway**: Certified and ready for launch
- **Alcohol-to-Jet Pathway**: IOC developing plants using **ethanol** to produce SAF
- **Multiple SAF Pathways Under Development**: Other Indian companies are also setting up SAF units (need certifications before operations begin)

Economic & Policy Challenges

- **High production cost**: SAF currently costs **3x** more than conventional jet fuel.
- **Airline Resistance**: Concerns about fuel cost escalation
- **Domestic SAF Mandates**: Government likely to wait until **2027** or later to mandate SAF for **domestic flights**

Why This Matters :

- **Decarbonising Aviation**: SAF could contribute **60% of the global aviation sector's emissions reduction**.
- **Circular Economy**: Utilizes waste (used cooking oil) for energy production.
- **Energy Security**: Reduces dependency on fossil fuels; aligns with India's **Net Zero 2070 goals**.
- **Green Diplomacy**: Positions India as a potential **SAF exporter**, strengthening international partnerships in climate action.

Red Algal Blooms in Indian Water Bodies

What Are Red Algal Blooms?

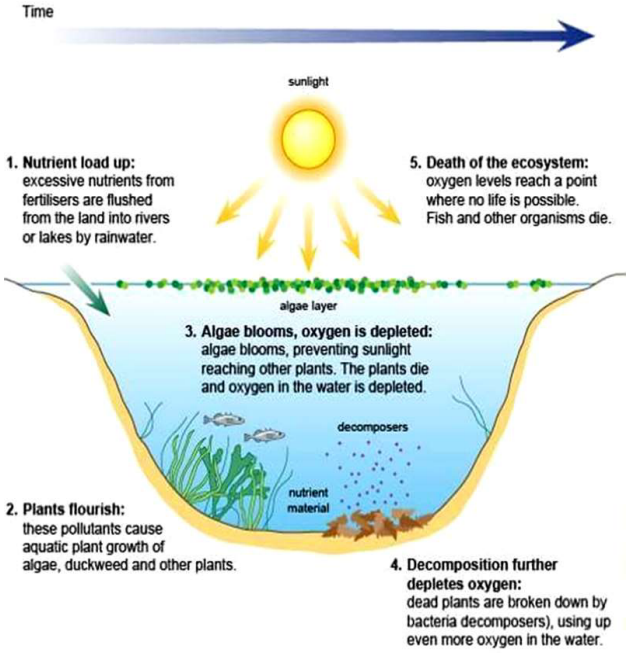
- Red algal blooms are **visible discolorations (red or pink)** of water surfaces caused by **microscopic photosynthetic organisms**.
- In Indian water bodies, these blooms are often not true algae but caused by **Euglenophytes**, specifically the genus **Euglena** and its relatives.
- These microorganisms thrive in **stagnant, nutrient-rich, oxygen-depleted waters**, especially in **urban and peri-urban lakes, ponds, ditches, and temple tanks**.

About Euglenophytes

Feature	Details
Scientific Group	Euglenophyta
Organism Type	Unicellular, flagellated protists
Common Genera in India	*Euglena*, *Phacus*, *Trachelomonas* species
Habitats	Stagnant freshwater, ditches, lakes with poor circulation
Feeding Mechanism	Mixotrophic – capable of **photosynthesis** and **absorbing organic matter**
Pigment Responsible for Red Colour	**Astaxanthin**, a fat-soluble xanthophyll pigment

Why Does the Water Turn Red?

- The **red or pink coloration** of the water during blooms is caused by **astaxanthin**, produced in high concentrations by certain Euglenophyte species.
- This occurs mostly in **eutrophic conditions** – environments rich in **nitrates and phosphates**, often due to:
    - Sewage discharge
    - Agricultural runoff
    - Industrial effluents



Negative Impacts of Euglenophyte Blooms

1. Oxygen Depletion

- **Photosynthesis occurs during the day**, but at night, Euglenoids **consume oxygen**, leading to **diurnal oxygen fluctuations**.
- This causes **hypoxia (low oxygen levels)**, affecting fish and other aquatic life.

2. Dense Surface Scums

- Blooms form **thick mats** that **block sunlight**, affecting submerged aquatic vegetation.
- Disrupts **photosynthesis of native plants**, impacting **lake productivity and ecological balance**.

3. Fish Mortality

- Euglenoid masses **clog fish gills**, suffocating them.
- Some species release **toxins such as euglenophycin**, causing direct mortality or weakening the food chain.

4. Aesthetic and Cultural Degradation

- **Foul odours, discolouration, and scum layers** degrade:
    - **Religious and cultural value** of temple tanks and community ponds
    - **Tourism and recreational use** of lakes

5. Water Treatment Challenges

- Blooms **clog filtration systems**, impart **bad taste and odour**.
- Increase the **cost and complexity** of treating water for domestic and drinking use.

6. Threat to Aquaculture

- Blooms reduce water quality and **disrupt fish health** in aquaculture ponds.
- Associated with **toxic alkaloids** that harm fish stock and reduce farm income.
- Documented economic losses in India due to such bloom events in the **21st century**.

Ecological Understanding Is Key

Gaps in Scientific Knowledge:

- **Limited research** on euglenoid ecology, especially in India.
- Need to understand:
    - **Seasonal abundance**
    - **Toxin production**
    - **Response to pH, temperature, and nutrient levels**

Importance of Monitoring:

- Regular **microscopic water quality analysis**
- **Long-term ecological assessments** of urban water bodies
- **Public awareness** on recognizing signs of ecosystem stress (e.g., red-coloured water)

The Indian Urban Context

- Urban water bodies are:
    - **Heavily polluted** due to untreated sewage and solid waste
    - **Nutrient-rich**, making them ideal for Euglenophyte proliferation
- These organisms have become **bio-indicators** of ecological degradation in Indian cities

Specific Impacts in India:

- **Signal of organic pollution and sewage contamination**
- **Oxygen depletion**, affecting fish and aquatic biodiversity
- **Surface mats** block light and ruin aesthetics
- **Filter clogging** in decentralized water treatment units
- **Community disconnection** from water bodies due to foul smell and poor visual quality

Red Water as a "Biological Red Flag"

- Much like a **red traffic light**, red water signals **"stop and take action"**.

- It is a **visible symptom of deeper ecological problems**, often linked to:
    - **Urbanisation**
    - **Poor wastewater management**
    - **Eutrophication from unchecked nutrient input**

Way Forward: Policy + Action

Immediate Actions Needed:

1. **Strengthen sewage and waste management**
2. **Implement regular monitoring** of algal communities
3. **Use ecosystem-based restoration** (e.g., constructed wetlands, native aquatic plants)
4. **Promote citizen science** and awareness
5. **Revive ecological research** in academic institutions

Policy Measures:

- Mandate **microscopic and chemical analysis** in urban lake management
- Implement **urban lake protection policies** with clear accountability
- Integrate **waterbody health indicators** into **urban planning** and **smart city initiatives**

International Big Cat Alliance (IBCA): UN-style Privileges Granted

Context: Recent Development (August 2025)

- On **August 8, 2025**, the **Government of India** extended **United Nations-style privileges and immunities** to the **International Big Cat Alliance (IBCA)** and its officials.
- This move follows the **Host Country Agreement** signed between India and IBCA.
- The legal basis for this decision is the **United Nations (Privileges and Immunities) Act, 1947**.

What Are UN-style Privileges and Immunities?

Aspect	Meaning
Privileges	Exemptions that enable international bodies to operate independently
Immunities	Protection from legal jurisdiction for official acts
Example Provisions	Tax exemption, inviolability of premises, immunity from legal process
Purpose	To help organisations operate without interference from host country governments

About the International Big Cat Alliance (IBCA)

Feature	Details
Launched	April 2023 by **Prime Minister Narendra Modi**
Type	Treaty-based **inter-governmental alliance**
Headquarters	**India** (New Delhi)
Objective	**Global collaboration** for **conservation of big cats**
Official Languages	As per UN protocols
Organisational Status	Now granted **diplomatic privileges** under Indian law

Species Covered Under IBCA (The 7 Big Cats)

Big Cat	Habitat	Range	IUCN Status
Tiger	Forests, mangroves, grasslands	India, Southeast Asia, Siberia	**Endangered**
Lion	Grasslands, scrublands	Africa, India (Gir Forest, Gujarat)	**Vulnerable**
Leopard	Forests, mountains, savannahs	Africa, South & Central Asia	**Vulnerable**
Snow Leopard	High-altitude mountains (3,000–5,500 m)	Himalayas, Central Asia	**Vulnerable**
Cheetah	Grasslands, open savannahs	Africa; reintroduced in India (Kuno, MP)	**Vulnerable (African) / CR (Asian)**
Jaguar	Rainforests, wetlands	Amazon basin, Central & South America	**Near Threatened**
Puma	Mountains, grasslands, forests	North to South America	**Least Concern**

Global Membership and Reach

- **95 member countries** (both range and non-range nations)
- **Stakeholders include**:
  - Governments
  - Scientific and research organisations
  - Conservation NGOs
  - Corporate and private sector partners

Aims and Objectives of IBCA :

Goal	Details
Conservation	Promote sustainable conservation of big cats and their habitats
Collaboration	Facilitate international partnerships and joint initiatives
Knowledge Exchange	Share best practices, scientific research, and policy frameworks
Capacity Building	Provide technical and financial support to member nations
Community Engagement	Promote local community participation in conservation efforts

First Assembly of IBCA (June 2025) :

Event Detail	Description
Location	**New Delhi, India**
Chairperson	**Bhupender Yadav**, Union Minister of Environment
Participating Countries	Bhutan, Cambodia, Eswatini, Guinea, India, Liberia, Suriname, Somalia, Kazakhstan
Key Outcomes	
- Endorsed leadership	**Bhupender Yadav** as President; **S.P. Yadav** as Director General
- Approved documents	**Headquarters Agreement**, **Workplan**, **Rules of Procedure**, and **Financial Regulations**

India's Leadership Role

- India is:
  - Home to a large population of **tigers, leopards, lions, and snow leopards**
  - A global leader in wildlife conservation efforts like **Project Tiger** and **Project Lion**
  - Actively involved in **reintroducing cheetahs** and supporting **transboundary species conservation**
- Hosting IBCA cements India's leadership in **global biodiversity diplomacy**.

About UN (Privileges and Immunities) Act, 1947

Aspect	Details
Purpose	To give effect in India to **UN Convention on Privileges and Immunities**
Applies To	UN, World Bank, international organisations like IBCA
Privileges Granted	Tax exemption, legal immunity, inviolability of premises, diplomatic protection
Impact on IBCA	Ensures **independent functioning**, protection from lawsuits or interference

Significance of the Move

- Reinforces **India's global environmental diplomacy**
- Promotes international **cooperation in wildlife conservation**
- Positions India as a **neutral and supportive host** for multilateral institutions
- Enables smoother functioning, legal protection, and **capacity building initiatives**

Way Forward

1. **Sustain International Collaboration**
    - Encourage more nations to join IBCA
    - Promote science-led, inclusive conservation frameworks
2. **Enhance Data Sharing and Research**
    - Develop global conservation databases
    - Standardize monitoring protocols for all 7 big cats
3. **Community-Based Conservation**
    - Integrate indigenous knowledge and livelihoods
    - Incentivize local stewardship of biodiversity
4. **Institutional Strengthening of IBCA**
    - Set up regional offices in key big cat habitats
    - Build financial sustainability mechanisms

❐❐❐

Geography

Krasheninnikov Volcano

The **Krasheninnikov Volcano**, an active stratovolcano in Russia's Kamchatka Peninsula, erupted for the first time in recorded history on August 2, 2025. This event, which occurred just three days after a massive magnitude 8.8 earthquake in the region, is significant as it signals the reawakening of a long-dormant volcanic system.

About Krasheninnikov Volcano

- **Location:** The volcano is situated in the **Eastern Kamchatka Peninsula, Russia**. This region is a part of the **Pacific "Ring of Fire,"** an area known for its frequent seismic and volcanic activity. The peninsula has 114 volcanoes that have erupted in the Holocene epoch.
- **Type:** It is a **stratovolcano** that rises to a height of 1,886 meters.
- **Geological Features:**
    - It is a **complex volcano**, made up of two eruptive cones within a large, 9-km wide caldera. A caldera is a large, cauldron-like depression formed after a major eruption causes a volcano's summit to collapse.
    - The southern cone features a crater that is 800 meters wide and 140 meters deep.

- **Recent Eruption:** The 2025 eruption produced ash emissions that reached an altitude of 20,000 feet, prompting an aviation warning. While the eruption is linked to the recent earthquake, scientists note that a volcano must already be "poised to erupt" for a tectonic event to trigger it.

What is a Stratovolcano?

A stratovolcano, also known as a **composite volcano**, is a tall, steep, and cone-shaped volcano built from alternating layers of hardened lava and tephra (volcanic ash and rock fragments).

- **Characteristics:**
    - They have a steep profile and a summit crater.
    - The lava they produce is typically **cooler and more viscous** than the basaltic lava of shield volcanoes.
    - The high viscosity of the lava prevents gases from escaping easily, allowing pressure to build up to high levels.
- **Eruption Style:** This pressure often results in **explosive and violent eruptions**, which can pose a significant hazard. The eruptions are a mix of both effusive lava flows and explosive pyroclastic material.
- **Global Presence:** Stratovolcanoes are the most common type of volcano, making up about 60% of individual volcanoes on Earth. They are typically found in **subduction zones**, which are common along the Pacific Ring of Fire.

Sawalkote Hydropower Project

India is moving to revive the long-stalled **Sawalkote Hydropower Project** on the Chenab River. This move comes months after India's decision to put the **Indus Waters Treaty (IWT)** on hold and is a strategic step to utilize its share of water resources from the Western rivers, which are primarily allocated to Pakistan under the treaty.

About Sawalkote Hydropower Project

- **Location:** Proposed on the **Chenab River** in the Ramban District of Jammu and Kashmir.
- **Type and Capacity:** It is a **2,185 MW run-of-the-river** hydroelectric plant. It will be the largest hydropower project in the Union Territory and one of the biggest in North India.
- **Dam:** The project would feature a **192.5-meter roller-compacted concrete gravity dam**, but since it's a run-of-the-river project, it won't create a large reservoir.
- **Significance:**
    - **Energy Security:** The project is expected to generate over 7,000 million units of electricity annually, which could turn Jammu and Kashmir into a power-surplus region.
    - **Flood Mitigation:** By regulating the river's flow, it could help mitigate floods downstream.
    - **Water Management:** The project will also aid in better water management for agriculture and domestic use in the region.

What is a Run-of-the-River Project?

- **Definition:** A run-of-the-river hydroelectric project generates electricity by using the natural flow of a river without creating a large reservoir by building a huge dam.
- **Mechanism:** It diverts a portion of the river's flow through a channel or pipe to a turbine. After generating power, the water is returned to the river, allowing the river's natural flow to continue.
- **Key Difference from Conventional Dams:** Unlike conventional hydroelectric projects that rely on a large storage reservoir, a run-of-the-river project has a minimal environmental footprint as it causes less land to be submerged.

Relevance to the Indus Waters Treaty (IWT)

- **Background:** The IWT was signed in **1960** between India and Pakistan, with the **World Bank** as a mediator, to govern the water usage of the six rivers of the Indus River System.
- **River Allocation:**
    1. **Eastern Rivers (Ravi, Beas, and Sutlej):** Allocated for India's exclusive and unrestricted use.
    2. **Western Rivers (Indus, Jhelum, and Chenab):** Primarily allocated to Pakistan. However, the treaty allows India to use their waters for specific non-consumptive purposes, including **hydropower generation**, without altering their flow.
- **Dispute Resolution:** The treaty provides a three-tier dispute resolution mechanism:
    1. **Permanent Indus Commission (PIC):** For addressing technical issues.
    2. **Neutral Expert:** To resolve disputes unresolved by the PIC.
    3. **Court of Arbitration:** A seven-member tribunal for adjudicating legal disputes.

El Salvador

El Salvador's ruling party recently passed a constitutional amendment that allows for indefinite presidential re-election and extends the presidential term from five to six years. This move, which paves the way for President Nayib Bukele to seek a third term, has drawn criticism from human rights groups and political opponents who fear it undermines the country's democracy.

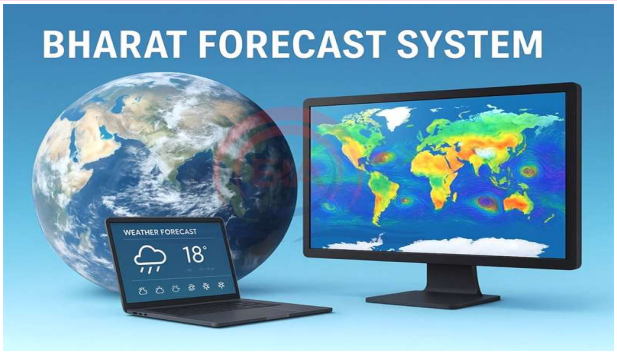
About El Salvador

- **Geography:** El Salvador is a small, mountainous nation located in **Central America**. It is the only Central American country that does **not have a coast on the Caribbean Sea**, with its entire coastline facing the Pacific Ocean.
- **Borders:** It shares its borders with **Honduras** to the northeast and **Guatemala** to the northwest.
- **Capital City:** The capital and largest city is **San Salvador**.
- **Topography:** The country's terrain is dominated by a volcanic chain that is part of the larger Sierra Madre mountains. The landscape consists of a mix of mountains, valleys, and a volcanic plateau.
    - **Volcanoes:** The volcanic chain includes several well-known volcanoes such as San Salvador, Ilopango, and San Vicente.

- **Highest Point:** The highest point in the country is **Cerro El Pital**, at 2,730 meters (8,957 feet), located on the border with Honduras.

- **Hydrology:** The **Lempa River** is a major transboundary river that flows through El Salvador, Guatemala, and Honduras, playing a significant role in the country's geography. Major lakes include **Lake Ilopango** (a crater lake), **Lake Coatepeque**, and **Lake Güija**.
- **Climate:** El Salvador has a tropical climate, but the temperatures are moderated by elevation in the interior regions. The Pacific lowlands are generally hot and humid, while the highlands are much cooler and more moderate.

Bharat Forecast System (BharatFS)



Why in News?

- The Union Minister of State for Science and Technology and Earth Sciences recently informed the Rajya Sabha about the development and operationalization of the **Bharat Forecast System (BharatFS)**.

About the Bharat Forecast System

- **Nature**: The BharatFS is a new, **indigenously developed** weather forecasting system that represents a significant upgrade to India's meteorological capabilities. It is based on a newly implemented **Triangular Cubic Octahedral (TCo) dynamical grid**.
- **Key Features**:
  - **High Resolution**: The system operates at a **6 km horizontal resolution**, allowing for highly localized forecasts that can cater to a cluster of villages or panchayats. This surpasses its predecessor (GFS T1534, ~12 km) and other typical global models (9-14 km).
  - **Improved Accuracy**: In research mode, BharatFS has shown a significant improvement in rainfall forecasts over the core monsoon region. It has also demonstrated **30% better accuracy** in predicting extreme rainfall events.
  - **Infrastructure**: The system is supported by India's high-performance supercomputing facilities, **Arka (IITM-Pune)** and **Arunika (NCMRWF-Noida)**, which enable real-time weather prediction.
- **Development**: BharatFS was developed through a collaborative effort by scientists from leading Indian institutions, including the **Indian Institute of Tropical Meteorology (IITM-Pune)**, with support from the **National Centre for Medium Range Weather Forecasting (NCMRWF-Noida)** and the **India Meteorological Department (IMD)**.
- **Significance**: The system's ability to provide precise, localized forecasts offers immense value for various sectors. Farmers can use the data for crop planning, irrigation scheduling, and harvesting. Additionally, water authorities can better manage reservoirs during the monsoon season, which helps reduce the risk of floods and improves crop resilience. The development of BharatFS also reinforces India's regional leadership and self-reliance in the field of meteorology, allowing it to support neighboring countries.

Dardanelles Strait

Why in News?

- Turkey recently closed the **Dardanelles Strait** to all shipping traffic due to extensive **forest fires** in the surrounding area. The closure underscored the strait's critical importance as a global maritime artery.

About the Dardanelles Strait

- **Geographical Location**: The Dardanelles is a narrow and vital strait located in **northwestern Turkey**. It forms a natural boundary, separating the **Gallipoli Peninsula in Europe** from the westernmost tip of **Asia Minor**.
- **Connectivity**: It serves as a crucial waterway connecting the **Aegean Sea** and the **Sea of Marmara**. Together with the **Bosporus Strait**, it forms the only sea link between the **Black Sea** and the global oceans.
- **Dimensions and Names**: The strait is 61 km long and its width varies from 1.2 to 6.5 km, making it one of the narrowest international navigation passages. Historically, it was known as the **Hellespont**, meaning "Helle's sea," a reference to a mythical princess. Its current name is derived from the ancient city of Dardanus.
- **Associated Ports**: Key ports located along the shores of the Dardanelles include **Gallipoli, Eceabat, and Çanakkale**, all within Turkey.

Tato-II Hydroelectric Project

Why in News?

- The **Cabinet Committee on Economic Affairs (CCEA)** has given its approval for a significant investment of **₹ 8,146.21 crore** for the construction of the **700 MW Tato-II Hydro Electric Project (HEP)** in the **Shi Yomi district** of Arunachal Pradesh.

About the Tato-II Hydroelectric Project

- **Project Overview**: The Tato-II HEP is a **700 MW**, **run-of-river** hydroelectric project planned on the **Siyom River** in Arunachal Pradesh. A run-of-river project generates electricity using the natural flow of a river, rather than creating a large reservoir by damming it.
- **Implementation and Cost**: The project, with a sanctioned cost of ₹ 8,146.21 crore, will be implemented as a joint venture between the **North Eastern Electric Power Corporation Ltd (NEEPCO)** and the Government of Arunachal Pradesh.
- **Benefits and Output**:
    - It is expected to generate **2,738.06 million units** of energy annually.
    - The power generated will not only improve the electricity supply within Arunachal Pradesh but also contribute to balancing the national grid.
    - The state of Arunachal Pradesh will receive **12% of the power free of cost**, along with an additional **1%** allocated for the **Local Area Development Fund (LADF)**.

BHU-NEER Portal

Why in News?

- The **Minister of State for Jal Shakti** recently provided information about the new **BHU-NEER Portal** in a statement to the Lok Sabha.

About the BHU-NEER Portal

- **Launch and Purpose**: The BHU-NEER Portal was rolled out in 2024 by the **Central Ground Water Authority (CGWA)**, which operates under the **Ministry of Jal Shakti**. Its primary goal is to establish an efficient system for the regulation of groundwater development and management across India. The portal serves as a platform for filing **No Objection Certificate (NOC)** applications for groundwater abstraction.
- **Key Features**: The portal is a significant upgrade from its predecessor, NOCAP, offering a streamlined, user-friendly experience. Its key features include:
    - A **centralized database** providing access to crucial information on groundwater policies, compliance, and sustainable practices.
    - A **PAN-based single ID system** to simplify the application process for users.
    - **NOCs with a QR code** for enhanced security and easy verification.
- **Scope**: The portal is specifically designed for the online processing of NOC applications from **industries, infrastructure projects, and mining projects** that require groundwater extraction.
- **Significance**: By helping to enforce guidelines aimed at curbing indiscriminate groundwater extraction, the BHU-NEER Portal is a key tool for promoting the sustainable management and development of the country's groundwater resources.

Phoenix roxburghii

Why in News?

- Researchers have recently identified and named a new palm species, ***Phoenix roxburghii***. The discovery is significant for botany and was named after **William Roxburgh**, who is known as the "father of Indian Botany" for his extensive work on the flora of the Indian subcontinent.

About *Phoenix roxburghii*

- **Overview**: ***Phoenix roxburghii*** is a newly identified palm species that grows to a height of 12 to 16 meters. While it shares some physical similarities with the common wild date palm, *Phoenix sylvestris*, its unique features have allowed it to be classified as a distinct species.
- **Distinguishing Features**: It can be differentiated from its close relative by its taller and solitary trunk, larger leaves and leaflets, staminate flowers with a musty scent, and larger, obovoid orange-yellow fruits.
- **Distribution**: The palm is found along the eastern coast of India and in parts of Bangladesh, Gujarat, Rajasthan, and Pakistan.

Key Facts about Palm Trees

- Palm trees belong to the **Arecaceae** or **Palmae** family, a single family of monocotyledonous flowering plants. They are **evergreen** and can grow in various forms, including shrubs, trees, or long, woody vines called lianas.
- Palms are distributed widely across the world, thriving in America, Asia (from India to Japan and Australia), and Africa.
- The coconut palm and the African oil palm are of major commercial importance globally, as they are primary sources of vegetable oil and fat.

Sulawesi Island

Why in News?

- The Indonesian island of **Sulawesi** was recently hit by an earthquake of magnitude 5.7. This event highlights the island's location within a highly active seismic zone.

About Sulawesi Island

- **Geographical Overview**: Formerly known as **Celebes**, Sulawesi is a large island in the Indonesian archipelago and the **11th largest island in the world**. Its most distinctive geographical feature is its shape, which consists of four interconnecting peninsulas. It is surrounded by other major islands, including Borneo to the west and the Philippines to the north.
- **Physical Features**: The island's terrain is predominantly **mountainous** and home to several active volcanoes. Its highest peak is **Mt. Ratenkombola**, standing at 3,455 meters. Sulawesi also contains thirteen freshwater lakes, including **Lake Matano**, the deepest lake in Southeast Asia.
- **Demographics and Ecology**: Sulawesi is home to seven major ethnic groups, including the Buginese, Toraja, and Makassarese. While the island is known for its extensive rainforests, these have faced significant deforestation due to human activity. **Makassar** is the largest city on the island.

Almond Cultivation

Why in News?

- The recent **bumper almond harvest** in Kashmir has brought significant economic relief and happiness to local farmers. The harvest is not just a seasonal agricultural event but also holds cultural importance for the region.

About Almond Cultivation

- **Overview**: Almonds are among the world's oldest and most significant tree nut crops. They are broadly classified into two main types: **sweet almond** and **bitter almond**.
- **Cultivation Requirements**:
  - **Climate**: Almonds thrive in the climate of colder regions.

- **Temperature**: The ideal temperature range for their growth is between 7°C to 24°C.
- **Soil**: Deep, loamy, and well-drained soils are most suitable.
- **Rainfall**: They require an average annual rainfall of 75 to 110 cm.
- **Altitude**: Almond plants can be grown at altitudes ranging from 750 to 3,200 meters above sea level.

- **Major Producers**: Globally, the top producers of almonds are the USA, Australia, Spain, and Turkey. In India, cultivation is concentrated in the hilly, colder regions of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, and parts of Kerala and Andhra Pradesh.
- **Uses and Challenges**: Almonds are a versatile crop, used in various products such as sweets, milk, and oils. However, the cultivation of almonds faces several challenges, including erratic weather patterns, limited access to modern farming techniques, competition from cheaper imports, shrinking agricultural lands, and insufficient policy support.

Mt Elbrus

Why in News?

- A mountaineer from **Arunachal Pradesh** recently successfully climbed **Mt Elbrus**, the highest peak in Europe. The ascent has once again brought attention to this prominent mountain, which is a key part of the world's **Seven Summits**.

About Mt Elbrus

- **Geographical and Geological Overview**: Mt Elbrus is an inactive **volcano** located in the **Caucasus Mountains** in southwestern Russia. It is the highest point in both Russia and all of Europe, with an elevation of 18,510 feet (5,642 meters). Geologically, the Caucasus Mountains, including Mt Elbrus, were formed by the northward collision of the Arabian and Eurasian tectonic plates. The volcano itself was formed over 2.5 million years ago and consists of two principal dormant volcanic domes.
- **Significance**: Mt Elbrus is one of the Seven Summits, the highest mountains on each of the seven continents. It is part of the Prielbrusye National Park.
- **Climate and Features**: The climate of Mt Elbrus is generally cold, with nighttime temperatures remaining below freezing even in the summer. The mountain's major glaciers, the **Bolshoi Azaou** and **Irik Glacier**, are the source of many important Russian rivers, including the Baksan, Malka, and Kuban.

Halman Apricot

Why in News?

- In a landmark achievement, a 1.5-metric-ton consignment of **Halman apricots** was exported for the first time to Saudi Arabia, Kuwait, and Qatar. This represents a

significant step in expanding the reach of Ladakh's agricultural products into international markets.

About Halman Apricot

- **Overview**: Halman apricot is a premium variety of *Prunus armeniaca L.* found in Ladakh, India, and is considered one of the finest apricots in the world. It is believed to have been introduced to the region from China or Central Asia over a century ago.
- **Distribution and Cultural Significance**: The apricot is widely distributed throughout Ladakh, particularly in the western part known as Sham. Its rich flavor and versatility have made it an indispensable part of Ladakhi culture, featuring prominently in local cuisine, traditional medicine, and festive rituals.
- **Nutritional Profile**: Nutritionally, the Halman apricot is a powerhouse of essential compounds. It is rich in vitamins such as **Vitamin C and E**, and minerals like **potassium, magnesium, and iron**. It is also a good source of dietary fiber and antioxidants.

Palmyra Palm Tree

Why in News?

- In Odisha, **palmyra palm trees** are providing a dual benefit by acting as natural lightning conductors, thereby reducing lightning-related fatalities, and serving as an alternative food source for elephants during lean seasons.

About Palmyra Palm Tree

- **Overview**: Commonly known as the **sugar palm**, **toddy palm**, or **fan palm**, the Palmyra palm is native to tropical Africa but is now cultivated extensively throughout India. In India, it is often planted on plains to act as a **windbreak**.
- **Cultivation and Climate**: This versatile tree is highly adaptable and can grow in a wide variety of soils, including arid and wastelands. It thrives in semi-arid regions with less than 750 mm of annual rainfall and can be cultivated from sea level up to 800 meters. The tree is primarily propagated through seeds, as no vegetative method is available.
- **Benefits and Uses**:
    - **Biodiversity**: It provides a natural shelter for birds, bats, and other wild animals.
    - **Food and Products**: The sweet sap, known as **toddy**, is a key product. The tree also yields **Palmyra jaggery (gur)**, which is significantly more nutritious than crude cane sugar. All parts of the tree, including the wood, fruits, stems, and leaves, are used to produce a variety of items such as food products, beverages, furniture, and handicrafts.
    - **Traditional Livelihood**: The **Nadar community** in India has traditionally relied on the Palmyra palm for their livelihood, utilizing every part of the tree to create a diverse range of products.

Kalai-II Hydroelectric Project

Why in News?

- The Arunachal Pradesh State Pollution Control Board (APSPCB) recently held a public hearing for the environmental clearance of the proposed **Kalai-II hydroelectric project**. This process is a crucial step towards the development of the 1,200 MW project.

About Kalai-II Hydroelectric Project

- **Overview**: The Kalai-II is a large-scale, **1,200 MW hydropower project** being developed by **THDC India Limited**. It is located in the **Anjaw District** of Arunachal Pradesh and is planned on the **Lohit River**, a major tributary of the Brahmaputra River.
- **Project Type**: The project is a **run-of-river with pondage** type, which means it uses the natural flow of the river to generate electricity with minimal water storage. This design typically has a smaller environmental footprint compared to large dams with extensive reservoirs.
- **Key Components**: The project involves the construction of a number of significant structures, including a concrete gravity dam, a diversion tunnel, and an underground powerhouse complex with six turbines, each with a capacity of 190 MW. The hydro reservoir is planned to have a capacity of 318.8 million cubic meters.
- **Significance**: The project is part of India's larger push to harness the hydropower potential of its Himalayan rivers to meet growing energy demands and achieve clean energy targets. However, such projects in the fragile Himalayan ecosystem are often subject to environmental concerns, including geological instability and potential impacts on riverine ecology.

GIAHS Programme

Why in News?

- The Minister of State for Agriculture and Farmers Welfare recently informed the Lok Sabha that India has three designated **Globally Important Agricultural Heritage Systems (GIAHS)** sites, recognizing their unique traditional farming methods and biodiversity.

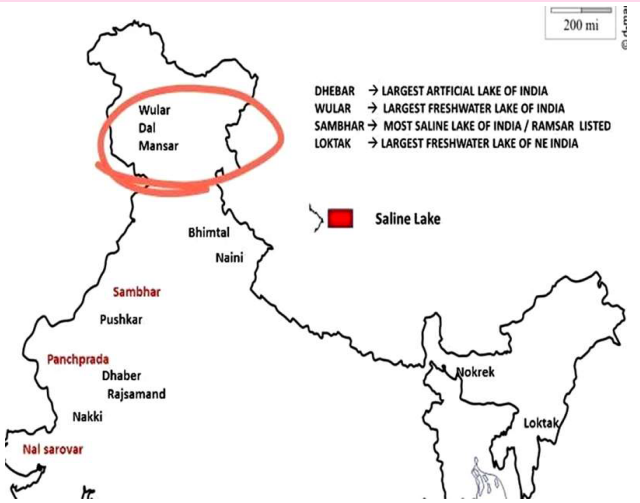
About the GIAHS Programme

- **Overview**: The GIAHS programme, led by the **Food and Agriculture Organization (FAO)** of the United Nations, was launched at the **World Summit for Sustainable Development in 2002**. Its goal is to identify and safeguard outstanding agricultural systems that have been shaped over centuries by human ingenuity and adaptation to their environment.
- **Objectives**: The programme aims to strike a balance between **conservation**, sustainable development, and socio-economic progress. It addresses global threats to family farming and traditional agricultural practices, such as climate change, biodiversity loss, and community displacement, by helping farmers

mitigate these risks while enhancing the benefits of their unique systems.

- **Implementation**: The GIAHS programme utilizes a multi-stakeholder approach. It provides **technical assistance**, promotes the value of traditional knowledge, and creates market opportunities through initiatives like agrotourism and branding of local products.
- **India's GIAHS Sites**:
    - **Koraput (Odisha)**: This region is a testament to traditional **paddy cultivation** on highland slopes. It is home to a vast diversity of rice landraces and has rich genetic resources of medicinal plants, all conserved through the traditional knowledge of indigenous tribal communities.
    - **Kuttanad (Kerala)**: This is a unique farming system located **below sea level**. The landscape is a mosaic of wetlands used for paddy cultivation and fishing, along with elevated lands for growing crops like coconuts.
    - **Saffron Park (Kashmir)**: This agro-pastoral system is known for its traditional **saffron cultivation** and the practice of intercropping, which helps maintain local biodiversity and soil health.

Dal Lake



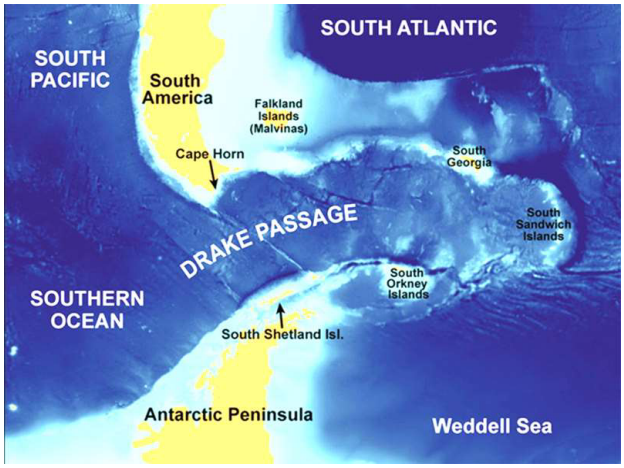
Why in News?

- The iconic **Dal Lake** in Srinagar recently hosted the first-ever races for rowing, kayaking, and canoeing as part of the **Khelo India Water Sports Festival**. This event, jointly organized by the **Sports Authority of India (SAI)** and the **J&K Sports Council**, marks a significant step in promoting water sports and revitalizing the region's infrastructure.

About Dal Lake

- **Geographical Overview**: Situated in Srinagar, Jammu and Kashmir, Dal Lake is a mid-altitude urban lake. It is surrounded by the majestic **Pir Panjal mountains** and is known as the "**Jewel in the crown of Kashmir**" or "**Srinagar's Jewel**" due to its integral role in the region's tourism and recreational activities.
- **Key Features**:
    - The lake's shoreline is famously lined with a boulevard featuring Mughal-era gardens, parks, and hotels.
    - It is a natural lake and is also called the "Lake of Flowers."
    - Causeways divide the wetland into four distinct basins: Gagribal, Lokut Dal, Bod Dal, and Nagin.
    - The Lokut Dal and Bod Dal basins each contain an island at their center, known as **Rup Lank** (or Char Chinari) and **Sona Lank**, respectively.
    - The lake is renowned for its **floating market**, where vendors sell goods from their traditional wooden boats, called **Shikaras**.

Drake Passage



Why in News?

- The **Drake Passage** recently experienced a powerful **7.5 magnitude earthquake**, which briefly prompted a tsunami alert. The event drew international attention to the geological and climatic significance of this crucial waterway.

About Drake Passage

- **Location and Geography**: The Drake Passage is a deep and wide waterway located between **Cape Horn** at the southern tip of South America and the **South Shetland Islands** of Antarctica. It serves as a vital connection between the southwestern Atlantic Ocean and the southeastern Pacific Ocean, and at approximately **800 km wide**, it is the narrowest stretch of the **Southern Ocean**.
- **Significance and Challenges**:
    - **"Roughest Waterway"**: The passage is notoriously one of the most treacherous in the world. This is due to the collision of cold seawater from the south and warm seawater from the north, which creates powerful eddies. When combined with the strong westerly winds, these conditions pose a significant challenge for navigation.
    - **Climatic Transition Zone**: It acts as a major climatic boundary, separating the cool, humid subpolar climate of **Tierra del Fuego** from the frigid, polar conditions of Antarctica. This geographical feature allows for the unimpeded flow of the **Antarctic Circumpolar Current**, which is a key driver of global ocean circulation.
    - **Historical Context**: Before the opening of the **Panama Canal** in 1914, the Drake Passage was a critically important trade route for ships traveling between the Atlantic and Pacific oceans, despite its difficult and dangerous conditions.

Spratly Islands

Why in News?

- A recent report from a U.S. think tank indicates that Vietnam has significantly accelerated its island-building activities in the **Spratly Islands** and is on a trajectory to match or even surpass the scale of such work by China. This escalating construction highlights the intensifying territorial disputes in the South China Sea.

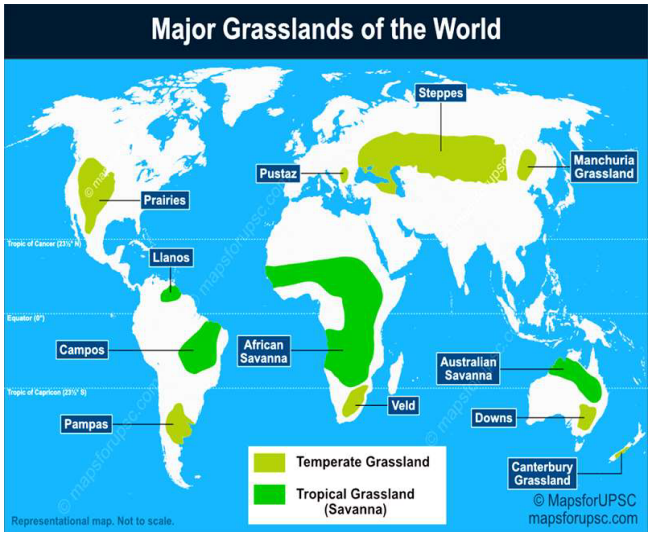
About Spratly Islands

- **Geography and Location**: The Spratly Islands are a vast archipelago of reefs, shoals, and

small islets located in the **South China Sea**, approximately halfway between Vietnam and the Philippines. Spread over an area of about 158,000 square miles, many of these features are submerged. The largest naturally occurring islet is **Itu Aba**, and the only wildlife found there are turtles and seabirds, as the islands have no permanent human inhabitants.

- **History of Claims**: The islands have a complex history of ownership. France held them from 1933 to 1939, and during World War II, they were occupied by Japan. After Japan renounced its claim in 1951, several nations, including China, Taiwan, and Vietnam, declared themselves the rightful owners. The Philippines added a claim in 1955 based on its proximity to the islands.
- **Disputed Ownership**: The Spratly Islands are the subject of extensive territorial disputes. They are claimed in their entirety by **China, Taiwan, and Vietnam**, while portions are also claimed by **Malaysia and the Philippines**. Although **Brunei** does not claim any territory within the islands, it does claim an exclusive economic zone that overlaps with the area of a Spratly reef.

Prairies



Why in News?

- Recent conservation efforts, including the launch of a new database, are aimed at more comprehensively restoring the **prairies**. These initiatives underscore the importance of preserving one of the world's most endangered ecosystems.

About Prairies

- **Overview**: Prairies are vast, flat **temperate grasslands** found predominantly in North America. They are known for being one of the most productive and diverse terrestrial ecosystems on Earth. Located in regions with low to moderate annual rainfall, prairie vegetation is naturally maintained by disturbances like **grazing, fire, and drought**.
- **Vegetation and Adaptations**:
    - While grasses are the dominant plant life, prairie vegetation also includes lichens, mosses, forbs, and shrubs. Trees like willows and poplars are generally limited to moist areas like depressions and valleys.
    - The grasses have several key adaptations that allow them to thrive in this environment, including:
        * **Deep or extensive root systems** to access water and withstand grazing.
        * Growing points located at or near the soil surface, protecting them from fire and grazing animals.
        * Narrow leaves and tough stems hardened with **silica phytoliths** (plant stones).
        * Strategies to optimize **photosynthesis** while minimizing moisture loss.

- **Wildlife and Global Comparisons**:
    - The wildlife species of the prairies, such as elk, deer, coyotes, and jackrabbits, have adapted to the semi-arid, open, and windy environment.
    - Similar temperate grasslands exist in other parts of the world, but they are known by different names:
        * **Pampas** in South America
        * **Velds** in Africa
        * **Steppes** in Asia

Gangotri Glacier

Why in News?

- According to a recent study by IIT Indore and other international collaborators, the **Gangotri Glacier** has lost **10%** of its snowmelt flow over the past four decades due to the impacts of climate change. This research highlights the significant and accelerating retreat of this vital Himalayan glacier.

About Gangotri Glacier

- **Overview**: Located in the Garhwal Himalayas of Uttarakhand, the Gangotri Glacier is one of the largest in the Himalayan range. It lies in the Uttarkashi district at an altitude of approximately 4,000 meters, bordering Tibet. The glacier is about **30 km long** and 4 km wide.
- **Origin of the Ganges River**:
    - The Gangotri Glacier is the **primary source** of the Ganges, India's most significant river.
    - Its terminus, or snout, is popularly known as **Gaumukh** (meaning "cow's mouth") due to its shape.
    - The **Bhagirathi River** emerges from the Gaumukh, and it is this river that later joins the Alaknanda River at **Devprayag** to form the main stream of the Ganges.
    - The glacier is fed by snow and ice from surrounding peaks, including Shivling, Thalay Sagar, Meru, and Bhagirathi III.
- **Religious Significance**: The Gangotri Glacier holds immense religious importance for Hindus, who consider the Ganges a sacred river. Thousands of pilgrims undertake the arduous trek to Gaumukh every year to witness the source of the river and offer prayers.

EDITORIALS

Crux of The Hindu & Indian Express

Geography

Mithun Conservation and Inclusion in National Livestock Mission

1. Introduction:

- Scientists and tribal farmers from Northeast India have appealed to the Central Government to include **Mithun (Bos**

frontalis), a **semi-domesticated bovine species** native to the region, under the **National Livestock Mission (NLM)**.

- The appeal aims to address the **declining population** of this culturally and economically significant species and ensure **sustainable livestock development** in the **tribal-dominated hill states** of the Northeast.

2. About Mithun (Bos frontalis)

2.1 Biological and Cultural Profile

- Mithun is a semi-domesticated bovine species found mainly in the forested hills of **Arunachal Pradesh, Nagaland, Manipur, Mizoram**, and parts of **Assam**.
- It is recognized for its **high-quality meat and milk**, and plays a critical role in **food security**, **customary rituals**, and the **socio-cultural identity** of several tribal communities.
- Mithun is the **state animal of both Arunachal Pradesh and Nagaland**, underlining its deep cultural and regional significance.

2.2 Population Data

- As per the **2019 Livestock Census**, India houses around **3.9 lakh mithun**, accounting for **95% of the global mithun population**.
- **Arunachal Pradesh alone accounts for 91%** of India's mithun count, making it the epicentre of mithun husbandry.

3. Current Concerns and Challenges

Despite its ecological and cultural importance, mithun remains **excluded** from key central sector schemes such as the **National Livestock Mission (NLM)**. This exclusion has significant implications:

- **Lack of scientific infrastructure** for breeding, feeding, and disease control.
- **No financial assistance** or incentives for mithun farmers.
- **Absence of value addition** efforts and market integration.
- **Indiscriminate slaughtering** and **unscientific farming** practices have accelerated population decline.
- **Remote geography and low institutional reach** have prevented effective state-level interventions.

4. Grassroots Support from Farmer Federations

- The **Jomlo Mongku Mithun Farmer Federation** from **Siang district**, Arunachal Pradesh, also raised the issue.
- The Federation Chairman, **Tadang Tamut**, urged intervention from **MPs Kiren Rijiju and Tapir Gao**, emphasizing that tribal farmers remain marginalized due to lack of government support.
- Tamut stated that **mithun is more than livestock**—it is a symbol of tribal **identity, economy, and traditional values**.
- He argued that inclusion in NLM could **raise mithun's market value**, improve **rural incomes**, and **strengthen conservation**.

5. National and International Recognition of Mithun

- **The Food Safety and Standards Authority of India (FSSAI)** formally **recognized mithun as a food animal** effective from **September 1, 2024**.
- This move legally permits regulated slaughter and meat trade under food safety norms.
- Mithun is also listed in the **Domestic Animal Diversity Information System (DAD-IS)** of the **Food and Agriculture Organization (FAO)**, Rome, underlining its global significance as a genetic resource

6. About the National Livestock Mission (NLM)

- Launched in **2014**, the **National Livestock Mission** aims to **sustainably develop the livestock sector** through support in breeding, feed production, health services, and farmer training.

- It covers **cattle, buffalo, sheep, goat, pig, poultry, and other livestock species**, but **excludes mithun**, despite its importance in certain agro-ecological zones.

Key Components of NLM:

1. **Breed Development** of indigenous species
2. **Fodder and Feed Development**
3. **Animal Health and Disease Control**
4. **Skill Development and Entrepreneurship**

7. Why Inclusion of Mithun in NLM Matters

Scientific Reasons

- Enables **targeted research and breeding programs**.
- Promotes **disease surveillance** and **veterinary infrastructure** in remote areas.
- Encourages **scientific rearing** and feed improvement practices.

Economic and Livelihood Impact

- Supports **livelihood security** of tribal farmers in **hard-to-reach areas**.
- Enhances **market value** of mithun meat and milk products.
- Can create **entrepreneurial opportunities** in animal husbandry and agro-processing.

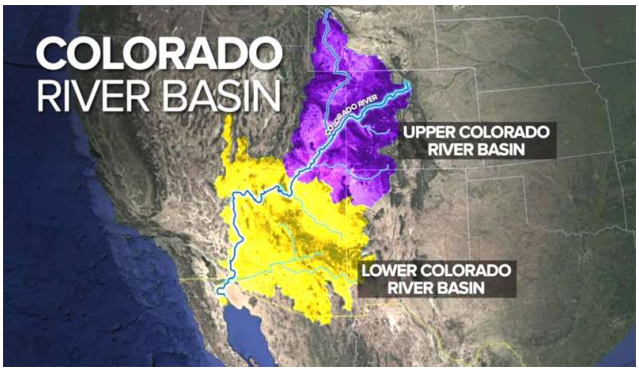
Cultural and Social Importance

- Preserves **indigenous livestock practices** and **tribal traditions**.
- Strengthens **community-based conservation** models.
- Acts as a **social currency** in tribal transactions and ceremonies.

Way Forward

- The Central Government should take immediate steps to **include mithun in the National Livestock Mission** and other related schemes such as **Rashtriya Gokul Mission** and **Livestock Health and Disease Control (LHDC)**.
- A **Mithun Development Board** or a **breed-specific sub-mission** could be set up to coordinate research, outreach, and capacity building.
- **Tribal institutions and farmer federations** should be empowered through training, financial inclusion, and cooperative-based market linkages.
- The ICAR-NRCM should be supported to become a **Centre of Excellence** in mithun research, similar to those for cattle or sheep.
- **Cross-sectoral policy convergence** between **animal husbandry**, **tribal affairs**, and **rural development** is needed to ensure holistic growth.

Colorado River Water Crisis (Explained)



GS II: Federalism, Inter-State Relations | GS III: Water Resources, Climate Change, Environment

Introduction

- The **Colorado River**, one of North America's most important water bodies, is drying up due to a combination of **climate change**, **drought**, and **mismanagement**.
- As water levels drop, the **seven U.S. states** that depend on the river are engaged in complex negotiations to determine future **water rights**.
- At stake are the livelihoods of **farmers**, the water security of **millions of people**, and the rights of **Native American tribes**.
- The crisis also highlights the challenges of managing shared natural resources in a **federal system** under climate stress.

Why the Colorado River Matters

- **Geography**:
  - Runs through **7 U.S. states** (Colorado, Utah, Wyoming, New Mexico, Arizona, Nevada, California) and **Mexico**.
  - Divided into **Upper Basin** (CO, NM, UT, WY) and **Lower Basin** (AZ, NV, CA).
- **Supports**:
  - **40 million+ people** with drinking water.
  - **5 million acres** of farmland.
  - Hydropower from **Hoover Dam** (Lake Mead) and **Glen Canyon Dam** (Lake Powell).
  - **30+ Native American tribes**.
  - Major cities like **Phoenix, Las Vegas, Los Angeles, Denver**.

Historical Background: The 1922 Colorado River Compact

- Divided water between Upper and Lower Basins: **7.5 million acre-feet/year each**.
- Assumed high river flow based on short-term wet data.
- Later, a **1944 treaty** guaranteed **Mexico** 1.5 million acre-feet/year.
- Key Obligation: Upper Basin states must ensure **75 million acre-feet over any 10-year period** flows to the Lower Basin.
- **Dispute**:
  - **Lower Basin:** This is a delivery requirement.
  - **Upper Basin:** It's a non-depletion limit (i.e., a cap on their usage).

Why the River Is Drying Up

1. Climate Change & Drought

- The basin is experiencing its **worst drought in 1,200 years**.
- Snowmelt from the Rockies (main source of the river) has declined.
- Evaporation and soil moisture deficits are worsening due to rising temperatures.

2. Overuse & Mismanagement

- Original Compact **overestimated flow**.
- **Evaporation & seepage losses (~1.3 million acre-feet/year)** are not counted in the accounting system.
- States often claim more water than actually flows into the river.

(Prelims Insight): One **acre-foot** = ~326,000 gallons. Enough for **3.5 households/year** in Arizona.

Legal and Political Tensions

- The **2007 Interim Guidelines** tried to manage shortages but proved insufficient.
- **2019 Drought Contingency Plan** introduced cuts and emergency releases.
- By **2022**, crisis deepened; further **voluntary cuts** negotiated.
- In **2025**, Arizona proposed a **supply-based model**:
  - Instead of fixed allocations, distribute water **based on actual flow**.
  - Considered more realistic in the face of declining river volume.
  - But raises questions:
    - How to fairly divide reduced water?
    - Will historic users accept smaller shares?

Who Is Affected?

- **Farmers** (e.g., in Yuma, Arizona & Imperial Valley, California):
  - Risk of losing water for winter crops and melons.

- **Cities**:
    - May struggle to meet residential and industrial demand.
- **Native American Tribes**:
    - Have **legal rights** but limited infrastructure or support to use them.
    - Fear marginalization in future agreements

What If States Don't Agree?

- Current framework **expires in 2026**.
- If no agreement, the **U.S. Secretary of the Interior** may impose new rules.
- Likely to trigger **legal battles**:
    - Lower Basin states ready to sue Upper Basin over water delivery.
    - Upper Basin ready to challenge such interpretation.

Key Issues :

A. Environmental Mismanagement

- The Compact was designed during a wet period.
- Failed to incorporate **scientific hydrology** and long-term climate patterns.

B. Federalism and Inter-State Disputes

- Shows limits of **state cooperation** on shared resources.
- Parallels with **India's interstate water disputes** (e.g., Cauvery, Krishna).

C. Tribal & Indigenous Rights

- Over 30 Native American tribes have claims.
- Historically ignored in Compact negotiations.
- Now demanding rightful share and infrastructure support.

D. International Obligations

- U.S.–Mexico Treaty of 1944 requires minimum delivery.
- U.S. must balance internal demands with external commitments.

Stabilisation Measures Taken So Far

Year	Measures
2007	Interim Guidelines to manage Lake Mead & Lake Powell levels
2019	Drought Contingency Plan (more cuts, emergency releases)
2022	Voluntary cuts amid worsening drought
2023	Arizona, California, Nevada use **lowest water** since 1983
2025	Arizona proposes **supply-based allocation**

Lipulekh Pass Dispute: India-Nepal-China Border Trade

Context: Recent Diplomatic Developments

- On **20 August 2025**, India **rejected Nepal's objections** to the **resumption of border trade** between India and China through the **Lipulekh Pass**, located in **Uttarakhand**.
- Nepal had raised formal objections after **China's Foreign Minister Wang Yi** visited India on **19 August 2025**, during which both countries announced reopening of key Himalayan trade routes:
    - **Lipulekh Pass** – Uttarakhand
    - **Shipki La Pass** – Himachal Pradesh
    - **Nathu La Pass** – Sikkim
- India stated that **Nepal's territorial claims are not supported by historical facts or evidence**.

- Nepal reaffirmed its position, citing its **official map enshrined in the Constitution**, which claims **Limpiyadhura, Lipulekh, and Kalapani** as its territory.

About Lipulekh Pass

Feature	Details
Geographical Location	In the **Kumaon region** of **Uttarakhand**, near the **India-Nepal-China trijunction**
Altitude	Approximately **5,334 meters** or **17,500 feet** above sea level
Connectivity	Connects **Uttarakhand** (India) with **Tibet Autonomous Region** (China)
District	Located in **Pithoragarh district**, Uttarakhand
Strategic Use	Important **trade route** and access point for **Kailash Mansarovar Yatra** pilgrimage
Historical Trade Use	Trade through this pass began in **1954**; formally reopened in **1992** as India's first trade post with China

India-China Trade Through Himalayan Passes

Border Pass	State	Year Opened for Trade	Significance
Lipulekh Pass	Uttarakhand	**1992**	First border trade post with China; religious and strategic
Shipki La Pass	Himachal Pradesh	**1994**	Connects Kinnaur district with Tibet; trade in wool, salt
Nathu La Pass	Sikkim	**2006**	High-volume trade; links Gangtok to Lhasa

Geopolitical Significance of Lipulekh Pass

- **Trijunction Point**: Close to where India, Nepal, and China meet.
- **Strategic Height**: Provides surveillance advantage and access to the higher Himalayas.
- **Pilgrimage Route**: Part of the **Kailash Mansarovar Yatra**, attracting religious pilgrims from India.
- **Border Infrastructure**: Presence of military roads, border outposts, and ongoing infrastructure development by India.

India's Official Position (Ministry of External Affairs Statement, August 2025)

1. **Trade History**:
   - India-China border trade through Lipulekh has been ongoing since **1954**.
   - Recent disruptions were due to **COVID-19 and other developments**, not related to territorial disputes.
2. **Territorial Claims**:
   - Nepal's claim over Lipulekh, Limpiyadhura, and Kalapani is **not based on historical facts or legal treaties**.
   - India **rejects unilateral and artificial expansion of territorial claims**.
3. **Diplomatic Stance**:
   - India remains **open to constructive dialogue** with Nepal on **agreed outstanding boundary issues**, through **bilateral mechanisms**.

Nepal's Objection and Claims

- Nepal's **Ministry of Foreign Affairs** objected to the resumption of trade through Lipulekh.
- Cited the **official map of Nepal**, adopted in **2020**, which shows:
  - **Limpiyadhura**
  - **Kalapani**
  - **Lipulekh**

  ...as lying **east of the Mahakali River**, thereby claimed as part of **Nepali territory**.
- The Nepalese Constitution has been amended to include this **revised map**.

Historical Background of the Dispute

- **Treaty of Sugauli (1815–1816)**:
  - Signed between **British India and the Kingdom of Nepal**.
  - **Mahakali River** (called Kali River) was designated as the **western boundary** of Nepal.

- **Interpretational Dispute**:
    - India claims that the **origin of the Mahakali River** lies **east of Kalapani**, placing the area within Indian territory.
    - Nepal claims the **river originates near Limpiyadhura**, placing **Kalapani, Lipulekh, and Limpiyadhura** within Nepal.
- **Status of Dispute**:
    - Boundary disputes have remained **unresolved**, but were previously handled through **bilateral dialogue**.

Religious and Cultural Importance

- Lipulekh is part of the route for **Kailash Mansarovar Yatra**, undertaken by Hindu pilgrims to **Mount Kailash and Lake Mansarovar** in Tibet.
- The **Vyas Valley**, where the pass is located, is associated with ancient Indian texts and mythology.

Way Forward

1. **Bilateral Dialogue**:
    - Revive **India-Nepal Boundary Working Group** to resolve issues through facts and evidence.
2. **Cartographic Restraint**:
    - Avoid unilateral actions such as **map revisions** without mutual agreement.
3. **Public Diplomacy**:
    - Educate citizens in both countries about historical treaties and maps to avoid misinformation.
4. **Strategic Clarity**:
    - Maintain **open channels with both Nepal and China**, balancing **sovereignty** and **diplomacy**.
5. **Infrastructure Development**:
    - Continue **border infrastructure upgrades** to improve logistics and monitoring without escalating tensions.

Punatsangchhu-II Hydroelectric Project (Bhutan)

Commissioned: August, 2025

Location: Wangdue Phodrang District, Bhutan

Why in News (August 2025)?

- **In August 2025**, the **last unit (Unit-6)** of **Punatsangchhu-II Hydroelectric Project** (170 MW) was synchronized with the Bhutan power grid.
- With this, the **entire 1,020 MW project** has been successfully **commissioned**.
- Official commissioning ceremony was attended by:
    - **Dasho Tshering Tobgay** (PM of Bhutan)
    - **Lyonpo Gem Tshering** (Energy Minister, Bhutan)
    - **Sudhakar Dalela** (Ambassador of India to Bhutan)
    - Indian and Bhutanese officials, WAPCOS & contractors

Location & Geography

Feature	Details
Country	Bhutan
District	Wangdue Phodrang
River	**Punatsangchhu River** (also called **Sankosh**)
Tributaries	Formed by confluence of **Phochhu** and **Mochhu**
River system	Flows into India and joins **Brahmaputra River**
River origin	Himalayan glaciers (perennial, snow-fed)
Project Type	**Run-of-River Hydroelectric Project**

Technical & Financial Details

- The project has a **total installed capacity of 1,020 MW**, comprising **6 generating units of 170 MW each**.
- It is expected to generate around **4,435 GWh (gigawatt-hours)** annually, helping Bhutan not only meet its domestic power needs but also export surplus electricity to India.
- The **project was fully funded by the Government of India**, with a financing mix of:
    - **30% grant** (non-repayable)
    - **70% loan** at **10% annual interest**
- The loan is repayable **over 15 years**, beginning one year after commissioning.
- The total cost of the project is approximately **₹ 37,778 million (~USD 4.5 billion)**.

Project Execution

Feature	Details
Implementing Authority	**Punatsangchhu-II Hydroelectric Project Authority (PHPA-II)**
Partners	Joint venture of Government of India & Royal Government of Bhutan
Project Consultants	**WAPCOS Ltd.** (India), Central Water Commission (India)
Contractors Involved	Multiple Indian and Bhutanese contractors

Impact on Bhutan's Power Capacity

- Bhutan's power generation capacity increased by **~40%**
- **Before**: ~2,500 MW '! **Now**: **~3,500+ MW**
- Enhances Bhutan's **export capacity** of power to India
- Strengthens its **hydropower-driven economy**

Environmental & Social Impact

The run-of-river model offers significant **ecological benefits**:

- **Minimal land submergence**
- **No large reservoir**, avoiding mass displacement
- **Less impact on biodiversity**, aquatic life, and riverine systems

This design makes it suitable for **climate-resilient and sustainable development**, especially in the fragile Himalayan ecosystem.

India-Bhutan Hydropower Cooperation: Key Projects

Project Name	Capacity	Commissioned	Remarks
Chukha HEP	336 MW	1986	First major bilateral hydropower project
Kurichhu HEP	60 MW	2002	Run-of-river project
Tala HEP	1,020 MW	2007	One of the largest projects
Mangdechhu HEP	720 MW	2019	Awarded "Best Hydropower Project" by IHA
Punatsangchhu-II	1,020 MW	2025	Latest and one of the most strategic

Cumulative Installed Capacity of India-assisted HEPs in Bhutan: ~3,156 MW

Strategic Importance

1. **Energy Security for India**
    - Bhutan exports **surplus electricity** to India '! cleaner, affordable power
2. **Economic Stability for Bhutan**
    - Hydropower = **largest revenue source** for Bhutan
3. **Clean Energy Transition**
    - Aligns with **UN SDG 7 (Affordable & Clean Energy)** and **Paris Agreement Goals**
4. **Geopolitical Influence**
    - Strengthens India's **"Neighbourhood First"** & **"Act East"** policies
    - Counters growing Chinese influence in the Himalayan region

Joint Vision Statement (March 2024)

- Signed between **India & Bhutan**
- Focus on:
    - Clean energy cooperation
    - Hydropower project expansion
    - Grid interconnectivity
    - Regional energy trade

Mains Practice Questions

GS Paper 2 / GS Paper 3

Q1. *Discuss the role of India in the development of hydropower in Bhutan and how it aligns with India's strategic and energy security interests.*

Q2. *Evaluate the environmental and developmental advantages of run-of-river hydroelectric projects compared to large reservoir-based dams.*

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Internal Security

Oreshnik Missile

The Oreshnik is Russia's latest intermediate-range hypersonic ballistic missile. Russian President Vladimir Putin recently announced the start of its production and confirmed plans for its deployment in Belarus before the end of 2025.

About the Oreshnik Missile

- **Type:** It is a Russian **intermediate-range hypersonic ballistic missile (IRBM)**, a category of weapons previously banned under the Intermediate-Range Nuclear Forces (INF) Treaty, which both Russia and the US abandoned in 2019.
- **Origin:** The missile, named after the Russian word for "hazel tree" due to its multiple warheads, is believed to be a derivative of the **RS-26 Rubezh** intercontinental ballistic missile.
- **First Use:** Its first confirmed operational use was on November 21, 2024, in a precision strike on a defense facility in Dnipro, Ukraine.
- **Capabilities:** The Oreshnik is designed to be a highly difficult target to intercept due to its exceptional features:
    - **Hypersonic Speed:** It is capable of reaching speeds of **Mach 10** or more, which is ten times the speed of sound.
    - **Mid-flight Maneuverability:** Unlike traditional ballistic missiles that follow a predictable arc, the Oreshnik can maneuver in flight, making it much harder for existing missile defense systems to track and counter.
    - **Multiple Warheads:** It can carry **multiple independently targetable re-entry vehicles (MIRVs)**, allowing a single missile to strike several distinct targets simultaneously with either conventional or nuclear warheads. This capability, combined with its high velocity, makes it particularly destructive.
    - **Mobility:** It is a **mobile, solid-fueled** missile, which enhances its survivability and allows for quicker launch readiness from various locations.
- **Range:** It has a reported range of approximately **5,000 kilometers**, which puts most of Europe within its striking distance.

Strategic Significance

The Oreshnik missile serves as a powerful strategic signal from Russia. It's not just about a new weapon; it's about reasserting Russia's military technological prowess and signaling a shift in its defense posture. The deployment of a weapon that can evade current anti-missile systems also raises significant concerns about a potential new arms race and highlights the increasing importance of hypersonic and counter-hypersonic technologies in modern warfare.

INS Satpura

The Indian naval ship **INS Satpura** recently arrived in Singapore to participate in the **Singapore-India Maritime Bilateral Exercise (SIMBEX-25)**. This underscores the frigate's role as a key asset in India's naval diplomacy and power projection in the Indo-Pacific.

About INS Satpura

- **Type:** INS Satpura (F48) is an **indigenous Shivalik-class stealth multi-role frigate**. It is the second ship under **Project 17**, a program to build stealth frigates for the Indian Navy.
- **Construction and Commissioning:**
  - **Builder:** Mazagon Dock Ltd. in Mumbai.
  - **Delivered:** July 9, 2011.
  - **Commissioned:** August 20, 2011.
- **Operational Role:** It is a frontline warship of the **Eastern Fleet** of the Indian Navy, based at Visakhapatnam. The ship is designed for multi-dimensional warfare, capable of engaging in operations on the surface, in the air, and underwater.
- **Stealth Features:** Its design incorporates advanced signature suppression features to reduce its radar, infrared, electronic, acoustic, and visual signatures, making it difficult for enemies to detect.

Key Features

- **Dimensions:** It has a length of 142.5 m, a beam of 16.9 m, and a draught of 4.5 m.
- **Displacement:** The frigate displaces approximately 4,900 tonnes at normal load and 6,200 tonnes at full load.
- **Propulsion:** It uses a **Combined Diesel or Gas (CODOG)** propulsion system, with two French Pielstick diesel engines for cruising and two General Electric LM-2500 gas turbines for high-speed maneuvers. This setup allows it to achieve a maximum speed of up to **32 knots**.
- **Armament:** INS Satpura is equipped with a versatile mix of Russian, Indian, and Israeli weapon systems, including:
  - **BrahMos** supersonic anti-ship and land-attack cruise missiles.
  - **Shtil-1** anti-aircraft missile system.
  - **RBU-6000** anti-submarine rocket launchers and torpedoes.
  - A 76mm Otobreda naval gun.
- **Crew:** The vessel has the capacity to accommodate around 257 people, including 35 officers.

HQ-16 Missile

The **HQ-16**, a medium-range surface-to-air missile (SAM) system from China, has been in the news after the US military publicly unveiled a mockup of it at the 'AirVenture Show' in Wisconsin. This move drew attention to the system's capabilities and its growing presence in the international arms market.

About the HQ-16 Missile

- **Origin:** The HQ-16 (NATO designation: **CH-SA 16**) is a Chinese-developed medium-range surface-to-air missile system. It is based heavily on Russia's **Buk missile family**, which is known for its high mobility and effectiveness.

- **Purpose:** It is designed to engage a wide variety of aerial threats, including enemy aircraft, cruise missiles, helicopters, and unmanned aerial vehicles (UAVs).
- **Mobility:** The system is mounted on a Chinese-designed **6x6 high-mobility wheeled chassis** instead of the traditional tracked platforms used by its Russian counterparts. This design choice provides ease of maintenance and better road mobility for rapid deployment.
- **Guidance:** The missile uses a dual guidance system, combining **inertial guidance** for the mid-course phase and **semi-active radar homing** for the terminal phase, which ensures high accuracy during the final approach to the target.

Key Features and Strategic Significance

- **Vertical Launch System (VLS):** The HQ-16 features a VLS, which gives it **360-degree coverage** and allows it to fire in complex geographical environments like forests or urban areas. Each launch vehicle carries up to six missiles.
- **Interception Range:** The HQ-16 has an impressive interception range for aerial targets. It can engage aircraft up to **40 km** away and at altitudes between 15 km and 18 km. It is also effective against low-flying targets like cruise missiles.
- **Strategic Role:** The HQ-16 fills a critical gap in a country's air defense network, serving as a mid-tier layer of defense between short-range and long-range systems. It is often used to protect strategic assets such as airfields, command posts, and other high-value targets.
- **Geopolitical Influence:** As China continues to export its military technology, systems like the HQ-16 are increasing its influence in the global arms market. Its export variant, the **LY-80**, has been supplied to countries like Pakistan, playing a key role in their air defense.

Central Industrial Security Force (CISF)

The **Central Industrial Security Force (CISF)** is a Central Armed Police Force (CAPF) in India, directly under the Ministry of Home Affairs. It was established in 1969 to provide security to public sector undertakings and has since grown into a premier multi-skilled organization with a strength of over 188,000 personnel. The force recently received approval to recruit an additional 58,000 personnel to secure anticipated industrial hubs in areas affected by Left Wing Extremism.

CISF Establishment and Structure

- **Formation:** CISF was established by the **CISF Act of 1968** and came into existence on March 10, 1969. It was declared an **Armed Force of the Union** after an amendment in 1983, significantly expanding its mandate.
- **Motto:** "Protection and Security"
- **Headquarters:** New Delhi
- **Organizational Structure:** CISF is headed by an Indian Police Service (IPS) officer with the rank of Director-General. The force is divided into seven sectors and also has a dedicated **Fire Service Wing**.

CISF Functions and Evolving Mandate

- **Securing Critical Infrastructure:** The CISF provides security to India's most vital infrastructure, including nuclear and space installations, airports, seaports, and power plants.
- **Airport Security:** The specialized task of airport security was assigned to CISF in the

year **2000** following the hijacking of Indian Airlines Flight IC-814.

- **Urban and Heritage Security:** It secures important government buildings, iconic heritage monuments like the Taj Mahal, the **Delhi Metro**, and the Parliament House Complex.
- **Private Sector Security:** After the 2008 Mumbai terror attacks, the CISF's mandate was expanded to provide security to private corporate establishments on a **compensatory cost basis** (charging clients for its services).
- **Specialized Wings:**
    - **VIP Security:** It has a specialized vertical for providing round-the-clock security to important protectees.
    - **Fire Wing:** The CISF is the only CAPF with a customized and dedicated fire wing, making it one of the largest fire protection service providers in the country.
    - **Disaster Management:** CISF personnel are trained in disaster management and actively respond to natural disasters.
- **Public Interface:** It is the only CAPF with a daily public interface, primarily at airports, the Delhi Metro, and monuments, which makes it highly visible to the general public.

Defence Acquisition Council (DAC)

Why in News?

- The **Defence Acquisition Council (DAC)** recently approved a number of procurement proposals worth approximately **₹ 67,000 crore**. This move is aimed at strengthening the nation's military preparedness by acquiring new and modern defence capabilities.

About the Defence Acquisition Council (DAC)

- **Purpose and Formation**: The DAC is the highest decision-making body within India's Ministry of Defence concerning military procurement. It was established in 2001, following the recommendations of the Group of Ministers on reforming the national security system in the aftermath of the **Kargil War (1999)**. Its primary goal is to ensure the prompt and efficient acquisition of approved defence requirements.
- **Composition**: The DAC is chaired by the **Defence Minister**. Its members include:
    - Minister of State for Defence
    - Chief of Defence Staff (CDS)
    - Chiefs of the three armed services (Army, Navy, and Air Force)
    - Defence Secretary
    - Secretaries of Defence Production, Defence Research and Development, and Defence Finance
    - Special Secretary (Acquisition)
    - Vice Chief of Defence Staff (when appointed) / CISC
    - The **Deputy Chief of Defence Staff (PP&FD)** serves as the Member Secretary.
- **Key Functions**: The DAC performs several critical functions to guide the defence procurement process:
    - Giving in-principle approval for the **15-year Long Term Integrated Perspective Plan (LTIPP)** for the armed forces.
    - Granting **Acceptance of Necessity (AoN)** for all acquisition proposals.

- Categorizing acquisition proposals into **'Buy'**, **'Buy & Make'**, and **'Make'**.
- Resolving issues related to **single-vendor procurements**.
- Making decisions regarding **'offset' provisions** for large acquisition proposals (above ₹ 300 crore).
- Taking decisions on the **Transfer of Technology (ToT)** under the 'Buy & Make' category.
- Overseeing **field trial evaluations** to ensure equipment meets required standards.

District Flood Severity Index (DFSI)

Why in News?

- Researchers from **IIT Delhi** and **IIT Gandhinagar** have developed a **District Flood Severity Index (DFSI)** to provide a comprehensive, data-driven assessment of flood impact at the district level.

About District Flood Severity Index

- **Objective**: The index assesses the historical severity of floods in India by considering their impact on people, as well as their duration and geographical spread.
- **Methodology**: The DFSI is built using the **India Flood Inventory with Impacts (IFI-Impacts) database**. It incorporates several key parameters to calculate the severity score:
  - The **mean duration** of flooding events in days.
  - The **percentage of the area** that has been historically flooded.
  - The total number of **deaths and injuries** caused by floods.
  - The overall **population** of the district.
- **Significance**: As districts are the most relevant administrative units for planning and decision-making in disaster management, the DFSI is designed to be a valuable tool for authorities to prioritize resources and implement targeted flood mitigation strategies.

Key Findings of the Index

- **Top-Ranked Districts**: According to the index, **Patna** ranks number one in terms of flood severity. Many districts within the **Indo-Gangetic Plain** and **Assam** also feature prominently on the list.
- **Frequency vs. Severity**: The index highlights a key distinction between flood frequency and severity. For example, while **Thiruvananthapuram** ranks highest in the number of flooding events, it does not appear in the top 30 on the flood severity index. This suggests that its floods are frequent but less destructive.
- **Impact in Assam**: The districts of **Dhemaji, Kamrup, and Nagaon** in Assam have experienced a high number of flooding events, averaging more than three per year.
- **Urban Flooding**: The index's findings also underscore that urban flooding is often a result of both natural factors and **"unwise urban development"**.

Burevestnik Missile

Why in News?

- Russia is reportedly preparing for new tests of its **9M730 Burevestnik** missile. This nuclear-powered cruise missile is considered a unique and formidable weapon in Russia's arsenal.

About the Burevestnik Missile

- **Overview**: The Burevestnik (Russian for "**storm petrel**") is a **ground-launched, low-flying cruise missile** capable of carrying a nuclear warhead. It is one of six strategic weapons unveiled by Russia in 2018. NATO's code name for the missile is **'SSC-X-9 Skyfall'**.
- **Unique Features**:
    - **Nuclear Propulsion**: The missile is powered by a small onboard **nuclear reactor** that heats air to create propulsion. This system gives it a virtually unlimited range, allowing it to theoretically fly around the globe multiple times before reaching its target.
    - **Range and Stealth**: The missile's nuclear propulsion provides a range of up to **22,000 km** (14,000 miles), far exceeding conventional missiles. It is also designed to fly at extremely low altitudes, making it difficult for enemy air-defense radar to detect.
- **Strategic Implications**: The missile's unique features, particularly its unlimited range and ability to evade detection, pose a significant challenge to existing missile defense systems.

Sarvottam Yudh Seva Medal

Why in News?

- On the occasion of the 79th Independence Day, the President of India awarded seven **Sarvottam Yudh Seva Medals (SYSM)** to military leaders of **Operation Sindoor**.
- This is one of the highest military honors and is awarded for exceptional service during wartime.

About the Sarvottam Yudh Seva Medal

- **Institution and Purpose**: The Sarvottam Yudh Seva Medal was instituted on June 26, 1980, to recognize distinguished service of the most exceptional order during periods of war, conflict, or hostilities. It is the **highest wartime distinguished service decoration** in India, regarded as the wartime equivalent of the **Param Vishisht Seva Medal**.
- **Eligibility**: The medal is open to all ranks of the Army, the Navy, and the Air Force. This includes personnel from the Territorial Army, Auxiliary and Reserve Forces, and members of the Nursing Services. The award can also be conferred **posthumously**.
- **Medal Details**:
    - **Medal**: It is a circular, 35 mm gold-gilt medal. The **obverse** side features the **State Emblem** and the inscription "SARVOTTAM YUDH SEVA MEDAL" in English. The **reverse** side has a five-pointed star.
    - **Ribbon**: The ribbon is golden in color with a single red vertical stripe in the center.
    - **Bar**: If a recipient is awarded the medal again, a **bar** is attached to the ribbon to denote the subsequent award. A miniature insignia is added to the ribbon when worn alone.

INS Kadmatt

Why in News?

- The **Indian Naval Ship (INS) Kadmatt** recently completed a three-day goodwill port visit to Surabaya, Indonesia. This visit is a part of India's broader naval diplomacy and efforts to strengthen bilateral maritime partnerships in the Indo-Pacific region.

About INS Kadmatt

- **Overview**: **INS Kadmatt** is an indigenously designed and built **stealth anti-submarine warfare (ASW) corvette**. Commissioned into the Indian Navy's Eastern Naval Command in January 2016, it is the second of four such corvettes built by the **Garden Reach Shipbuilders and Engineers (GRSE)** in Kolkata under **Project 28**. The ship is named after Kadmat Island in the Lakshadweep archipelago.
- **Primary Role**: The ship's main function is **anti-submarine warfare (ASW)**, which involves protecting naval convoys and ports from attacks by enemy submarines.
- **Key Features**: INS Kadmatt is equipped with advanced technology for a stealth anti-submarine role:
    - Its design produces **low radiated underwater noise**, making it difficult for enemy submarines to detect.
    - It is fitted with state-of-the-art weapons and sensors, including early warning, navigation, and fire control radars, as well as underwater sensors.
    - The ship is armed with **anti-aircraft guns, torpedoes, and rocket** launchers.
    - It is also capable of embarking a **Sea King anti-submarine helicopter**, significantly enhancing its operational reach and effectiveness.

Exercise Aarogya Setu

Why in News?

- The Indian Army recently conducted the first-ever **Exercise Aarogya Setu** at Rupai, Doomdooma in the Tinsukia district of Assam. This inaugural event marked a landmark **civil-military medical fusion exercise**.

About Exercise Aarogya Setu

- **Overview**: Exercise Aarogya Setu is a unique joint exercise organized by the **Indian Army** to strengthen medical cooperation and coordination between military and civilian healthcare institutions. The initiative brought together the Army Medical Corps, senior doctors from leading private hospitals, Primary Health Centres (PHCs), and the Northern Frontier Railway Hospital.
- **Key Objectives**:
    - To establish a collaborative framework for military and civil medical teams to work together effectively during **disasters and war-like situations**.

- To share best practices and innovative methods for **large-scale casualty** evacuation.
- To discuss how civil medical institutions can provide crucial support to the Army's medical authorities when needed.

- **Notable Highlight**: A special feature of the exercise was the introduction and discussion of **train ambulances** by a doctor from the Northern Frontier Railway Hospital, a concept aimed at providing a life-saving facility for mass casualty transportation.

INS Udaygiri and INS Himgiri

Why in News?

- The Indian Navy is set to commission its latest multi-mission stealth frigates, **INS Udaygiri** and **INS Himgiri**, on August 26, 2025, at the Naval Base in Visakhapatnam. This event marks a significant milestone as it is the first time two frontline surface combatants, built at different shipyards, will be inducted simultaneously.

About INS Udaygiri and INS Himgiri

- **Overview**: INS Udaygiri and INS Himgiri are two state-of-the-art **Project 17A** stealth frigates. INS Udaygiri was constructed by Mazagon Dock Shipbuilders Ltd. (MDL) in Mumbai, while INS Himgiri was built by Garden Reach Shipbuilders & Engineers (GRSE) in Kolkata. Both vessels were designed in-house by the Indian Navy's **Warship Design Bureau (WDB)**, showcasing India's growing indigenous shipbuilding capabilities.
- **Key Features**:
  - The frigates are an evolution of the Project 17 (Shivalik-class) and incorporate significant improvements in design, stealth, and weaponry.
  - They are equipped with modern **Combined Diesel or Gas (CODOG)** propulsion plants and an advanced Integrated Platform Management System.
  - The ships boast a high **indigenous content of about 75%**, aligning with the government's "Aatmanirbhar Bharat" (self-reliant India) vision.
  - INS Udaygiri holds the distinction of being the fastest ship in its class to be delivered after launch, a result of the **modular construction** methodology.
  - These vessels are capable of executing a full spectrum of maritime missions in **Blue Water** conditions.
- **Significance**: The commissioning of these two frigates will significantly enhance the Indian Navy's combat readiness and reaffirm India's resolve to achieve self-reliance in the design and construction of warships. Upon induction, they will join the **Eastern Fleet** to bolster India's ability to safeguard its maritime interests in the Indian Ocean Region.

Exercise Bright Star

Why in News?

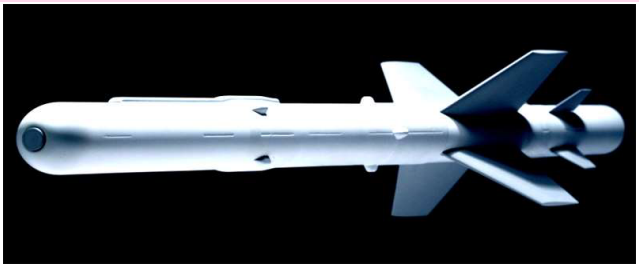
- Personnel from the Indian Armed Forces and Headquarters Integrated Defence Staff are set

to participate in the upcoming **Multilateral Exercise 'Bright Star 2025'**. This biennial exercise is among the largest tri-service drills in the region and highlights India's growing military diplomacy.

About Exercise Bright Star

- **Overview**: Exercise Bright Star is a major multilateral military exercise **hosted by Egypt in conjunction with the United States** since 1980. The drill is held biennially and involves a wide range of military activities across the land, sea, and air domains. The last edition took place in 2023, which also saw the participation of Indian troops.
- **Key Activities**: The exercise is designed to enhance multi-domain warfare preparedness and includes a comprehensive spectrum of military operations, such as:
    - **Live Firing Drills**: Conducted by the Army, Navy, and Air Force to showcase and test their operational capabilities.
    - **Command Post Exercise**: A simulated scenario to enhance joint planning, decision-making, and operational coordination among participating nations.
    - **Short Training Exercises**: Focused on various aspects of modern warfare, including counter-terrorism and irregular warfare.
    - **Subject Matter Expert Interactions**: Sessions to facilitate the exchange of knowledge on contemporary military operations.
- **Significance for India**: India's participation in this exercise underscores its commitment to **regional peace, stability, and security**. It provides a crucial platform to enhance **jointness** and **interoperability** with the armed forces of friendly foreign countries, which is vital for future coalition operations and peacekeeping missions.

Nimbrix Missile



Why in News?

- The Swedish defense company **Saab** recently announced the development of the **Nimbrix missile**. This new weapon system is being designed as a dedicated counter-unmanned aircraft system (C-UAS) to address the escalating threat posed by small unmanned aerial vehicles (UAVs) on the modern battlefield.

About Nimbrix Missile

- **Overview**: The Nimbrix is a new "fire-and-forget" guided missile developed by the Swedish firm Saab to neutralize small UAVs and drone swarms. It is Saab's first dedicated C-UAS missile. To keep costs low and make the system affordable for widespread deployment, the missile's design incorporates **additive manufacturing** and uses commercial and military off-the-shelf components.
- **Key Features**:
    - The missile has a range of up to **5 km** and uses an active seeker for tracking its targets.
    - It is equipped with an **air-burst warhead** designed to detonate in the immediate vicinity of a target, effectively taking down multiple small drones at once with its fragmentation effect.
    - The Nimbrix is a ground-based system that can operate either as a standalone unit or be integrated into larger air defense networks.
    - Its adaptable mounting options allow it to be fitted onto various vehicles or in fixed positions to meet different operational requirements.

Extended Range Attack Munitions (ERAM) Missile

Why in News?

The **Trump administration** has approved the sale of 3,350 **Extended Range Attack Munitions (ERAM)** missiles to Ukraine. This significant arms deal, valued at **$825 million**, will provide Ukraine with a crucial new long-range strike capability to counter Russian forces.

About Extended Range Attack Munitions (ERAM) Missile

- **Overview**: The ERAM is a next-generation, **air-launched**, **precision-guided missile** that combines the destructive force of a heavy bomb with the stand-off range of a cruise missile. Designed to be a low-cost, mass-producible weapon, it is an example of modern military thinking that prioritizes scalable, affordable munitions.
- **Key Features**:
    - **Range**: Depending on its flight profile, the ERAM can reach targets between **240 and 450 kilometers** away, enabling Ukrainian aircraft to strike high-value targets deep behind enemy lines without entering the range of many Russian air defense systems.
    - **Warhead**: The missile carries a **500-pound high-explosive warhead**, capable of destroying hardened military targets such as bunkers, fuel depots, or ammunition storage facilities.
    - **Guidance System**: Its guidance is a blend of **GPS**, **inertial navigation**, and a terminal seeker, providing a high degree of accuracy (within about 10 meters) even in GPS-denied or heavily jammed environments.
    - **Launch Platforms**: The compact and modular design of the ERAM makes it compatible with Western fighter jets like the **F-16s** that Ukraine is now receiving. It can also be potentially retrofitted to older Soviet-era aircraft.

Purple Notice

Why in News?

- The **Enforcement Directorate (ED)** of India recently secured its first-ever **Interpol Purple Notice**. This notice was issued to share information with global law enforcement agencies about the specific **modus operandi** of a trade-based money laundering network uncovered by the ED.

About Interpol and Purple Notices

- **What is a Purple Notice?**: A **Purple Notice** is a type of international alert issued by Interpol to seek or provide information on the **methods**, objects, devices, and concealment techniques used by criminals. Unlike notices that target specific individuals (such as a **Red Notice** for a wanted fugitive), a Purple Notice focuses on sharing information about criminal practices and tools that pose a threat to public safety.

- **Other Types of Interpol Notices**: Interpol publishes several other color-coded notices, each with a different purpose:
    - **Red Notice**: To seek the location and arrest of a wanted person.
    - **Yellow Notice**: To help locate a missing person.
    - **Blue Notice**: To gather additional information on a person's identity or activities.
    - **Black Notice**: To seek information on unidentified bodies.
    - **Green Notice**: To warn about a person's criminal activities.
    - **Orange Notice**: To warn of an imminent threat or dangerous event.
- **Key Facts about Interpol**:
    - **Headquarters**: Lyon, France.
    - **Members**: 196 member countries.
    - **Role**: Interpol is the world's largest international police organization. It acts as an information-sharing network, providing a way for national police forces to cooperate on cross-border crimes.
    - **Jurisdiction**: Interpol agents do not have the authority to make arrests. Its role is to facilitate the sharing of criminal intelligence and data, such as fingerprints, DNA samples, and stolen documents, among its member countries.
    - **Status**: It is an independent organization and does not operate under the United Nations, though it holds permanent observer status at the UN.

EDITORIALS

Crux of The Hindu & Indian Express

Internal Security

Operation Sindoor & Parliamentary Discourse on Pakistan Policy (2025)

Context: JP Nadda's Speech in Rajya Sabha | July 30, 2025

I. Background: Operation Sindoor and the Pahalgam Attack

- On **April 22, 2025**, a **terror attack in Pahalgam (J&K)** claimed multiple lives, attributed to **Pakistan-backed groups**.
- India launched **Operation Sindoor**, a swift and strategic military response across the **Line of Control (LoC).**
- On **July 30**, the **Rajya Sabha** held a **special discussion** on the operation and broader India-Pakistan policy.

II. Jaishankar's Statement: Rejecting Foreign Mediation & Defining "Modi Normal"

Key Points by External Affairs Minister Dr. S. Jaishankar:

1. **No Third-Party Ceasefire Mediation:**
    - Explicitly rejected **US President Trump's claim** that he brokered a ceasefire between India and Pakistan post-attack.
    - "From **April 22 to June 16**, there was **no phone call** between PM Modi and President Trump."

- Ceasefire and de-escalation were **India's sovereign strategic decision**.

2. **Defining the "Modi Normal":**

"There is a Congress normal and there is a Modi normal."

- **Modi Normal Doctrine (5 Tenets):**
  1. **Terrorists are not proxies** — they will be treated as direct threats.
  2. **Cross-border terrorism** will meet an **appropriate response**.
  3. **Talks and terror cannot go together**.
  4. **India will not give in to nuclear blackmail**.
  5. **Good neighbourly relations require end to terror**.

UPSC Relevance: Highlights India's assertive **strategic posture** and rejection of **external interference**.

III. Nadda's Key Assertions in Parliament :

1. Critique of UPA's "Appeasement Policy" (2004–2014)

- "Pakistan kept killing us, and we served them Biryani."
- Nadda accused the **Congress-led UPA** of:
  - Maintaining **trade, tourism, and diplomatic talks** with Pakistan even after multiple **terror attacks**.
  - Continuing **Kashmir-specific Confidence Building Measures (CBMs)**.
- Major attacks cited where "no retaliatory action" was taken:
  - **2005 Delhi blasts**
  - **2006 Varanasi bombings**
  - **2008 Mumbai (26/11) attacks**

UPSC Insight: Shows how **foreign policy and internal security** are deeply tied to political leadership and strategic posture.

2. Comparative Framing: Congress vs. Modi Government

Aspect	UPA Government (2004–2014)	NDA (Post-2014)
Terror Response	Diplomatic restraint, few retaliations	Surgical Strikes (2016), Balakot (2019), Operation Sindoor (2025)
Talks with Pakistan	Continued during terror	**Strict no-talks-unless-terror-ends policy**
Strategic Doctrine	Dialogue-centric	**Deterrence and retaliation**
Global Mediation	Occasionally accepted third-party references	**Firm bilateralism**

Nadda emphasized that **political leadership** plays a crucial role in **guiding the armed forces**. He stated that:

- Home Minister was **on ground in Kashmir** hours after the Pahalgam attack.
- PM **cut short his Saudi Arabia visit** to manage the crisis.
- It Demonstrates **crisis management and executive responsiveness** as tools of statecraft.

IV. Themes Emerging from the Debate

1. Governance in Internal Security

- BJP emphasized **rapid military response** and **strategic signalling** as cornerstones of its national security doctrine.
- Contrast drawn with previous "**restraint-based approach**" under UPA.

2. Diplomatic Messaging

- Nadda indirectly challenged **President Trump's claim** of mediating a ceasefire between India and Pakistan.
- India's position: **No third-party intervention**; ceasefire was **India-driven**.

Relevance to GS2: India's consistent policy of **bilateralism and non-intervention** in South Asia.

V. Opposition Response & Rebuttal

Opposition Criticism:

- Asked government to **acknowledge intelligence lapses** leading to the Pahalgam attack.

- Demanded **accountability** and **truth on Trump's ceasefire claims**.
- CPI(M)'s John Brittas: "Under this government, failure is celebrated."

Government Rebuttal:

- Asserted that **real-time responsiveness** was shown (PM & HM actions).
- Blamed opposition for **politicizing national security** and **ignoring past inaction**.

VI. Strategic Implications for India's Pakistan Policy

Strategic Element	BJP Government (Post-2014)
Talks and Terror	"Cannot go together"
Military Response	Quick, public, assertive (e.g., Balakot, Sindoor)
Third-party Mediation	Rejected outright
Pakistan Engagement	Conditional and security-focused

Reflects a shift from "strategic restraint" to "active deterrence" in India's Pakistan engagement.

VII. Ethical and Democratic Dimensions

Theme	Relevance
Political Accountability	Should ruling governments accept **failures in intelligence**?
Use of Terror for Political Mileage	Danger of **securitization of politics**.
Democratic Deliberation	Healthy **debate in Parliament** affirms institutional democracy.

Conclusion

"The Pahalgam attack and India's response through Operation Sindoor have reignited a critical national debate on strategic doctrine, leadership, and accountability in the face of terrorism." BJP frames its policy as **decisive and security-driven**, contrasting with UPA's **dialogue-focused approach**. The broader political narrative reflects India's **transformed security posture**, but also reveals the importance of **transparent governance**, especially during crises.

China-Russia Joint Naval Drills in Sea of Japan

Topic Relevance:

- **GS Paper II** – International Relations
- **GS Paper III** – Internal Security (Maritime Security, Strategic Interests)

What's the News?

- On **August 3, 2025**, **China and Russia** began **joint naval exercises** in the **Sea of Japan** under the operation titled **"Joint Sea-2025"**.
- Drills are aimed at reinforcing **strategic military cooperation** and **counterbalancing U.S.-led global influence**.
- The exercise is part of growing **defence ties** between the two countries, especially since Russia's **invasion of Ukraine (Feb 2022)**.

Details of Joint Sea-2025 Drills

Aspect	Details
Location	Waters near **Vladivostok**, Sea of Japan
Duration	**3 Days** starting August 3, 2025
Chinese Vessels	4 vessels including guided-missile destroyers **Shaoxing** and **Urumqi**
Operations Covered	Submarine rescue, joint anti-submarine warfare, air defence, anti-missile operations, maritime combat
Post-Drills Activity	**Joint naval patrols** in the **Pacific Ocean**

Strategic Significance of the Drills

1. Strengthening China-Russia Strategic Partnership

- Part of a broader goal to **enhance military and political ties**.

- Reiterates the **"no limits partnership"** announced before the Ukraine invasion.

2. Counterbalancing U.S. and NATO Influence

- Perceived by China and Russia as **pushback against U.S.-led alliances** in Asia-Pacific (e.g. **AUKUS, QUAD**).
- Intended to **challenge Western naval dominance**, especially in the Indo-Pacific.

3. Annual Military Cooperation

- **"Joint Sea"** naval drills started in **2012**.
- Showcases **routine military collaboration** and operational coordination.
- Last year (2024) drills were held along **China's southern coast**.

Geo-Political Context

Ukraine Conflict

- Since 2022, Russia has faced global sanctions and diplomatic isolation.
- China has **not condemned** Russia's actions, maintains a **neutral stance** but:
  - Calls for ceasefire and dialogue
  - Criticizes **Western arms supplies to Ukraine**
  - Accused by U.S. and allies of **supporting Moscow indirectly**

US-China Strategic Rivalry

- U.S. is strengthening military ties with **Japan, South Korea, India, Australia**.
- This has led China to deepen ties with Russia to **offset regional isolation**.

Pacific Region Dynamics

- The **Sea of Japan** is strategically important:
  - Close to **Japan**, **Korea**, **Russia's Far East**
  - Near **contested maritime boundaries**
- China's increasing presence in the **Pacific** signals ambitions beyond the **South China Sea**.

Implications for India

Positive	Negative
Opportunity to maintain **strategic neutrality**	Increased **military activity in nearby waters**
Strengthen own ties with **Russia** independently	Worsening **China-Russia axis** may affect **border dynamics**
Boost engagement with **QUAD and ASEAN**	Risk of **maritime conflict escalation** in Indo-Pacific

Conclusion

The **Joint Sea-2025 drills** symbolize deepening **strategic convergence** between **China and Russia**, rooted in shared opposition to the **U.S.-led international order**. While these exercises may not directly threaten India, they reflect growing **military bloc formations** that can influence the **global security architecture** and maritime balance of power. India must remain vigilant, **balance its strategic partnerships**, and continue to enhance its **maritime and naval capabilities** to safeguard national interests.

INDIAN NAVAL SHIPS IN SRI LANKA FOR SLINEX - 25

Why in News

- Indian Naval Ships **INS Rana** (Guided Missile Destroyer) and **INS Jyoti** (Fleet Tanker) arrived in **Colombo, Sri Lanka** to participate in the **12th edition of the Sri Lanka-India Naval Exercise (SLINEX-25)** held from **14 to 18 August 2025**.

SLINEX-25: Sri Lanka-India Naval Exercise

Overview

- **Full Form**: Sri Lanka–India Naval Exercise (SLINEX)

- **Edition**: 12th
- **First Held**: 2005
- **Frequency**: Biennial
- **Hosted by**: Sri Lanka (2025), previously India (2024)
- **Previous Edition**: SLINEX-24 (Visakhapatnam, India – 17–20 Dec 2024)

Objective

- Enhance **interoperability** and **operational coordination**
- Promote **maritime cooperation**
- Share **best practices** and **professional experiences**
- Strengthen **regional maritime security**

Participating Naval Assets

Indian Navy

- **INS Rana** – Guided Missile Destroyer
- **INS Jyoti** – Fleet Tanker
- **Indian Navy Special Forces**

Sri Lankan Navy

- **SLNS Gajabahu** – Advanced Offshore Patrol Vessel
- **SLNS Vijayabahu** – Advanced Offshore Patrol Vessel
- **Sri Lankan Navy Special Forces**

Exercise Schedule

Harbour Phase (14–16 August 2025) – Colombo

Activities:

- Professional Interactions
- Subject Matter Expert Exchange (SMEE)
- Cultural and Social Exchanges
- Yoga Sessions & Sports
- Sharing of Best Practices

Sea Phase (17–18 August 2025)

Exercises Include:

- Gunnery Firing Drills
- Seamanship Evolutions
- Communication Protocols
- Navigation Operations
- **VBSS** (Visit Board Search and Seizure)
- Fueling at Sea (RAS - Replenishment at Sea)

Strategic Significance

- Reinforces India's **Neighbourhood First Policy**
- Supports **SAGAR** vision (*Security and Growth for All in the Region*)
- Reflects India's **MAHASAGAR Doctrine**:

Mutual and Holistic Advancement for Security and Growth Across Regions

- Enhances India's role as a **Net Security Provider** in the Indian Ocean Region

Golden Dome Missile Defense Shield

Why in News?

- U.S. President Donald Trump recently announced the design and leadership for the **Golden Dome**, a proposed $175 billion multi-layered missile defense system.
- Aimed at intercepting long-range threats from adversarial states like China, Russia, and North Korea.

What is the Golden Dome Missile Defense Shield?

- The **Golden Dome** is a **proposed U.S. missile defense system** aimed at **neutralizing enemy missiles**, particularly **Intercontinental Ballistic Missiles (ICBMs)**, during the **boost phase** (immediately after launch).
- Announced during the Trump administration, it is a **$175 billion project** intended to provide **multi-layered protection** to the U.S. against missile threats from adversarial states such as **China, Russia, Iran, and North Korea**.

Objectives of the Golden Dome

- Detect and destroy missiles **during boost phase** using **space-based and land-based systems**.
- Intercept missiles **before they leave the Earth's atmosphere or shortly after**.
- Provide **layered defense** covering both military and civilian targets (Limited Area Defense).
- Integrate existing and future technologies like **lasers, satellites, interceptors, and radar systems**.

Key Features & Structure

1. Space-Based Intercept Layer:

- Hundreds of **satellites** equipped with **advanced sensors** and **interceptors**.
- Aim: Detect and shoot down enemy missiles during boost phase or early space travel.

2. Land-Based Midcourse Defense Layer:

- Enhancement of existing **Ground-Based Midcourse Defense (GMD)** systems in **California and Alaska**.
- Focus: Interception during the **midcourse phase** (missile flying in space).

3. New Continental U.S. and Pacific Launch Sites:

- **Five launch sites** (3 in mainland U.S., 1 in **Hawaii**, 1 in **Alaska**).
- Target: Intercept missiles **still in space**.

4. Limited Area Defense (LAD):

- Protect **population centers** from diverse threats (e.g. **hypersonic weapons**, cruise missiles).
- Incorporates:
    - New radars
    - "Common" launchers for multiple interceptors
    - Systems like **Patriot Missiles**

Comparison: Golden Dome *Vs*. Iron Dome (Israel)

Feature	Golden Dome (U.S.)	Iron Dome (Israel)
Purpose	Intercept **long-range ICBMs**, cruise, hypersonic missiles	Intercept **short-range** rockets and mortars
Coverage	**Global, multi-layered**	**City-level**, tactical
Technology	Satellites, lasers, interceptors	Radar-guided interceptor missiles
Status	**Proposed**, not operational	**Operational** since 2011
Developers	U.S. Defense Firms (Lockheed, SpaceX, L3Harris, etc.)	Rafael Advanced Defense Systems (with U.S. support)

Connection with Reagan's Star Wars (SDI)

- The **Strategic Defense Initiative (SDI)**, also known as **"Star Wars"**, was launched in **1983** by President Ronald Reagan.
- SDI aimed to use **space-based lasers and missile interceptors** to neutralize incoming Soviet ICBMs.
- **Golden Dome revives** this vision with more **advanced technology**, aiming to "complete Reagan's mission".

Difference: SDI was largely theoretical and never realized due to **technical and financial constraints**; Golden Dome seeks to implement a **more feasible version** with modern capabilities.

Implementation: Who Will Build It?

Key Companies Involved:

- **SpaceX** – Satellite deployment & rocket technology
- **Palantir** – Software & AI-based threat tracking
- **Anduril** – Drone and surveillance tech
- **L3Harris, Lockheed Martin, RTX (Raytheon)** – Missile systems, sensors, interceptors

Current Developments:

- L3Harris invested $150 million in satellite sensor manufacturing.
- Pentagon sought industry input for satellite-based boost-phase interception.

Challenges & Criticism

1. **Cost**: Estimated at **$175 billion**, with $25 billion proposed initially—facing Congressional roadblocks.
2. **Feasibility**: Boost-phase interception is **technically challenging** due to the short time window.
3. **Legal Issues**: May violate **international arms treaties** (e.g. Anti-Ballistic Missile Treaty).
4. **Uncertainty in Execution**: Shift in administration priorities and lack of bipartisan political backing.

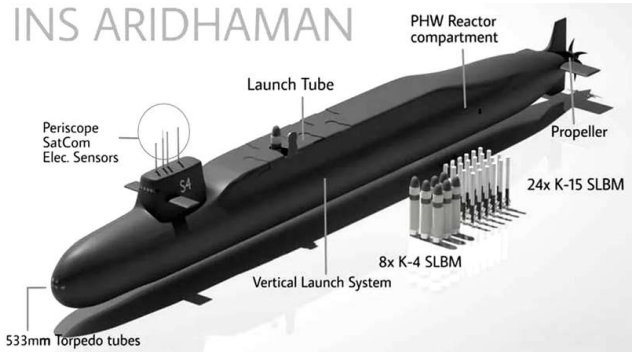
Significance (Mains Perspective)

- Could **redefine global missile defense paradigms** and trigger **arms race** in space.
- Raises **geopolitical and ethical concerns** around militarization of space.
- If successful, sets precedent for **future defense tech integration** (AI, space tech, lasers).

Conclusion

The Golden Dome missile defense shield represents a **modern, ambitious effort** to create a **comprehensive missile interception system** using **space-based and terrestrial layers**. While it draws on legacy projects like **SDI** and has comparisons with **Iron Dome**, its realization depends on overcoming **technological, financial, and political hurdles**.

INS Aridhaman



Context :

- India is set to **induct its third nuclear-powered ballistic missile submarine (SSBN)**, **INS Aridhaman**, significantly boosting its **strategic deterrence capabilities**.
- Built under the **Advanced Technology Vessel (ATV) Project** at the **Ship Building Centre, Visakhapatnam**.

Indian SSBNs :

- The 1st SSBN is INS Arihant, commissioned in 2016.
- The 2nd is INS Arighaat, commissioned in August 2024.
- INS Aridhaman is the 3rd in the series, set for induction in late 2025

About INS Aridhaman

- Part of India's effort to complete the **nuclear triad** (land, air, sea-based nuclear deterrence).

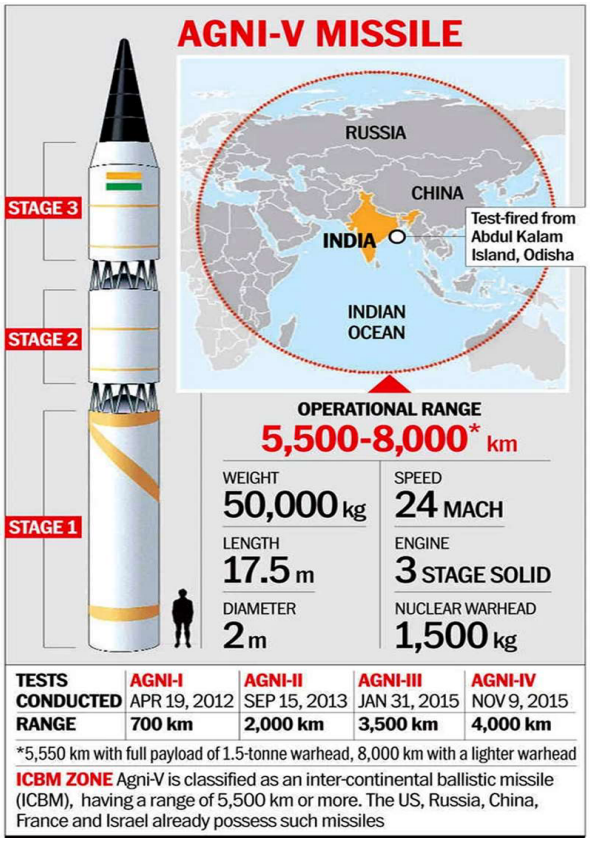
Key Features

Feature	Details
Type	Nuclear-powered Ballistic Missile Submarine (SSBN)
Class	Arihant-class
Length	~125 m (conflicting reports: 112 m and 125 m)
Beam	15 m
Draft	10 m
Displacement	~7,000 tonnes
Crew	~95 (including officers and sailors)
Missile Capacity	Capable of carrying **K-4 SLBMs** (3,500 km range)

Strategic Significance

- Enhances India's **strike capability** and **nuclear deterrence**.
- Strengthens India's commitment to **no first use (NFU)** and **credible minimum deterrence**.
- Important step toward **self-reliance in strategic defense systems**.

Agni-5 Intermediate-Range Ballistic Missile



Context:

- On **Wednesday, 20 August 2025**, **India successfully test-fired** its **Intermediate-Range Ballistic Missile (IRBM)**, **Agni-5**, from the **Integrated Test Range** located at **Chandipur**, in the state of **Odisha**.
- The test was carried out under the **Strategic Forces Command**, which is part of **India's Nuclear Command Authority**.
- As per the **official statement by the Ministry of Defence**, the test:
    - **Validated all operational and technical parameters**
    - Demonstrated readiness for **deployment in India's strategic arsenal**
- The test involved a **variant of the Agni-5 missile**, which was **designed and developed indigenously** by the **Defence Research and Development Organisation (DRDO)**.
- This development follows a previous test conducted on 11 March 2024, during which Agni-5 equipped with Multiple Independently Targetable Re-entry Vehicle (MIRV) technology was successfully trialed.

About Agni-5

Specification	Details
Type	Surface-to-Surface Ballistic Missile (Nuclear-capable)
Classification	Intermediate-Range Ballistic Missile (IRBM)
Range	Over **5,000 kilometers**
Fuel Type	**Three-stage, solid-fuel propulsion**
Launch Platform	**Canister-based launch system** (mobile, road/rail transportable)
Developer	**Defence Research and Development Organisation (DRDO)**
Operational User	**Strategic Forces Command**, under **Nuclear Command Authority**
Warhead Capability	Both **nuclear and conventional warheads**
Special Features	Equipped with **Multiple Independently Targetable Re-entry Vehicle (MIRV)** technology
Launch Site (2025 Test)	**Integrated Test Range**, Chandipur, Odisha
Previous MIRV Test	**11 March 2024**, successful validation by DRDO

What is MIRV Technology?

- **Multiple Independently Targetable Re-entry Vehicle (MIRV)** refers to a missile's ability to:
    - Carry **multiple nuclear warheads**.
    - Target **different locations independently** from a **single missile launch**.
- Strategic Advantages:
    - Overwhelms enemy missile defense systems.
    - Enhances **first-strike and second-strike capabilities**.
    - Reduces the number of missiles needed to hit multiple targets.

About Agni Missile Series (Under Integrated Guided Missile Development Programme)

Variant	Approximate Range	Stages	Propulsion	Special Features
Agni-I	700 to 1,200 kilometers	One	Solid-fuel	Short-range; primarily tactical use
Agni-II	2,000 to 2,500 kilometers	Two	Solid-fuel	Road and rail mobile; strategic theatre-level use
Agni-III	3,000 to 3,500 kilometers	Two	Solid-fuel	Designed for deeper strike and enhanced payload capacity
Agni-IV	3,500 to 4,000 kilometers	Two	Solid-fuel	Composite materials; improved accuracy; digital control
Agni-5	Over 5,000 kilometers	Three	Solid-fuel	Canister-based; **MIRV-capable**; longest-range missile in service

Missile Range Classification (Ballistic Missiles)

Classification	Range
Short-Range Ballistic Missile	Less than 1,000 kilometers
Medium-Range Ballistic Missile	1,000 to 3,000 kilometers
Intermediate-Range Ballistic Missile	3,000 to 5,500 kilometers
Intercontinental Ballistic Missile	More than 5,500 kilometers

Although Agni-5 is officially categorized as an Intermediate-Range Ballistic Missile, its actual operational range exceeds **5,000 kilometers**, bringing it close to **Intercontinental Ballistic Missile** capabilities.

Strategic Forces Command and Nuclear Command Authority

- **Strategic Forces Command**:
  - A tri-service command responsible for the **operational management of** India's nuclear arsenal.
  - Executes the orders of the **Nuclear Command Authority**.
- **Nuclear Command Authority**:
  - Apex body overseeing the **policy, command, and control** of nuclear weapons.
  - Operates under India's **No First Use (NFU)** doctrine and **Credible Minimum Deterrence** policy.

Strategic Significance of Agni-5

- Enhances **India's long-range deterrent capability**.
- Strengthens **India's second-strike capability**, crucial for maintaining nuclear stability in South Asia.
- Allows India to maintain **minimum credible deterrence** under its **No First Use** policy.
- Equips India to **target regions far beyond its immediate neighborhood**, including all of Asia and parts of Europe.
- Provides **strategic counterbalance** to China's long-range missile arsenal.
- Contributes to **technological self-reliance in strategic defence systems**.

DRDO Successfully Tests Indigenous Integrated Air Defence Weapon System (IADWS)

Why In News:

- **In** August, 2025, Ministry of Defence announced that DRDO has successfully conducted **first flight tests** of the **Integrated Air Defence Weapon System (IADWS)**.
- It demonstrated simultaneous destruction of **three aerial targets** at different altitudes and ranges off the coast of Odisha.

What is IADWS?

- **Integrated Air Defence Weapon System (IADWS)** is an **indigenously developed, multi-**

layered air defence system designed to provide **360-degree protection** against aerial threats, including drones, UAVs, helicopters, and aircraft.

Key Features:

- Multi-layered defence within **a 30 km envelope**
- Integration of **missile systems + laser-based directed energy weapon**
- Fully indigenous components and centralized command and control
- Capability to **engage multiple aerial targets simultaneously**

3 Main Components of IADWS:

1. QRSAM (Quick Reaction Surface to Air Missile)

- **Developer:** DRDO
- **Purpose:** Protect **moving armoured columns** of the Indian Army from enemy aerial attacks
- **Range:** 3 – 30 km
- **Key Features:**
    - Mounted on **highly mobile platforms**
    - **Search-on-move** and **track-on-move** radar capabilities
    - Two radar systems:
        - **Battery Surveillance Radar**
        - **Battery Multifunction Radar**
    - One launcher + fully automated command and control system
    - 360-degree target tracking

2. VSHORADS (Very Short Range Air Defence System)

- **Developer:** Research Centre Imarat (RCI), DRDO
- **Type:** 4th generation, **Man Portable Air Defence System (MANPAD)**
- **Range:** 300 meters – 6 km
- **Targets:** Drones, helicopters, low-flying aircraft
- **Application:** Suitable for **Army, Navy, and Air Force**

3. DEW (Directed Energy Weapon)

- **Developer:** Centre for High Energy Systems and Sciences (CHESS), DRDO
- **Type: High-power laser-based weapon system**
- **Range:** < 3 km
- **Capabilities:**
    - Targets fixed-wing UAVs, **swarm drones**
    - Causes **structural damage and sensor disruption**
    - Demonstrates **non-kinetic, silent destruction**
- **Significance:** India joins the **elite group of nations** with operational laser-based air defence systems

Command and Control System:

- Developed by **Defence Research and Development Laboratory (DRDL), Hyderabad**
- Centralised Command and Control Centre integrates all three systems
- Ensures **coordinated targeting and engagement**

Strategic Significance of IADWS:

Aspect	Significance
Indigenisation	Entire system is developed domestically by DRDO – reduces foreign dependence
Layered Defence	Offers air defence across multiple layers — from very short to medium range
Operational Readiness	Capable of rapid response to a variety of aerial threats
Technology Leap	Integration of **kinetic (missile)** and **non-kinetic (laser)** systems
Future Potential	Foundation for **Mission Sudarshan Chakra** – a comprehensive defence shield

Mission Sudarshan Chakra:

- **Announced by:** PM Narendra Modi during Independence Day 2025
- **Objective:** Create a **comprehensive air defence shield** for India

- **IADWS as a Step:** First successful test of IADWS at low-range levels lays groundwork for expanding to longer ranges and more sophisticated threats

Expert Opinions:

- **Senior DRDO Scientist:** "IADWS neutralises threats within a 30-km range — from drones to helicopters — using fully indigenous systems."
- **Former DRDO Facility Head:** "This test is a strategic leap, showing seamless coordination between missile systems and laser weapons."

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History, Art & Culture

Mahabodhi Temple

Why in News?

- The Supreme Court of India recently agreed to review a petition seeking the repeal of the **Bodh Gaya Temple Act of 1949**.
- The petition advocates for replacing the existing law with a central law to ensure better management of the Mahabodhi Temple.
- The **Bodh Gaya Temple Act of 1949** is a source of controversy as it mandates a management committee with equal representation from both Hindus and Buddhists, and an ex-officio chairman who is the District Magistrate of Gaya.
- This has led to long-standing demands from Buddhist communities for exclusive control over the temple's administration.

About Mahabodhi Temple

1. Significance

- **Holistic Significance**: It is one of the four most sacred sites of Buddhism, along with Lumbini (Buddha's birthplace), Sarnath (Buddha's first sermon), and Kushinagar (Buddha's parinirvana).
- **Enlightenment**: The temple marks the precise location where **Buddha attained Enlightenment** (Bodhi).
- **UNESCO World Heritage Site**: It was declared a World Heritage Site by UNESCO in 2002.

2. Location & History

- **Location**: The temple is located in Bodh Gaya, Bihar, on the banks of the Niranjana River.
- **Timeline**:
  - **3rd Century BC**: The first temple at the site was constructed by the Mauryan emperor **Ashoka**.
  - **5th-6th Century AD**: The present temple was built during the **Gupta period**. It is one of the earliest Buddhist temples in India built entirely of brick.
  - **19th Century**: The temple underwent heavy restoration by Burmese Buddhists and the British archaeologist **Sir Alexander Cunningham**.

3. Architectural Features

- **Main Structure**: The temple structure is 180 feet (55 meters) in height, dominated by a pyramid-shaped central tower, known as a **shikhara**.
- **Multiple Towers**: Four smaller, identical towers adorn the corners of the main two-story structure.
- **Vajrasana (Diamond Throne)**: A polished stone slab marking the exact spot where Buddha meditated and attained enlightenment.

- **Sacred Bodhi Tree**: A descendant of the original tree under which Buddha attained Enlightenment stands on the western side of the temple.
- **Ashoka Pillar**: One of Ashoka's famous pillars, with engravings of his proclamations, stands at the southeast corner of the complex.

Lalit Kala Akademi

Why in News?

- The **64th National Exhibition of Art (NEA)**, a major annual event organized by the **Lalit Kala Akademi**, was recently inaugurated in New Delhi, showcasing the latest developments in India's visual arts. This year's event is notable as it marks the first time that award-winning artworks from the exhibition are available for sale, providing direct financial benefit to artists.

About Lalit Kala Akademi

- **Establishment**: Founded by the Government of India on August 5, 1954, the Lalit Kala Akademi serves as India's **National Academy of Art**. It was inaugurated by the then Education Minister, **Maulana Abul Kalam Azad**, and later given statutory authority in 1957 under the Societies Registration Act, 1860.
- **Mandate and Functions**:
    - The Akademi's primary objective is to promote and preserve Indian art both domestically and internationally.
    - It plays a crucial role in identifying and showcasing visual art, and has a permanent collection documenting the vitality of modern, contemporary, folk, and tribal art in India.
    - The institution also engages in cultural diplomacy, promoting Indian visual arts in various countries through cultural exchange agreements.
- **Organizational Structure**:
    - The Akademi is an autonomous body funded by the **Ministry of Culture**.
    - Its **Headquarters** are located in New Delhi.
    - It operates through its General Council, Executive Board, and has regional centers in **Chennai, Lucknow, Kolkata, Bhubaneswar, and Garhi**.
- **Flagship Event**: The **National Exhibition of Art (NEA)**, which began in 1955, is the most prestigious annual event of the Akademi, designed to showcase the latest advancements in Indian visual art.

Kodali Karuppur Silk Sari

Why in News?

- The renowned **Kodali Karuppur silk sari**, a luxury garment once favored by the Maratha kings of Thanjavur, is currently in crisis.
- The decline in the number of traditional handloom weavers is threatening the survival of this unique craft.

About the Kodali Karuppur Silk Sari

- **Origin and Craftsmanship**: The sari gets its name from **Karuppur**, a village near Kumbakonam, Tamil Nadu. It is a handwoven silk garment that is known for its unique combination of techniques: **hand painting, block printing, and brocade weaving**—a blend of art forms that was popular until the 19th century.
- **Historical Context**: The craft evolved under the patronage of Maratha ruler **Serfoji Raja Bhonsle Chhatrapati II** and was exclusively made for the queens of Thanjavur. It was considered a symbol of nobility and was even gifted as 'khillat' (clothes of honour). The ancestors of the weavers were families who had migrated from Saurashtra. In some Maratha states, it was an essential part of the bride's trousseau.
- **Design and Features**: The design vocabulary of the sari is distinct but limited, featuring geometric and linear patterns, vine motifs, stars, and the prominent **thazhambu** (screw pine flower) design. Despite its rich history and intricate craftsmanship, the sari **does not have a Geographical Indication (GI) tag**.

Vitthal Rukhmini Temple

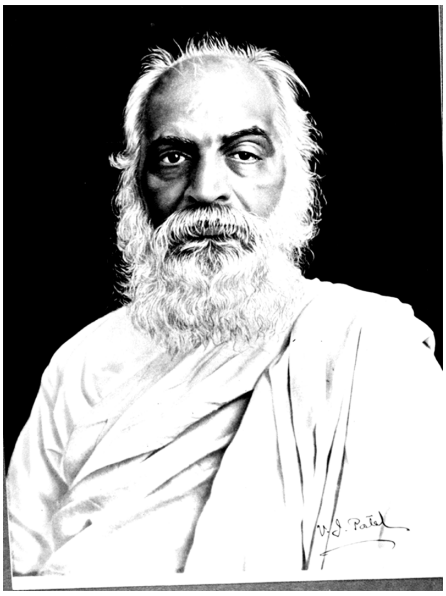
Why in News?

- The renowned **Vitthal-Rukhmini temple** in Pandharpur has recently become the center of a new controversy, stemming from a **Marathi-Hindi language row**.

About the Vitthal Rukhmini Temple

- **Location and Deities**: The temple is a significant Hindu shrine located in **Pandharpur, Maharashtra**, on the banks of the **Bhima River**, also known as the **Chandrabhaga**. It is dedicated to **Lord Vithoba** (a form of Lord Vishnu or Krishna) and his consort, **Rukhmini**. The temple is considered one of the **108 Abhimana Kshethrams** of the Vaishnava tradition.
- **History and Architecture**:
  - The original temple was built by **Hoysala Empire** king **Vishnuvardhana** between 1108 and 1152 CE.
  - An extensive temple was later constructed in the second half of the 13th century, following the **Hemadpanti style** of architecture.
  - After being damaged by invaders, the current temple was rebuilt in the 17th century in the **Deccan style**, featuring dome motifs and lobed arches. This reconstruction was made possible through contributions from the **Peshwas of Pune, the Shindes of Gwalior, and the Holkars of Indore**.
- **Social Reform**: The temple made history in 2014 by becoming the **first shrine in India** to welcome women and individuals from backward communities as priests, a landmark move for inclusivity in religious practices.

Vithalbhai Patel



Why in News?

- The Delhi Legislative Assembly recently hosted a two-day conference focusing on **Vithalbhai Patel's** crucial role in shaping India's constitution and legislative institutions. The event brought renewed attention to his contributions to the freedom struggle and parliamentary history.

About Vithalbhai Patel

- **Overview**: Vithalbhai Patel (1873–1933) was an Indian legislator and political leader, and the elder brother of Sardar Vallabhbhai Patel. He became a prominent figure in the Indian independence movement well before his more famous brother.
- **Political and Legislative Career**:
    - Initially, Vithalbhai joined the Indian National Congress despite not fully aligning with Mahatma Gandhi's philosophy of non-cooperation.
    - After the **Chauri Chaura incident** in 1922, he left Congress and co-founded the **Swaraj Party** with Chittaranjan Das and Motilal Nehru. The party's objective was to enter the legislative councils and disrupt the British government from within.
    - His efforts culminated in his election to the **Central Legislative Assembly** in 1923, and in 1925, he made history by becoming the **first Indian to hold the post of President** (Speaker) of the Assembly.
- **Legacy**: Known for his sharp intellect and powerful oratory, Vithalbhai Patel played a key role in bringing global attention to India's freedom struggle. His tenure as Speaker laid the foundation for democratic traditions in India, as he worked to establish the independence of the legislature from the executive. He died in Geneva, Switzerland, in 1933.

Archaeological Survey of India (ASI)

Why in News?

- The **Archaeological Survey of India (ASI)** has recently been under public scrutiny following the controversial transfer of archaeologist K. Amarnath Ramakrishna. The incident has raised questions about the organization's administration and its processes.

About the Archaeological Survey of India

- **Overview**: The **Archaeological Survey of India (ASI)** is the premier government organization in India for archaeological research and the protection of the nation's tangible cultural heritage. It functions under the **Ministry of Culture**. It was established in **1861** by **Sir Alexander Cunningham**, who also served as its first Director-General. Its headquarters is located in New Delhi.
- **Mandate and Functions**:
    - The ASI is a **statutory body**, deriving its authority from the **Ancient Monuments and Archaeological Sites and Remains Act, 1958 (AMASR** Act).
    - Its primary responsibility is the maintenance and preservation of ancient monuments, archaeological sites, and other remains of national importance.
    - It is also tasked with regulating all archaeological activities within the country, as well as enforcing the **Antiquities and Art Treasure Act, 1972**.
    - The ASI protects and maintains **3,679 monuments and sites** that have been declared of national importance by the Central Government. The organization employs a large team of specialists, including archaeologists, conservators, and epigraphists, to carry out its functions through a network of various branches and wings across the country.

EDITORIALS

Crux of The Hindu & Indian Express

History, Art & Culture

Mela Patt Festival

Why in News?

- The annual three-day **Mela Patt festival** has recently started in the **Doda district** of Jammu and Kashmir. The event holds great significance as it brings together people from different communities and celebrates the region's rich cultural heritage.

About Mela Patt Festival

- **Overview**: Mela Patt is a three-day religious and cultural festival dedicated to **Lord Vasuki Nag**, the presiding deity of the Bhaderwah Valley. The festival is a continuation of a **16th-century** tradition and is a major event in the Doda district of Jammu and Kashmir.
- **History and Significance**:
    - The festival is a symbol of the region's historical legacy, commemorating the meeting between Mughal Emperor Akbar and King Nag Pal of Bhaderwah. It is celebrated every year on Nag Panchami, seven days after the conclusion of the Kailash Yatra.
    - Mela Patt is well known for its inclusive nature, as people from all religions participate, reflecting the strong communal harmony of the area.

- **Dikko Dance**:
    - A unique and traditional folk performance known as the "Dikko Dance" is a central part of the festival.
    - In this dance, men and women of all backgrounds participate together, symbolizing peace, pride, and unity. The dance is also referred to as the Dhakku dance, a traditional folk dance of the Dogras.

Vrindavani Vastra

Why in News?

- Assam is set to temporarily receive the revered **16th-century "Vrindavani Vastra"** from the British Museum in London for a special exhibition in 2027. This marks a significant cultural event, as the masterpiece of sacred art is a central part of Assamese heritage and Vaishnavism.

About Vrindavani Vastra

- **Overview**: The Vrindavani Vastra is a highly significant silk textile woven in Assam, depicting the **childhood stories of Lord Krishna** and his divine pastimes in Vrindavan. It is considered a masterpiece of sacred art that testifies to the advanced weaving traditions of Assam.
- **Historical Context**:
    - The textile was created under the direct guidance of the revered Vaishnav saint **Srimanta Sankardeva** at the request of the **Koch king Nara Narayan**, who had sheltered the saint after he was targeted by the Ahom kingdom.
    - The exhibit, which is currently in the British Museum, is nine and a half meters long. It was originally composed of several separate silk pieces that were later stitched together.
- **Journey and Significance**:
    - The Vrindavani Vastra traveled from Assam to Tibet, where it was later acquired and brought to London in **1904** by the British Museum.
    - As a central element of Assamese Vaishnavism, the textile not only honors religious traditions but also showcases the proud historical legacy of the region and its rich artistic heritage. The planned exhibition in 2027 will allow the people of Assam to reconnect with this priceless piece of their culture.

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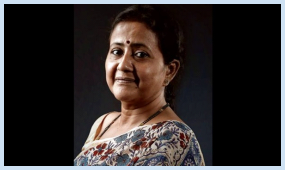
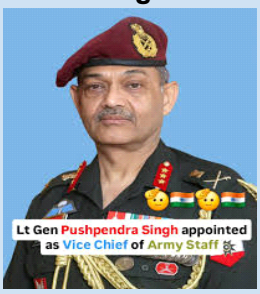
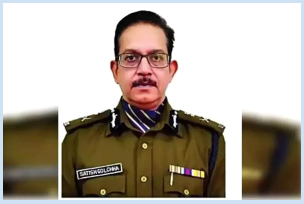
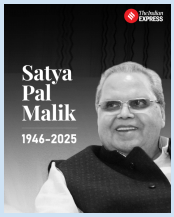
Persons in News

A. APPOINTMENTS & ADMINISTRATIVE CHANGES

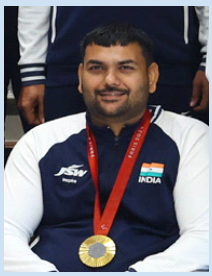
Name	Position/Appointed As	Details & Relevance
Dr. Urjit Patel 	Executive Director at IMF	Former 24th RBI Governor; Appointed for 3-year term; Appointment approved by Appointments Committee of Cabinet.
Satish Kumar 	Chairman & CEO, Indian Railway Board (Extended)	First Scheduled Caste officer in the role; Extended for 1 year (from Sept 1, 2025); Developed "Fog Safe Device"; Veteran technocrat.
S. Radha Chauhan 	Chairperson, Capacity Building Commission (CBC)	Retired 1988-batch IAS (UP cadre); Former Secretary, DoPT; Replaced Adil Zainulbhai; Will drive Mission Karmayogi & civil service training reforms.
Lt Gen Pushpendra Singh 	Vice Chief of Army Staff	Took charge on Aug 1, 2025; Succeeded Lt Gen NS Raja Subramani; Key military leadership appointment.
Vice Admiral Sanjay Vatsayan 	Vice Chief of Naval Staff (VCNS)	Assumed charge on August 1, 2025; Paid tribute at National War Memorial; Senior naval leadership.

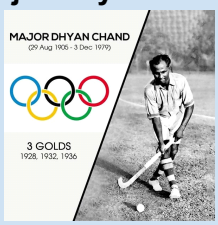
Satish Golcha 	Delhi Police Commissioner	1992-batch IPS officer; Appointed August 22, 2025; Replaced SBK Singh (who held additional charge); Brings law enforcement experience to capital.
Christopher Cooter 	Canadian High Commissioner to India	Appointed to normalize India-Canada ties after 2023 Hardeep Nijjar row; Diplomatic re-engagement effort post tensions.
Dinesh K. Patnaik 	Indian High Commissioner to Canada	1990-batch IFS; Former Ambassador to Spain; Appointed amid India-Canada diplomatic thaw (Jun 2025 Modi-Carney meet); Key foreign policy development.

B. DEATHS / OBITUARIES

Name	Known For	Details & Legacy
Satya Pal Malik 	Former Governor (J&K, Goa, Bihar, Meghalaya)	Died Aug 5, 2025 at 79 (in RML Hospital, Delihi); Health issues: diabetic kidney disease, obesity, OSA.
Lionel Taylor 	NFL Legend (Wide Receiver)	First player to record 100 receptions in a season; Died Aug 6, 2025 at 89; Played a pioneering role in football.

C. SPORTS & NOTABLE ACHIEVEMENTS

Name	Achievement	Details & Significance
Neeraj Chopra 	2nd place – Diamond League Final (Zurich)	Olympic & World Champion; Maintained 26 consecutive top-2 international finishes; Continues to be India's top javelin athlete.
Dharambir Nain 	Flag-bearer, World Para Athletics 2025	Gold medalist in F51 Club Throw (Paris 2024); Chosen as flag-bearer for 12th World Para Athletics (Sep 27–Oct 5, 2025 in Delhi).
Preeti Pal 	Flag-bearer, World Para Athletics 2025	Won 2 bronze medals in T35 100m & 200m (Paris 2024); First Indian woman to win 2 track medals in one Paralympics.
Devika Sihag 	Winner, Malaysia International Challenge 2025	Won Women's Singles badminton final defeating Isharani Baruah; First international title for the 20-year-old shuttler.
Kabak Yano 	Mountaineer	Summited Mt. Elbrus (highest in Europe & Russia) on Aug 16, 2025; Part of Seven Summits Challenge; congratulated by Arunachal Governor Lt. Gen KT Parnaik (Retd).

Major Dhyan Chand 	Hockey Legend (National Sports Day)	Birth anniversary on Aug 29 celebrated as **National Sports Day**; Recognized for his contribution to Indian hockey.

D. POLITICS & PUBLIC SERVICE

Name	Event/Role	Details
Dr. Mansukh Mandaviya 	National Sports Day Celebrations	Union Minister led celebrations at Dhyan Chand National Stadium, New Delhi; Paid floral tribute; Promoted sports awareness.
Narendra Modi 	PM of India	Attended SCO Summit; Held bilateral with Xi Jinping; Announced GST reforms & rate cuts during Independence Day speech.
Donald Trump 	President of USA (in news)	Met with Russian President Putin; Involved in global and domestic policy headlines; Trade issues also prominent.

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