

# WEEKLY UPDATES

DATE : 2<sup>nd</sup> Sept-8<sup>th</sup> Sept

## POLITY & GOVERNANCE

### 23rd Law Commission of India: Overview and Key Mandates

#### Context:

- The **23rd Law Commission** was notified on **September 2, 2024**, with a term from **September 1, 2024 – August 31, 2027**.

#### Key Details of the 23rd Law Commission:

- **Mandate:** To review laws in light of the **Directive Principles of State Policy** and **Constitutional objectives**.
- **Terms of Reference:**
  1. **Align laws** with the **Directive Principles** and the **Constitutional Preamble**.
  2. **Assess globalization's impact** on **food security** and **unemployment**.
  3. **Recommend protections** for **marginalized groups**.
  4. **Improve judicial administration** by reducing delays, simplifying rules, and managing case flow.

#### Overview of the Law Commission of India:

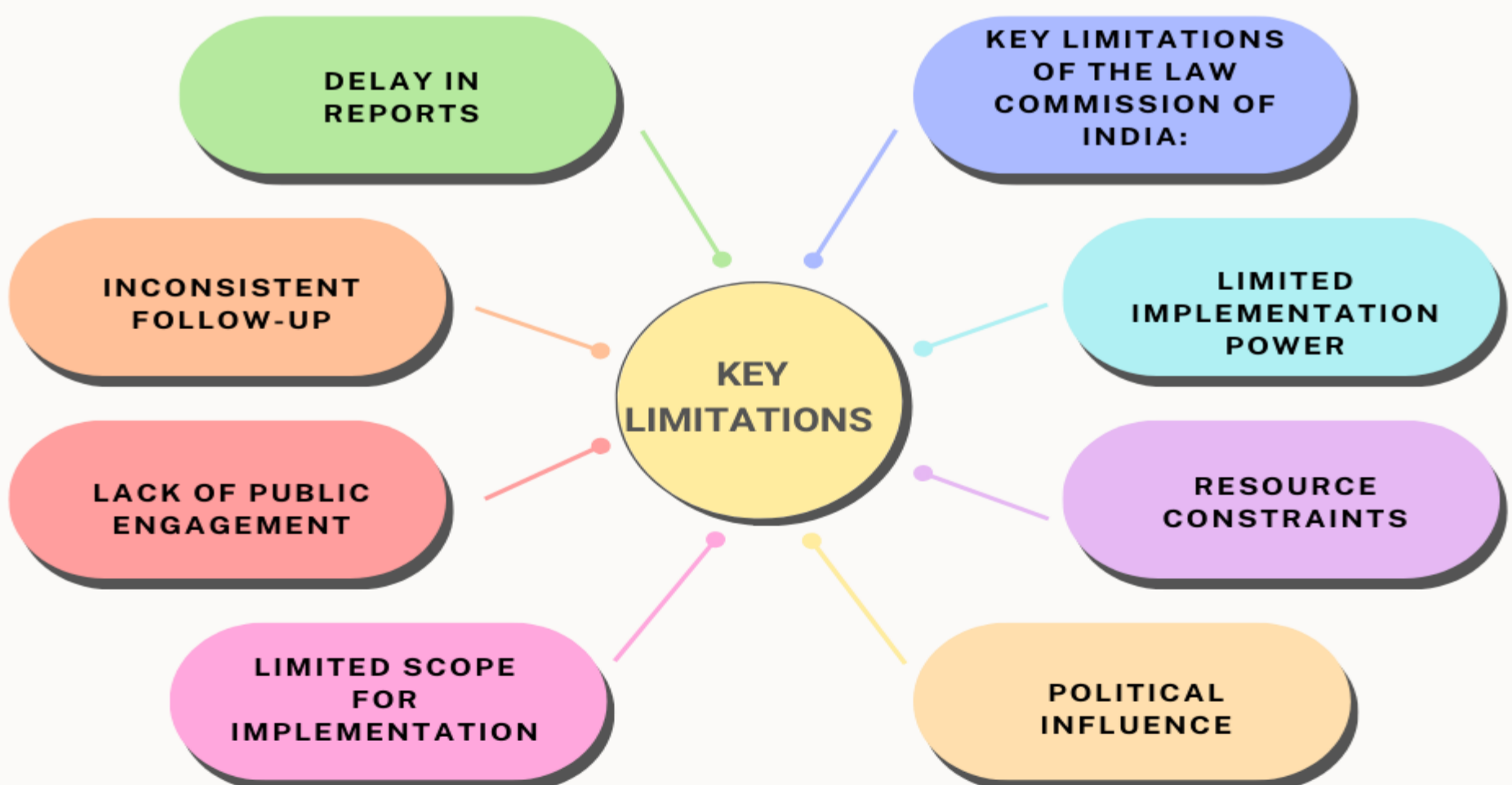
Aspect	Details
<b>About</b>	The <b>Law Commission of India</b> is a <b>non-statutory advisory body</b> established by the <b>Ministry of Law and Justice</b> to conduct research and recommend legal reforms.
<b>History</b>	Initially formed in <b>1834</b> under <b>Lord Macaulay</b> , it played a crucial role in codifying major legal frameworks. Post-independence, the first Law Commission was set up in <b>1955</b> , chaired by <b>M. C. Setalvad</b> . To date, <b>23 Law Commissions</b> have been appointed, each serving a fixed <b>three-year term</b> .
<b>Role</b>	Reviews laws, suggests repeals, and makes recommendations on legal reforms.
<b>Members</b>	Includes a <b>chairperson</b> (retired judge or expert), four <b>full-time members</b> , up to five <b>part-time members</b> , and ex officio members (Legal Affairs and Legislative Secretaries).
<b>Recent Findings</b>	The <b>22nd Commission</b> recommended retaining <b>Section 124A (sedition)</b> with amendments and suggested laws for protecting <b>trade secrets</b> and <b>simultaneous elections</b> .

<b>Key Objectives</b>	Identify obsolete laws for repeal, create <b>Standard Operating Procedures (SOPs)</b> for law reviews, amend laws in line with economic needs, and evaluate laws against Directive Principles and socio-economic needs.
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### Important Findings of Various Law Commissions of India Since Independence:

Law Commission	Year	Finding/Recommendation
<b>1st Law Commission</b>	<b>1955</b>	Codification of laws and reform of the <b>Indian Penal Code</b> and <b>Criminal Procedure Code</b> .
<b>7th Law Commission</b>	<b>1988</b>	Recommended amendments to the <b>Code of Civil Procedure, 1908</b> , for improved judicial efficiency.
<b>11th Law Commission</b>	<b>1992</b>	Suggested reforms to address issues of <b>delay</b> and <b>pendency</b> in courts.
<b>15th Law Commission</b>	<b>1996</b>	Proposed a new bill to replace the outdated <b>Indian Contract Act, 1872</b> .
<b>18th Law Commission</b>	<b>2000</b>	Recommended reforms to <b>family law</b> , including amendments to the <b>Hindu Marriage Act</b> .
<b>21st Law Commission</b>	<b>2018</b>	Stated that the <b>Uniform Civil Code (UCC)</b> was “neither necessary nor desirable” at that stage.
<b>22nd Law Commission</b>	<b>2022</b>	Reviewed issues related to the UCC, focusing on its implementation and impact; proposed the <b>Criminal Procedure (Identification) Act, 2022</b> .

### KEY LIMITATIONS OF THE LAW COMMISSION OF INDIA:



## Dispute Resolution Scheme (e-DRS) 2022

### Context:

- The **Central Board of Direct Taxes (CBDT)** has launched the **e-Dispute Resolution Scheme (e-DRS) 2022**.
- Aim: To **reduce litigation** and provide **relief to eligible taxpayers**.

### Key Features of the e-Dispute Resolution Scheme (e-DRS) 2022:

- **Electronic Filing:**
  - Taxpayers can file applications electronically for dispute resolution with **Dispute Resolution Committees (DRCs)**.
  - Available across **18 regional jurisdictions**.

### Eligibility Criteria:

- **Disputes Involving:**
  - **Specified orders** where the **aggregate variations are under ₹10 lakh**.
  - The **returned income is under ₹50 lakh**.

- Excludes cases based on **searches** or certain **agreements**.

### DRC Procedures:

- **Functions of DRCs:**
  - Can **modify orders**.
  - Have the authority to **reduce or waive penalties**.
  - Must issue decisions **within six months** from the end of the month in which the application is admitted.

### Filing Process:

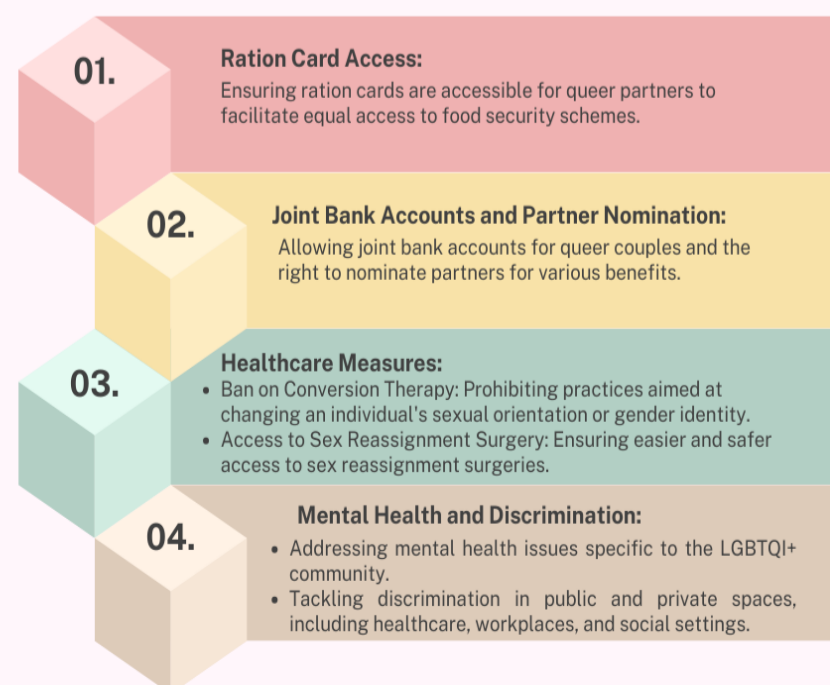
- **Application Submission:**
  - Applications are to be submitted **online** through the **Income Tax Department's portal**.
  - Use **Form No. 34BC** for filing.

## Government Initiatives for the LGBTQI+ Community

### Context:

- The **Department of Social Justice and Empowerment (DoSJE)** is seeking public and stakeholder inputs to develop **inclusive policies** for the LGBTQI+ community.
- A **committee chaired by the Cabinet Secretary** was established following the Supreme Court's 2023 judgment to define the entitlements of the LGBTQI+ community.

### KEY GOVERNMENT ACTIONS:



## Values Exhibited:

- **Inclusivity:** Ensuring **access to social services** and **equal treatment** for LGBTQI+ individuals.
- **Non-Discrimination:** Addressing biases in **ration card issuance, banking, and healthcare.**
- **Dignity:** Recognizing **queer relationships** and providing **legal protections.**
- **Health Rights:** Prohibiting **conversion therapy** and improving access to **healthcare.**
- **Mental Well-being:** Promoting **mental health** and well-being for the LGBTQI+ community.
- **Consultation:** Inviting **public and stakeholder input** to create effective policies.

## Understanding 'Black Coat Syndrome' in the Judiciary

### Context:

- At the **Supreme Court's National Conference of the District Judiciary**, President **Droupadi Murmu** celebrated the court's **75-year legacy** and unveiled its new **flag and insignia.**
- The President emphasized the judiciary's moral responsibility to uphold **impartiality, truth, and justice.**

### About 'Black Coat Syndrome':

- **Definition:** "Black Coat Syndrome" refers to the **anxiety** and **fear** experienced by ordinary citizens when interacting with the **judicial system**, especially in courtrooms.
- **Symbolism:** The term metaphorically refers to the traditional **black coats** worn by lawyers, symbolizing the formal and often **intimidating nature** of court proceedings.
- **Implications:** Reflects the **emotional** and **financial burden** faced by individuals, particularly those from marginalized backgrounds, when seeking justice.
  - Highlights challenges like **prolonged case delays, adjournments, and high costs,** discouraging many from pursuing justice.

## Poshan Tracker Initiative: A Key Tool for Monitoring Child Nutrition in India

### Context:

- The **Ministry of Women and Child Development** won the **National e-Governance 2024 Gold Award** for its **Poshan Tracker initiative** under **Mission Poshan 2.0.**

### What is the Poshan Tracker?

- **Poshan Tracker** is an **ICT-based system** designed to monitor the **growth and nutrition** of children aged **0-6 years** in real-time.
- Utilizes **WHO growth charts** and **Growth Measuring Devices** at **Anganwadi Centers** to assess child health.
- Covers **8.9 crore children** across India to identify health issues for timely intervention.

## Key Points about the Poshan Tracker App:

- **Comprehensive Monitoring:**
  - Provides a **360-degree view** of Anganwadi activities, services, and beneficiary management for **pregnant women, lactating mothers, and children under six.**
- **Efficiency Improvement:**
  - **Digitizes physical registers**, enhancing the efficiency of Anganwadi workers.
  - Workers are provided with **smartphones** through **Government e-Market (GeM)** for better service delivery.
- **Accessibility:**
  - Migrant workers can access services at any Anganwadi center, regardless of location.
- **Support and Implementation:**
  - **Technical support** is available for resolving app-related issues.
  - Launched by the **Ministry of Women and Child Development (MoWCD).**



# IQRA

Wisdom leads to success

## INTERNATIONAL RELATIONS

### The Munich Agreement: A Failed Attempt at Appeasement

#### Context:

- The **Munich Agreement** was an accord signed between **Germany, France, Italy, and Great Britain** in **1938**.
- It allowed **Nazi Germany** to annex the **Sudetenland**, a region in **Czechoslovakia** with a large ethnic German population.

#### Key Points:

##### 1. Objective of the Munich Agreement:

- The agreement aimed to **appease Adolf Hitler** to maintain peace in Europe.
- **British Prime Minister Neville Chamberlain** strongly supported the deal, believing it would prevent a larger conflict.

##### 2. Exclusion of Czechoslovakia:

- **Czechoslovakia**, despite being directly affected by the annexation, was **not included** in the negotiations.
- The country was pressured to accept the deal without being a party to it.

##### 3. Consequences of the Agreement:

- The **Munich Agreement** is viewed as a **disastrous act of appeasement** that failed to prevent further aggression by Nazi Germany.
- Within **six months, Hitler violated the agreement** by invading the rest of **Czechoslovakia**.
- The violation demonstrated that **expansionist totalitarianism** could not be placated through diplomatic concessions.

##### 4. Prelude to World War II:

- The events following the Munich Agreement set the stage for **World War II**.
- The war began on **September 1, 1939**, when **Nazi Germany invaded Poland**, prompting **Britain and France** to declare war on Germany.

#### Significance:

- The Munich Agreement is a critical historical example of the **failure of appeasement** in international diplomacy.
- It highlighted the dangers of **conceding to aggressive demands** in the hope of avoiding conflict, underscoring the importance of a firm stance against **totalitarian regimes**.

## Brunei Darussalam: Strengthening Ties with India

### Context:

- **Prime Minister Narendra Modi's** official visit to **Brunei Darussalam** marks a significant milestone as the first Indian PM to visit the nation, celebrating **40 years of diplomatic ties**.

### Importance of Brunei for India:

- **Role in India's 'Act East' Policy:**
  - **Brunei** plays a crucial role in India's **'Act East' Policy** and **Indo-Pacific Vision**.
  - As a major **oil and gas producer** and a member of **ASEAN**, Brunei is strategically important for India's efforts to **counterbalance China's influence** in the region.



### Geographical Location:

- **Region: Southeast Asia** Located on the **northern coast of Borneo Island** with two non-contiguous regions.
- **Borders:** Entirely surrounded by **Malaysia's Sarawak state**, except for its **northern coastline** on the **South China Sea**.

Membership and International Relations: **Member of:** The **Commonwealth** and **ASEAN (Association of Southeast Asian Nations)**.

**Significance of the Visit:** The visit underscores the strengthening of bilateral relations between **India and Brunei**, enhancing economic cooperation, strategic partnership, and alignment with India's broader regional goals under the **'Act East' Policy** and **Indo-Pacific strategy**.

## 5th India-Maldives Defence Cooperation Dialogue: Strengthening Bilateral Ties

### Context:

- The **5th India-Maldives Defence Cooperation Dialogue** was held in **New Delhi** at the level of top officials. It marks the first defence dialogue following a period of strained ties between the two nations.

### Key Highlights:

1. **Focus of the Dialogue:**
  - The discussions centered around **bilateral military exercises** and cooperation.

- The dialogue follows a phase of strained relations due to the Maldives' "India Out" campaign and pro-China policies.

## 2. Shift in Relations:

- Recent cooperation aligns with India's External Affairs Minister's visit to the Maldives and the Maldives President's attendance at India's Prime Minister's oath ceremony.
- A renewed focus on strengthening bilateral ties and defence cooperation.

## Importance of India for the Maldives:

### 1. Net Security Provider in the Indian Ocean Region (IOR):

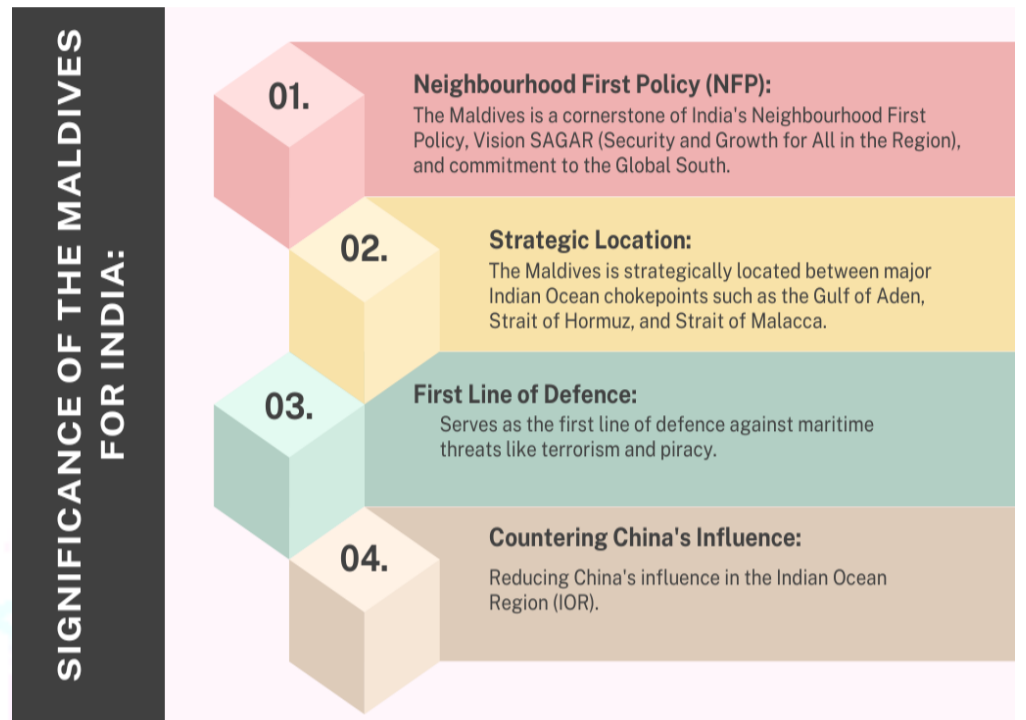
- India is regarded as a key security partner in the IOR.

### 2. First Responder in Crises:

- India has provided prompt assistance during crises, such as:
  - **Operation Neer (2014):** Provided aid during the Maldives' water crisis.
  - **Vaccine Maitri:** Supplied COVID-19 vaccines to the Maldives.

### 3. Tourism Market:

- The Maldives aims to reinstate India among its top three tourist markets, crucial for its economy.
- The country has recently faced a decline in tourist footfall from India.



## India's Initiatives to Strengthen Relations with the Maldives:

- 1. Coast Guard Base:** India is building a new **Coast Guard base at Uthuru Thilafalhu (UTF) Atoll.**
- 2. High Impact Community Development Projects (HICDPs):** India provides grants to the Maldives for these projects to enhance bilateral cooperation.
- 3. Greater Male Connectivity Project:** India is developing the **Maldives' largest infrastructure project** to enhance connectivity.
- 4. Open Skies Arrangement:** Both countries have an **open skies arrangement** and **visa-free entry** for tourism, medical, and business purposes.

## Call for Revival of SAARC: A Renewed Focus on Regional Cooperation

### Context:

- Multiple leaders in **South Asia** have called for the revival of the **South Asian Association for Regional Cooperation (SAARC)**, which has been inactive since its last biennial summit in **2014**.

### Background:

- The last **SAARC biennial summit** was hosted by **Nepal in 2014**.
- The 2016 summit, scheduled to be hosted by **Pakistan**, was stalled following the **terror attack in Pulwama**.



## Why SAARC Needs Revival:

### 1. Addressing Common Issues:

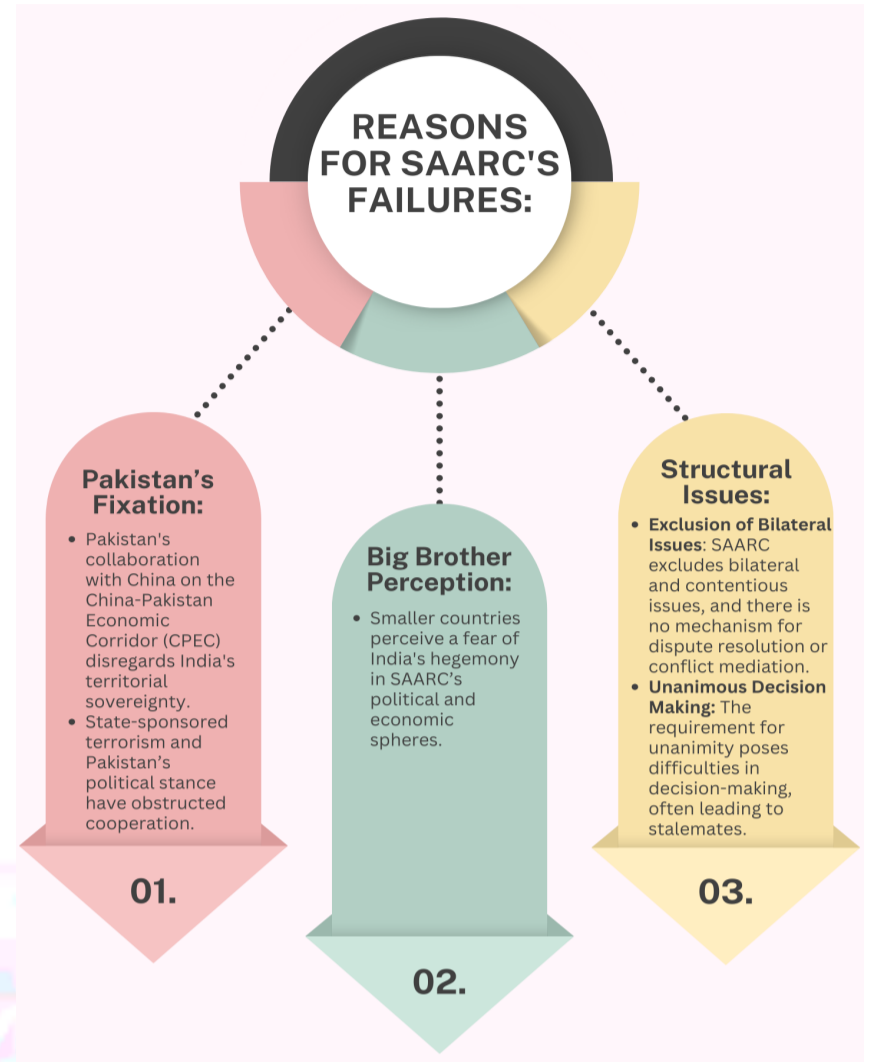
- SAARC countries face shared challenges like **climate change, food and energy security, poverty**, etc.
- South Asia** is among the most vulnerable regions to **climate shocks** while also being home to a large population living in relative poverty (**World Bank**).

### 2. Intraregional Trade Potential:

- Intraregional trade in South Asia is just **5% of its total trade**, compared to **25% in ASEAN**, indicating vast untapped potential for economic growth.

### 3. Past Successes:

Successful initiatives like the **South Asia Free Trade Agreement (SAFTA)**, **SAARC Development Fund**, and regional centres on **agriculture, energy**, etc., demonstrate the potential for regional cooperation.



## India's Stance and Alternative Cooperation Efforts:



### BID TO REVIVE SAARC?

Nepal has indicated that it is keen to revive the regional forum

The South Asian Association for Regional Cooperation or **SAARC is dormant since India**, citing terror networks operating from Pak soil, has distance itself

The last SAARC Summit was held in 2014 in Kathmandu. It was attended by PM Modi

**Nepal** is holding chairmanship of SAARC since 2014

The 2016 SAARC summit in Islamabad was called off after India pulled out following the terror attack in Uri; Bangladesh, Bhutan and Afghanistan also declined to participate

SAARC summits are usually held biennially; the host nation assumes the chair

Afghanistan became the eight member in 2007

The first summit was held on **Dec 8, 1985 in Dhaka** with seven member countries: India, the Maldives, Bhutan, Pakistan, Nepal, Bangladesh and Sri Lanka

**BOUNDARY 'DISPUTE'**  
Following the bifurcation of the erstwhile state of Jammu and Kashmir, India in November released fresh map. Nepal claimed that Limpyadhura, Lipulek and Kalapani areas, shown under India's territory, lie within the Nepalese territory

**DEMARCATATION**  
Nepal's current boundary was demarcated by the Sugauli Treaty of 1816 and the consecutive complementary treaties of December 1816, 1860 and 1875

- While India continues to support SAARC through initiatives like the **South Asian Satellite** and the **South Asian University**, it has also been focusing on **interregional cooperation** via platforms such as **BIMSTEC** and the 'Act East Policy'.

### About SAARC:

- Genesis:** Established through the **SAARC Charter in Dhaka on December 8, 1985**.
- Objectives:** To promote the **welfare of people** and improve their quality of life through accelerated **social progress and economic development** in the region.
- Member States: 8 countries:** Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.
- Secretariat:** Located in **Kathmandu, Nepal**.

## India and Brunei Elevate Ties to 'Enhanced Partnership'

### Context:

- **India and Brunei Darussalam** have elevated their bilateral relationship to an **'Enhanced Partnership,'** marking a new phase in their diplomatic relations with a focus on mutual cooperation and shared strategic interests.

### Key Highlights of the Visit:

- **First Bilateral Visit:** The visit marked the first-ever bilateral visit by an **Indian Prime Minister to Brunei**.
  - Both countries established diplomatic relations in **1984**.
- **Expanded Defence Cooperation:** Agreed to expand defence cooperation through **joint exercises, training programs,** and other initiatives.
- **Policy of Development:** Emphasized the importance of pursuing a policy of **development rather than**



**expansionism** in Southeast Asia, seen as a counter to **Chinese influence** in the region.

- **Enhanced Multilateralism:** Agreed to work together for enhanced **multilateralism** that reflects contemporary global realities.
- **Cooperation in Space Operations:** Cooperation in the operation of **Telemetry, Tracking, and Telecommand Station** for satellites and launch vehicles.
- **Leveraging Mutual Strengths:** Plans to leverage respective strengths in areas such as **technology, finance, manufacturing,** and **processing**.

## DEFENCE & SECURITY

### HAL Partners with SAFHAL for 'Aravalli' Helicopter Engines

#### Context:

- **Hindustan Aeronautics Limited (HAL)** has collaborated with **SAFHAL Helicopter Engines Pvt. Ltd.** to develop and manufacture a new **high-power helicopter engine** named '**Aravalli**'.

#### Key Highlights:

- **Purpose:**
  - The engine is designed for the **13-ton Medium Lift class**.
  - To support the **Indian Multi-Role Helicopter (IMRH)** and **Deck-Based Multi-Role Helicopter (DBMRH)**, both under development by HAL.
- **Strategic Impact:**
  - Aims to boost **India's self-reliance** in **aerospace and defence technology**.
  - Aligns with the goal of enhancing **indigenous development**.
  - Strengthens the **strategic relationship** between **India and France**.

### Use of Drones in Warfare: Implications and Challenges

#### Context:

- The **Chief Minister of Manipur** condemned recent **drone bombings** on civilians in Imphal West, labeling them as acts of terrorism following a second day of **grenade-laden drone attacks** that injured three people.

#### What is a UAV (Drone)?

- A **UAV (Unmanned Aerial Vehicle)** or **drone** is a remotely controlled flying device increasingly used in warfare for:
  - **Logistics**
  - **Surveillance-reconnaissance**
  - **Combat roles**
- **Drone Warfare** is becoming **asymmetric**:
  - Utilized by both **state** and **non-state** actors, demonstrating varying scales of warfare capabilities.
  - Example: The **Russia-Ukraine war** shows asymmetric use by a **state actor** like Ukraine.

#### Drone Use by State Actors:

- **USA and Israel:** Leading in drone development with models like **Predator** and **Heron**.
- **Ukraine:** Uses **Turkish-made Bayraktar drones** effectively against Russian forces.
- **Russia:** Deployed **Orion drones** in Syria in 2019 for strategic strikes.

## Drone Use by Non-State Actors:

- **Houthi Rebels:** Utilized Iranian-supplied drones to attack **Saudi oil facilities**.
- **Terrorist Organizations:** Groups like **ISIS** and **Palestinian Islamic Jihad (PIJ)** use drones for **surveillance** and **attacks**.
- **Narco-Traffickers:** Mexican cartel **CJNG** used drones for bombing targets.

## Advantages of Drone Warfare:

1. **Low Cost and Affordability:** Cheaper than traditional aircraft, making them accessible to a range of actors.
2. **Maneuverability:** Capable of navigating challenging terrains and reaching hard-to-access areas.
3. **Stealth:** Drones are harder to detect and can evade traditional radar systems.
4. **Flexibility:** Can perform a range of roles from surveillance to direct attacks.

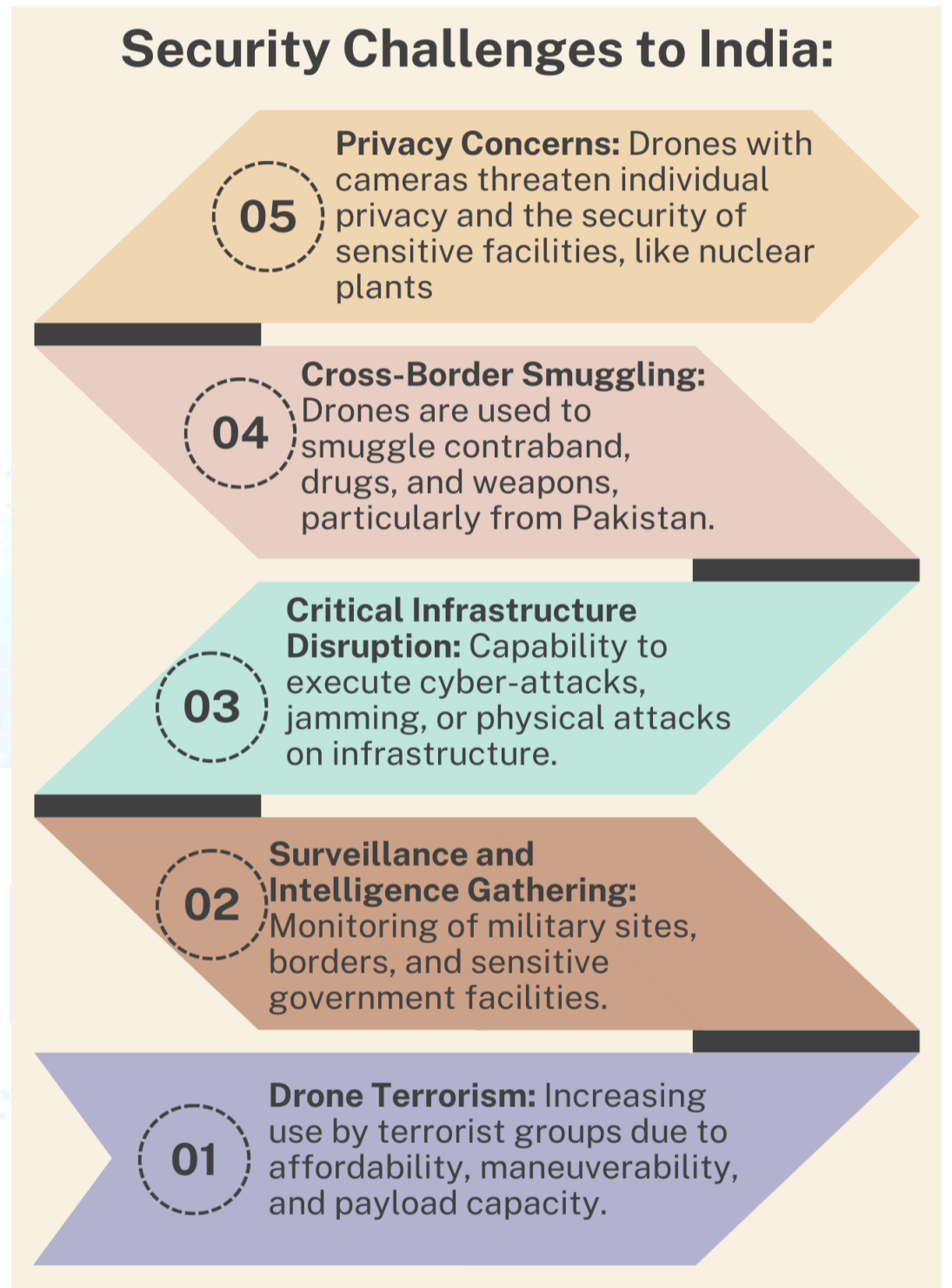
## Steps Taken by India:

1. **Drone Rules 2021:** Regulate internal movement while incentivizing the **indigenous drone manufacturing industry**.
2. **Indian Army Aviation Corps:** Tasked with **offensive roles** and **counter-drone measures**.
3. **Indigenous Anti-Drone Systems:** Development of systems like **Indrajaal** by Hyderabad-based **Grene Robotics**.
4. **Drone Development by DRDO:** Projects include **Nishant, Rustom, MALE**, etc., and acquisition of foreign-made variants like **Heron**.
5. **Drone Import Policy 2022:** Bans foreign drone imports but allows the import of **drone components**.
6. **PLI Scheme:** Incentivizes **domestic drone** and **component manufacturing**.

## Mitigating Drone-Related Threats:

1. **Counter-Drone Technology:** Neutralizes unauthorized drones.
2. **Capacity Building:** Enhances **drone detection** and **response capabilities** of security forces.
3. **Public-Private Partnerships:** Supports the development of **indigenous drone technology**.

## Security Challenges to India:



## Centre and Tripura Sign Peace Agreement with Insurgent Groups

### Context:

- A **Memorandum of Settlement** has been signed between the **Union government, the Tripura government,** and two insurgent groups — the **National Liberation Front of Tripura (NLFT)** and the **All Tripura Tiger Force (ATTF).**

### Key Highlights of the Agreement:

1. **Renunciation of Violence:** NLFT and ATTF have agreed to **abjure violence, lay down all arms and ammunition,** and disband their armed organizations.
2. **Special Development Package:** The Centre has approved a special package of **Rs 250 crore** for the overall development of the **tribal population** of Tripura.

### Major Initiatives and Peace Processes in NER:

1. **Peace Accords and Agreements:**
  - The government has signed **12 important agreements** in recent years to bring peace to the region.
2. **Reduction of 'Disturbed Areas' under AFSPA:**
  - **Armed Forces Special Powers Act (AFSPA)** was lifted from Tripura in **2015** as part of efforts to normalize the region.
3. **Ceasefire, Suspension of Operations, and Other Agreements:**
  - Ceasefire agreements and other accords have been signed to reduce violence and promote dialogue.
4. **Inter-State Boundary Agreements:**
  - In **2022**, the Chief Ministers of **Assam and Meghalaya** signed an MoU to resolve their decades-long **inter-state boundary dispute.**

## REASONS FOR INSURGENCY IN THE NORTH EASTERN REGION (NER):

### Historical Neglect:

Neglect in integrating the hill areas of Assam during the pre-British and British colonial rule led to discontent.

01

02

### Lack of Economic Opportunities

Continuous lack of economic opportunities creates incentives for unemployed youth to join armed movements.

03

### Perception of Force as Effective:

Ethnic communities often perceive the use of force as more effective than non-violent dissent in gaining attention for their grievances.

04

### External Support:

Existence of external help for insurgent groups has fueled violence and instability.

## ECONOMY

### 'Navratna' Status Granted to SJVN, NHPC, RailTel, and SECI

#### Context:

- **Shares of SJVN, NHPC, and RailTel Corporation of India** rose by up to **5.2%** following the Indian government's decision to grant them 'Navratna' status.
- **Solar Energy Corporation of India (SECI)** also received this designation.

#### Key Highlights:

- **Navratna Status:**
  - Enhances **financial** and **operational autonomy** of these state-owned companies.
  - Total number of **Navratna Central Public Sector Enterprises (CPSEs)** now stands at **25**.
- **Implications:**
  - Allows companies **greater decision-making freedom**.
  - Potentially boosts their **market performance** and enables **faster growth**.

### Gross Fixed Capital Formation (GFCF) and India's Economic Outlook

#### Context:

- The **World Bank** projected a decline in **Gross Fixed Capital Formation (GFCF)** in the Indian economy for **FY25**.
- Revised **India's GDP growth estimate** for **FY25** to **7%**, up from **6.6%**, driven by public infrastructure investments and household spending on real estate.

#### About Gross Fixed Capital Formation (GFCF):

- **Definition:** GFCF refers to the **total value** of a country's investments in **fixed assets** during a specific period, such as **infrastructure, machinery, equipment, and buildings**.
- **Importance:** An essential indicator of **economic growth and development**, reflecting the level of investment made to enhance **productive capacity**.

#### Key Observations:

- Despite growth, **urban youth unemployment** remains high at **17%**.
- **India** is losing market share in **labour-intensive sectors** like apparel and footwear.
- **Industrial growth** is expected to slow slightly in **FY26**, while **agricultural growth** is projected to rise sharply.
- The **World Bank** highlighted that **global trade protectionism** and **rising tariffs** could hinder **trade-focused investments**.

#### Significance:

- While there is optimism about India's **GDP growth**, the decline in **GFCF** indicates potential challenges in sustaining **long-term economic development**.

- Addressing issues like **youth unemployment** and improving the **labour-intensive sectors** are crucial for balanced growth.

## GNSS-based Electronic Toll Collection (ETC) System: A Step Towards Seamless Tolling in India

### Context:

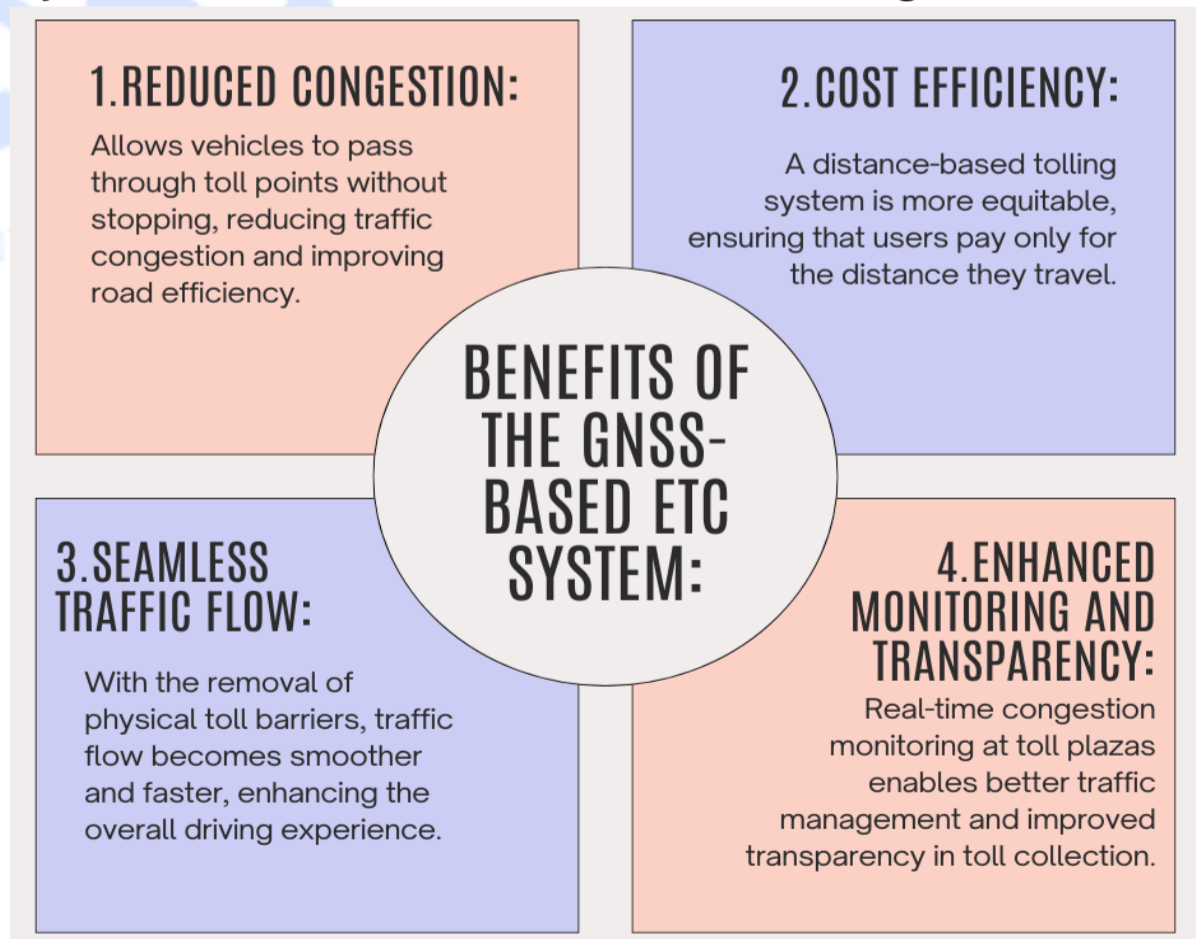
- The introduction of the **GNSS-based Electronic Toll Collection (ETC) system** in India aims to eliminate delays at toll plazas by allowing vehicles to pass without stopping, ultimately replacing the current **FASTag system**.

### Key Features of the GNSS-based ETC System:

- Real-Time Monitoring:** The **Ministry of Road Transport & Highways (MoRTH)** has developed a **GIS-based software** for real-time monitoring of congestion at toll plazas, beginning with 100 plazas.
- Distance-Based Tolling:**
  - The GNSS-based tolling system will charge users based on the **distance travelled** rather than fixed toll points, allowing for a more accurate and fair toll collection system.
  - This system will eventually replace toll barriers, enabling **seamless traffic flow** without the need to stop.
- Initial Integration with FASTag:**
  - The GNSS-based system will initially operate alongside the existing **FASTag system**, with dedicated GNSS lanes at toll plazas.
  - Over time, the entire toll collection system will transition to GNSS-based tolling.

### How Does the GNSS-based ETC System Work?

- The **GNSS-based ETC system** uses **Global Navigation Satellite System (GNSS) technology** to enable automatic, location-based toll collection on highways:
  - Unlike traditional toll collection systems where vehicles stop at toll gates, the GNSS system uses **satellite positioning** to determine the vehicle's location.
  - Toll charges are calculated based on the **distance travelled**, eliminating the need for physical toll booths.



**Significance:** The introduction of the **GNSS-based ETC system** marks a significant step towards **modernizing India's road infrastructure**, promoting efficient traffic management, and providing a more transparent and fair toll collection mechanism.

## Understanding Financialisation: Risks and Implications

### Context:

- **Chief Economic Adviser (CEA) V. Anantha Nageswaran** has cautioned against the **financialisation** of capital markets, where financial market dominance could distort macroeconomic outcomes.

**What is Financialisation? Definition:** Financialisation occurs when **financial markets, motives, and institutions** start to dominate economic activities, overshadowing real economic activities like **production and investment**.

### Risks of Financialisation:

1. **Increased Debt:** High levels of borrowing by both public and private sectors can lead to **excessive debt**.
  - **Example:** During the **2008 global financial crisis**, many countries faced severe economic downturns due to debt fueled by financial speculation.
2. **Asset Price Inflation:** Reliance on financial markets can lead to artificially inflated asset prices.
  - **Example:** The **dot-com bubble** of the late 1990s saw technology stocks trading at unsustainable valuations, resulting in a market crash when the bubble burst.
3. **Economic Inequality:** Financialisation can exacerbate **income inequality**, as gains from financial investments often disproportionately benefit the wealthy.
  - **Example:** Rising stock market values tend to benefit those who already hold significant financial assets, widening the wealth gap between the rich and the poor.

### Example of Financialisation Risks:

- **2008 Financial Crisis:**
  - Exemplifies financialisation risks, where excessive speculation and financial practices led to a global economic meltdown, highlighting the dangers of allowing financial markets to overshadow real economic fundamentals.



## AGRICULTURE

### Cabinet Approves Digital Agriculture Mission to Transform India's Farm Sector

#### Context:

- The **Union Cabinet** has approved the **Digital Agriculture Mission** with an outlay of **Rs 2,817 crore** to create **Digital Public Infrastructure (DPI)** for the agricultural sector.

#### What is Digital Agriculture?

- Digital Agriculture** involves using **digital technologies** (such as sensors, drones, GPS, big data analytics, and AI) to:
  - Collect, store, analyze, and share data** across the agricultural sector.
  - Enhance **farm management, crop monitoring**, and optimize inputs like **water and fertilizers** to increase yields.



#### What is the Digital Agriculture Mission?

- A government initiative aimed at developing **Digital Public Infrastructure (DPI)** for the agriculture sector to:
  - Improve **farm management** and **productivity**.
  - Provide **services to farmers** using digital tools.
  - Modernize Indian agriculture by integrating technologies like **data analytics, geospatial information, and AI** for **decision-making, crop estimation, and resource management**.

#### Components of the Digital Agriculture Mission:

Component	Description	Progress/Fact
<b>AgriStack</b>	Digital infrastructure for <b>farmer databases, village maps, and crop registries</b> .	Pilots conducted in <b>6 districts</b> ; Target: <b>11 crore farmers</b> to receive digital IDs.
<b>Krishi Decision Support System (DSS)</b>	Geospatial system to unify <b>crop, soil, weather, and water data</b> .	Launched; Supports <b>crop pattern identification</b> and <b>drought/flood monitoring</b> .
<b>Soil Profile Maps</b>	Detailed <b>soil maps</b> (1:10,000 scale) of agricultural lands.	<b>29 million hectares</b> of soil mapped; Target: <b>142 million hectares</b> .
<b>Digital General Crop Estimation Survey (DGCES)</b>	Improves <b>crop yield estimates</b> and data accuracy for production.	Nationwide rollout planned; Pilots conducted in <b>11 states</b> in FY2023-24.

## Issues with Agri-Tech in India:

1. **Limited Digital Literacy:** Many farmers lack the skills and access needed to adopt agri-tech.
2. **High Upfront Costs:** Significant initial investment required for agri-tech solutions is a barrier for small-scale farmers.
3. **Fragmented Land Holdings:** Small, fragmented land makes large-scale mechanization challenging.
4. **Limited Infrastructure:** Poor access to basic infrastructure like electricity and internet hinders agri-tech adoption.
5. **Inadequate Government Policies:** Inconsistent or poorly implemented policies affect the effectiveness of agri-tech initiatives.
6. **Lack of Collaboration:** Limited cooperation among farmers, the private sector, and the government restricts effective solution development.
7. **Limited Market Access:** Challenges in accessing markets and market information affect the adoption of agri-tech.
8. **Drone Regulation Issues:** Privacy concerns arise due to sophisticated sensors and cameras on drones.

## WAY FORWARD:

1. **Encourage Modern Technology Adoption:**  
Provide subsidies and incentives for advanced farming equipment and techniques to make them more accessible.
2. **Farmer-Centric Research**  
Focus on the specific needs of farmers and involve them in developing relevant technologies.
3. **Improve Access to Technology**  
Create affordable and accessible solutions to boost productivity, especially for small-scale farmers.
4. **Promote Education and Training**  
Support knowledge transfer and facilitate the adoption of new technologies through education and training programs.
5. **Establish Clear Regulations for Drones**  
Implement privacy laws and regulations to ensure the safe and effective use of drones in agriculture.

## Other Related Government Initiatives:

Initiative	Explanation
<b>Promotion to Startups</b>	Over <b>1,000 agri-tech startups</b> in India providing innovative solutions across the agricultural value chain.
<b>Digital Agriculture Mission</b>	Projects based on technologies like <b>AI, blockchain, remote sensing, drones, and robots</b> to advance agriculture.
<b>Unified Farmer Service Platform (UFSP)</b>	Platform for <b>seamless interoperability</b> of IT systems in the agriculture ecosystem, enhancing service delivery to farmers.
<b>National e-Governance Plan in Agriculture (NeGPA)</b>	Uses <b>ICT</b> for timely access to agriculture-related information, including platforms like <b>Farmers Portal</b> and <b>mkisan</b> for advisories.
<b>Strengthening/Promoting Agricultural Information System (AGRISNET)</b>	Strengthens the <b>IT infrastructure</b> of the Department and enhances information dissemination through platforms like <b>mkisan</b> .

## AgriSURE Fund & Krishi Nivesh Portal

### Context:

- The **Union Minister** launched the **AgriSURE Fund** and **Krishi Nivesh Portal** to support agricultural innovation and streamline investments in the agriculture sector.
- The event also included the presentation of the **Greenathon AIF Excellence Awards**, recognizing top-performing banks and states for their implementation of the **Agriculture Infrastructure Fund (AIF)** scheme.

### Overview of AgriSURE Fund & Krishi Nivesh Portal:

Aspect	AgriSURE – Agri Fund for Start-Ups & Rural Enterprises	Krishi Nivesh Portal
<b>Established</b>	Following the <b>2022-23 Budget announcement</b> by India's Finance Minister.	Launched on <b>December 5, 2022</b> .
<b>Purpose</b>	To support <b>innovative, high-risk, and high-impact agricultural start-ups</b> .	To <b>simplify agricultural investments</b> and enhance transparency.
<b>Focus Areas</b>	Investment in <b>agriculture, technology-driven start-ups, farm mechanization</b> , and rural enterprises.	Facilitating access to <b>information and applications</b> for various government schemes in agriculture.
<b>Objectives</b>	<ul style="list-style-type: none"> <li>- <b>Foster investment</b> in agriculture.</li> <li>- <b>Create employment opportunities</b>.</li> <li>- <b>Encourage youth participation</b> in agriculture.</li> <li>- <b>Strengthen the agricultural value chain</b>.</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Streamline the investment process</b>.</li> <li>- Provide <b>guidelines</b> for market entry strategies and regulatory frameworks.</li> <li>- <b>Empower women in agriculture</b> through special provisions and training programs.</li> </ul>

### Key Features:

- **AgriSURE Fund:**
  - Focuses on supporting **agricultural start-ups** that are innovative, high-risk, and have a high impact.
  - Aims to promote **investment** in agriculture, **create employment**, encourage **youth participation**, and strengthen the **agricultural value chain**.
- **Krishi Nivesh Portal:**
  - Designed to **simplify agricultural investments** and enhance transparency.
  - Provides **access to information** and applications for various government schemes.
  - Focuses on empowering women in agriculture and providing guidelines for market entry strategies.

## Significance:

- The launch of the **AgriSURE Fund** and **Krishi Nivesh Portal** represents a concerted effort by the government to:
  - **Boost innovation** in agriculture through support for start-ups and rural enterprises.
  - **Enhance transparency** and streamline processes related to agricultural investments.
  - Empower **youth and women** in the agricultural sector, strengthening India's agricultural economy and value chain.

# GEOGRAPHY

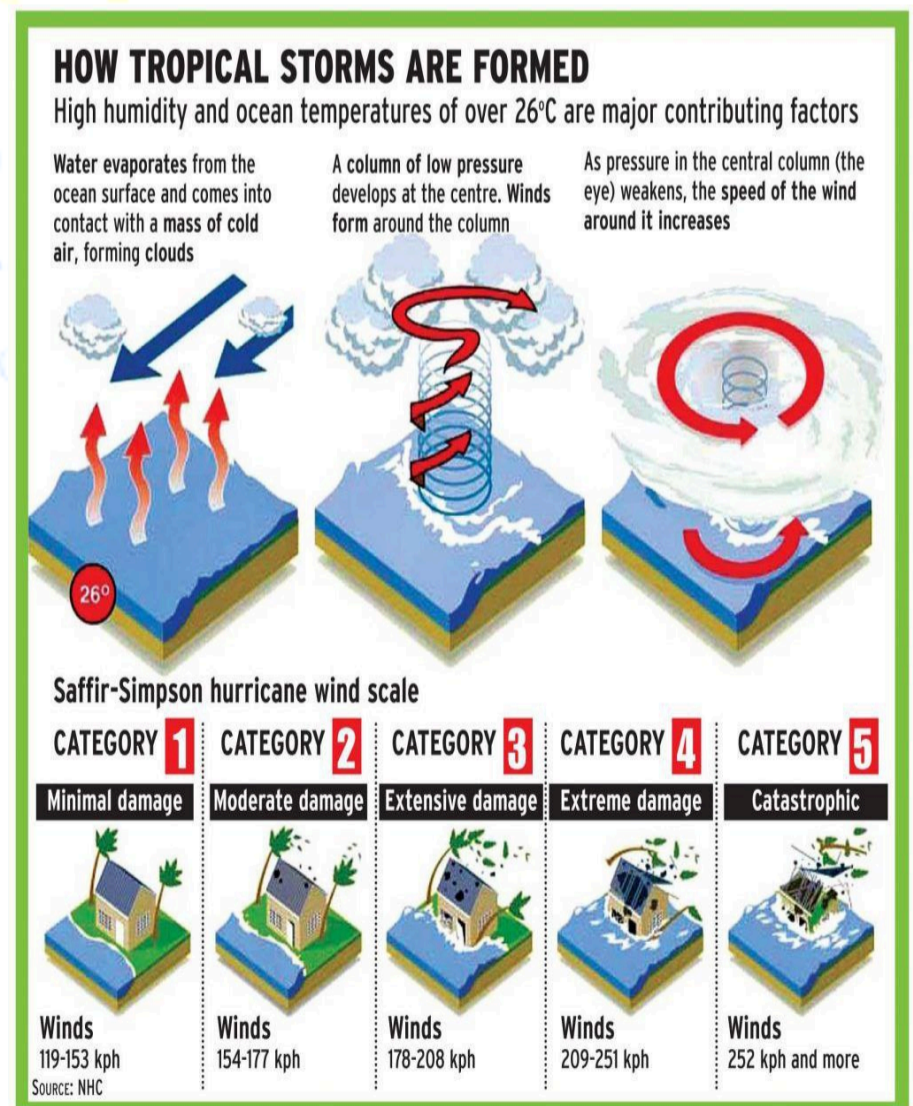
## Cyclone Asna: Movement and Impact

### Context:

- **Cyclone Asna** formed over the **Kutch coast in Gujarat, India**.
- The cyclone moved towards **Oman** without causing significant impact in the region.
- It originated from a **deep depression**, bringing **rain** and **strong winds** but causing **no major damage or casualties**.

### About Cyclones:

- **Definition:** Cyclones are **intense systems of air circulation** around a **low-pressure center**, characterized by **violent storms** and **adverse weather conditions**.
- **Rotation:**
  - **Northern Hemisphere:** Cyclones rotate **counterclockwise**.
  - **Southern Hemisphere:** Cyclones rotate **clockwise**.
- **Origin of the Term:**
  - The word "**Cyclone**" comes from the Greek word "**Cyclos**," meaning the **coils of a snake**.
  - Coined by **Henry Peddington** to describe the appearance of tropical storms in the **Bay of Bengal** and the **Arabian Sea** that resemble **coiled serpents**.



## Types of Cyclones:

### 1. Tropical Cyclones:

- Form in **tropical regions**.
- Include **hurricanes** (in the North Atlantic, Central, and Eastern North Pacific) and **typhoons** (in the Northwest Pacific).

### 2. Extra-Tropical Cyclones:

- Also known as **temperate, middle-latitude, or frontal cyclones**.
- Occur in the **mid-latitudes**.
- Associated with **weather fronts** and **low-pressure systems**.

## Issues with the Disaster Management (Amendment) Bill, 2024

### Context:

- The **Disaster Management (Amendment) Bill, 2024**, introduced on **August 1, 2024**, seeks to **centralize disaster management**, potentially undermining **cooperative federalism** and adding **bureaucratic layers** that may complicate disaster response.

### Aim of the Bill:

- The Bill aims to introduce changes for:
  - **Effective pre-planning** of disaster events.
  - Integration of **disaster preparedness** in developmental plans.
  - Clarifying the **roles and responsibilities** of authorities handling disasters, aligning with the **15th Finance Commission's** recommendations.

### Key Features of the Disaster Management (Amendment) Bill, 2024:

Feature	Description
<b>Creation of Disaster Database</b>	Establishes a <b>disaster database</b> at national and state levels, including disaster assessments, fund allocation, expenditure, preparedness and mitigation plans, and risk registers.
<b>Prepare Disaster Plan</b>	Empowers <b>NDMA</b> and <b>SDMA</b> to prepare disaster plans, replacing the National Executive Committee and State Executive Committees. Plans must be reviewed every <b>three years</b> and updated every <b>five years</b> .
<b>Creation of Urban Disaster Management Authority</b>	Proposes the creation of <b>Urban Disaster Management Authorities</b> for state capitals and large cities with municipal corporations (excluding <b>Delhi and Chandigarh</b> ).
<b>Statutory Recognition</b>	Grants <b>statutory status</b> to the <b>National Crisis Management Committee</b> and the <b>High-Level Committee</b> .
<b>State Disaster Response Force</b>	Allows state governments to form <b>State Disaster Response Forces</b> to enhance state-level disaster response.

<b>New Section 60A</b>	Empowers Central and State governments to direct individuals on disaster management actions and impose penalties up to ₹10,000 for non-compliance.
------------------------	--

### Benefits of the Disaster Management (Amendment) Bill, 2024:

#### 1. Enhanced Disaster Database:

- Provides detailed data on disaster assessments and risks, aiding in better planning and response (e.g., tracking floods in Bihar or cyclones in Odisha).

#### 2. Urban Disaster Authorities:

- Dedicated authorities in cities like **Mumbai** and **Delhi** improve response to urban crises, such as building collapses or air pollution emergencies.

#### 3. Revised Disaster Planning:

- NDMA** and **SDMAs** can develop more integrated plans, enhancing efficiency and coverage (e.g., coordinated responses to the 2023 Gujarat earthquake).

#### 4. Statutory Recognition:

- Strengthens bodies like the **National Crisis Management Committee**, leading to improved coordination in large-scale disasters such as the 2019 Kerala floods.

#### 5. State Disaster Response Force:

- Empowers states to form specialized forces, improving local readiness and response (e.g., West Bengal's proposed team for riverbank erosion).

#### 6. Penalties for Non-Compliance:

- Ensures adherence to disaster management protocols, such as enforcing building safety standards (e.g., preventing disasters like the 2013 Uttarakhand floods).

### KEY ISSUES WITH THE DISASTER MANAGEMENT (AMENDMENT) BILL, 2024:



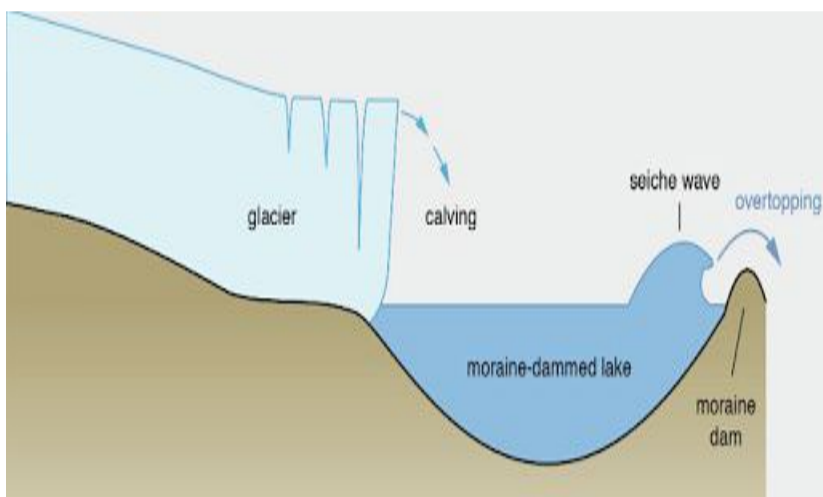
### Key Features of the Disaster Management Act, 2005:

Feature	Description
<b>3-Tier Institutional Structure</b>	<b>National Level:</b> NDMA, led by the Prime Minister. <b>State Level:</b> SDMAs, headed by Chief Ministers. <b>District Level:</b> DDMAs, led by District Collectors, Magistrates, or Deputy Commissioners.
<b>National Disaster Response Force</b>	Established for <b>specialist response</b> to disaster situations.
<b>National Disaster Response Fund</b>	Created to fund and manage response efforts during threatening disaster situations.

## Glacial Lake Outburst Flood (GLOF):

### Context:

- A **central team** from the **GLOF Early Warning Systems Mission** visited **Tenchungkha Lake in Sikkim**, marking the first of 16 planned assessments in the region.
- The **National Disaster Management Authority (NDMA)** has identified **188 critical lakes** across the **Indian Himalayan Region** vulnerable to **GLOF events** and is collaborating with state governments and experts, including **ISRO scientists**, to implement **early warning systems** and risk mitigation strategies.



### What is a Glacial Lake?

- **Glacial lakes** are large bodies of water formed by **meltwater from glaciers**, typically located:
  - In front of
  - On top of
  - Beneath melting glaciers.
- These lakes develop near the glacier's **snout** as **meltwater accumulates**.

**Hazard:** As **glacial lakes** grow, they are often dammed by **unstable ice** or **loose sediment**, making them potentially dangerous.

- The unstable boundaries can lead to catastrophic flooding if they fail.

### What is a Glacial Lake Outburst Flood (GLOF)?

- **GLOF** occurs when the **dam** or boundary around a glacial lake **fails**, causing a sudden and massive release of water.
- This can lead to **flooding in downstream areas**, posing a significant threat to communities and infrastructure.

### Triggers for GLOFs:

- **Earthquakes:** Can destabilize the ice or sediment dam.
- **Heavy Rains:** Increase water volume, raising pressure on the dam.
- **Ice Avalanches:** Can cause sudden breaches or overtopping of the dam.

### Significance:

- Understanding the risks associated with **GLOFs** is crucial for disaster preparedness and management, particularly in the **Himalayan region**.

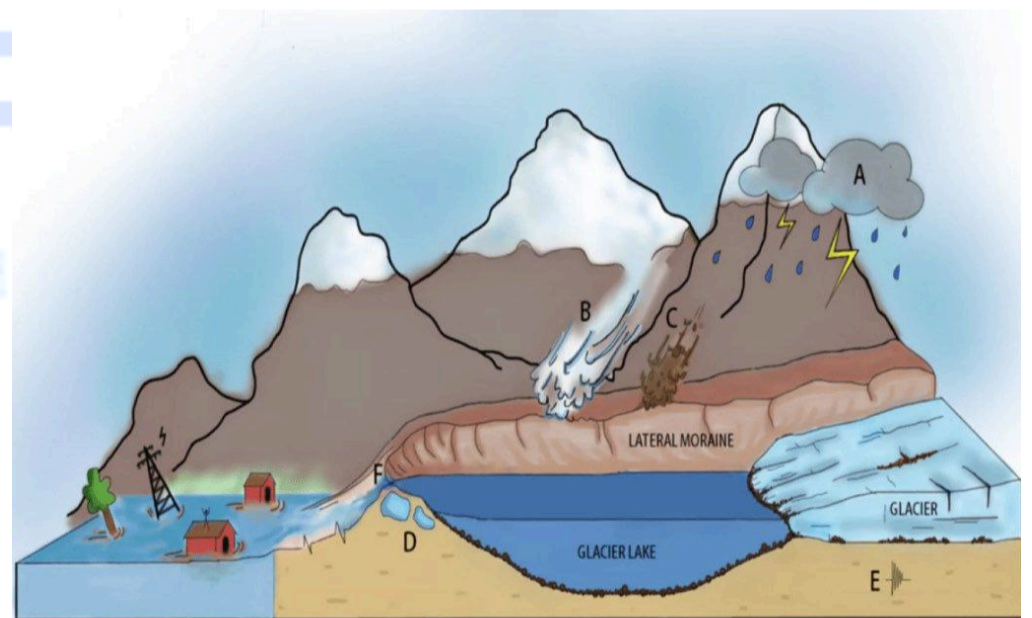


Figure-1: Illustrative graphic showing various reasons for GLOF occurrence (A) Cloudburst (B) Snow avalanche (C) Landslide (D) Melting of ice in moraine (E) Earthquake (F) Overflow

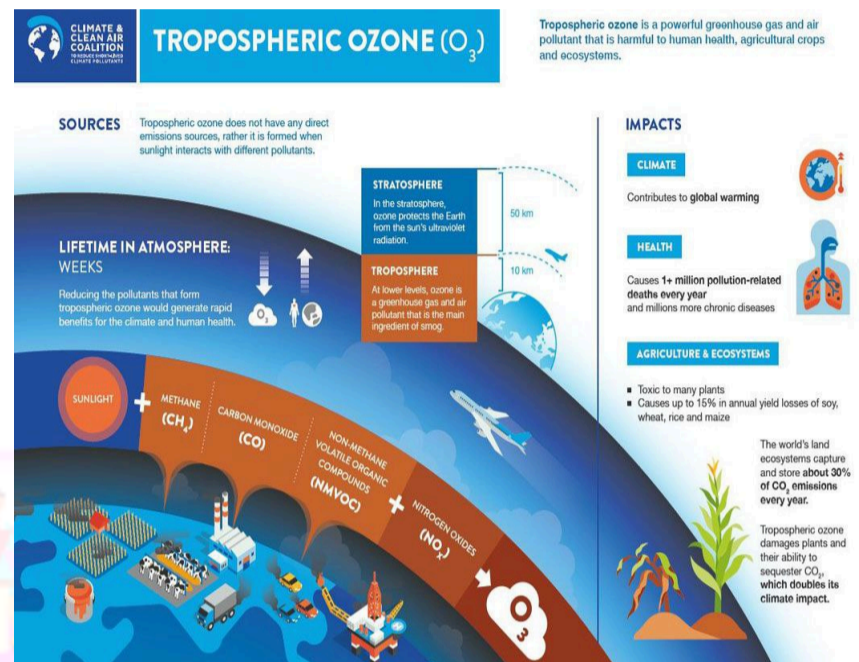
- The efforts of the **NDMA** and the implementation of **early warning systems** aim to protect lives, property, and infrastructure from potential GLOF events.

## ENVIRONMENT & ECOLOGY

### Impact of Methane on Climate Change

#### Introduction to Methane:

- **Methane (CH<sub>4</sub>):** An **odorless, colorless, and flammable gas**.
- Second-largest contributor to **global warming** after **Carbon Dioxide (CO<sub>2</sub>)**.
- Primary cause of **ground-level ozone**, a harmful air pollutant.
- Methane remains in the atmosphere for around **12 years** but is **84 times** more effective at trapping heat than CO<sub>2</sub> over 20 years.



#### Key Findings from IEA Global Methane Tracker 2024 Report:

- **Methane Emissions:** Near **record highs** in 2023 from the energy sector.
- **Main Contributors:**
  - **Fossil fuels** and **bioenergy** contribute around **120 million tonnes (Mt)** of emissions.
  - **70%** of emissions come from the **top 10 emitting countries**.
  - **United States:** Highest emissions from **oil and gas operations**.
  - **Russia:** Second highest from **oil and gas**.
  - **China:** Leads in emissions from the **coal sector**.
- **Reduction Target:** Aiming for a **75% reduction** in methane emissions by 2030, needing an investment of **US \$170 billion**.
- **Tracking Improvements:** Use of **satellite imagery** has improved transparency, but better data use is needed.

#### About IEA:

- **International Energy Agency (IEA):** Established in **1974**, headquartered in **Paris**.
- Works to ensure **oil supply security**; consists of **31 member countries**.
- Publishes the **World Energy Outlook** annually.



## Role of Methane in Climate Change:

- **Heat-Trapping Ability:** Methane traps **84 times more heat than CO<sub>2</sub>** over a 20-year period.
- **Atmospheric Duration:** Remains in the atmosphere for **12 years** but has a high impact during its lifespan.
- **Contribution to Global Warming:** Responsible for around **one-third** of the warming since the **Industrial Revolution**.
- **Sources:**
  - **Human Activities (60%):** Agriculture (e.g., cow burps), landfills, fossil fuel extraction.
  - **Natural Sources:** Wetlands, permafrost thawing.
- **Energy Sector Emissions:** Leaks during **oil and gas production, transport, and storage**.

## Way Forward:

1. **Sustainable Agriculture:**
  - Use **precision farming** and **conservation tillage**.
  - Implement rice-growing techniques like **System of Rice Intensification (SRI)** and **Direct Seeded Rice (DSR)**.
2. **Methane Capturing Technologies:** Capture methane in **livestock operations and landfills** to convert it into energy.
3. **Promote Biogas Production:** Increase **biogas production** from organic waste as a renewable energy source to reduce emissions.

## Global and Indian Initiatives to Control Methane Emissions:

### Global Initiatives:

- International Methane Emissions Observatory (IMEO)
- **Global Methane Pledge:** Targets a 30% cut in emissions by 2030 (India not a part).
- Global Methane Initiative (GMI)
- **MethaneSAT:** A satellite for measuring methane emissions.

### Indian Initiatives:

- **GobarDhan Scheme:** Encourages biogas production from organic waste.
- **National Biogas and Organic Manure Programme:** Supports biogas plants for clean energy and organic manure.

## SCIENCE & TECHNOLOGY

### Project Strawberry: OpenAI's Step Towards Advanced AI Capabilities

**Context:**

- **Project Strawberry** is an upcoming **AI model** from **OpenAI**, anticipated to be significantly more advanced in **math, programming, and reasoning** than current chatbots.
- Likely to be integrated into **ChatGPT-5**, it represents a move towards achieving **Artificial General Intelligence (AGI)**, aiming for capabilities akin to the human brain.

**Significance:**

- **Project Strawberry** underscores OpenAI's drive to push the limits of AI by enhancing its **cognitive abilities** and creating synthetic data to improve AI training.
- This project could lead to advancements in numerous fields, from **scientific research** to **personalized education**, while also highlighting the importance of **responsible AI development**.

**KEY FEATURES OF PROJECT STRAWBERRY:**

1

**Advanced AI Capabilities:**

- Designed to autonomously conduct internet research, solve complex puzzles, and enhance AI's reasoning abilities.
- Expected to significantly improve performance in areas like math, programming, and logical reasoning.

2

**Synthetic Data Generation:**

- Aims to generate high-quality synthetic data to address the scarcity of accessible training data on the internet.
- This data could help reduce biases and errors in AI models, potentially leading to breakthroughs in fields such as scientific research and personalized education.

3

**Towards Artificial General Intelligence (AGI):**

- Represents a significant step towards achieving AGI, where AI exhibits cognitive functions similar to those of a human brain.
- Focuses on improving the reasoning and decision-making capabilities of AI.

4

**Rebranding and Development:**

- Formerly known as Project Q\*, Project Strawberry reflects OpenAI's efforts to push the boundaries of AI technology and development.

5

**Security and Ethical Considerations:**

- Demonstrates OpenAI's commitment to advancing AI while carefully addressing security concerns related to rapid development.
- Ensures the development of AI models that are safer, more ethical, and more reliable.

### Vishvasya-Blockchain Technology Stack: A New Era in Blockchain for India

**Context:**

- The **Government of India** has launched the **Vishvasya-Blockchain Technology Stack**, offering **Blockchain-as-a-Service (BaaS)** with geographically distributed infrastructure to support **permissioned blockchain applications**.

**What is Blockchain?**

• **Definition:**

- Blockchain is a **digital ledger technology** where data, such as transactions, is stored in **“blocks”** that are linked together in a chronological **“chain.”**
- Each block is **securely encrypted**, making the data **tamper-proof**.

- **Example: Bitcoin**, where blockchain tracks all transactions in a secure, decentralized manner.

## What is a Blockchain Technology Stack?

- **Definition:**

- A **Blockchain Technology Stack** refers to the layers of technologies needed to build and operate a blockchain. It includes:
  - **Infrastructure:** Servers and networks.
  - **Core Blockchain Functionality:** Protocols and consensus mechanisms.
  - **Smart Contracts:** Automated, self-executing contracts.
  - **APIs:** Tools to interact with the blockchain.
- **Example: Ethereum's technology stack** enables decentralized apps and smart contracts.

## What is Blockchain-as-a-Service (BaaS)?

- **Definition:**

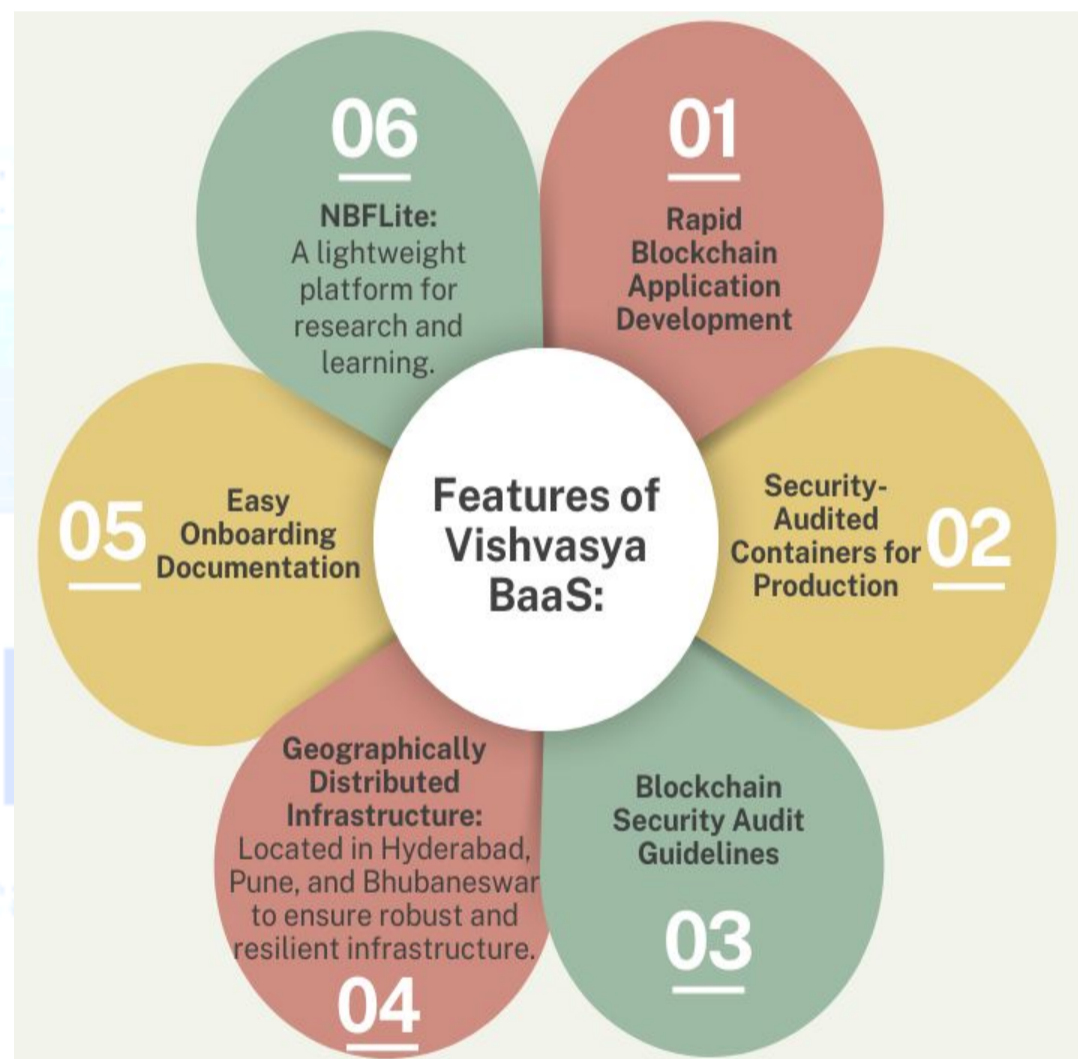
- **Blockchain-as-a-Service (BaaS)** is a **cloud-based service** where third parties provide infrastructure and tools to build and use blockchain applications without needing to develop or maintain the blockchain themselves.
- **Example: Microsoft Azure's BaaS** allows businesses to deploy blockchain applications quickly.

## About Vishvasya (BaaS):

- **Vishvasya** offers **Blockchain-as-a-Service (BaaS)** using a **distributed infrastructure** to support **permissioned blockchain applications**.
- It provides **cloud-based tools** for companies to build and manage blockchain apps.
- Part of the **National Blockchain Framework (NBF)**, which aims to utilize blockchain in areas like **health, agriculture, and finance** while addressing adoption challenges.

## Additional Launches:

- **NBFLite:** A sandbox for startups and academia to prototype blockchain apps.
- **Praamaanik:** A blockchain tool for verifying mobile app origins.
- **National Blockchain Portal:** Central platform for blockchain resources and tools.



## Blockchain Applications by Sector:

Sector	Blockchain Application
<b>Cryptocurrency</b>	Enables decentralized, peer-to-peer digital currency transactions (e.g., Bitcoin, Ethereum).
<b>Energy</b>	Used for peer-to-peer energy trading platforms and streamlining renewable energy access.
<b>Finance</b>	Supports online payments, accounts, and market trading (e.g., Singapore Exchange Limited's interbank payment system).
<b>Healthcare</b>	Facilitates secure transfer of medical records, manages drug supply chain, and aids genetic research.
<b>Smart Contracts</b>	Automates contract execution when predefined conditions are met, without human intervention.
<b>Media and Entertainment</b>	Handles copyright data and digital rights management (e.g., Sony Music Entertainment uses blockchain for digital rights management).
<b>Retail</b>	Monitors the flow of goods between suppliers and customers (e.g., Amazon Retail's blockchain-based authenticity verification).
<b>Blockchain-as-a-Service</b>	Provides cloud-based blockchain infrastructure and tools for creating applications and digital services.
<b>Supply Chain Management</b>	Improves transparency and traceability in supply chains, ensuring authenticity and reducing fraud.
<b>Government Services</b>	Applied in voting systems, personal identification security, and secure data management.

## India's Blockchain Technology Initiatives:

- **RBI Regulatory Sandbox:** Supervises blockchain startups in cryptocurrencies and exchanges.
- **National Strategy on Blockchain:** Promotes state-specific blockchain applications for e-governance, excluding digital currencies like Bitcoin.
- **State-Specific Initiatives:** States like **Telangana**, **Tamil Nadu**, and **Maharashtra** focus on blockchain centers and incubators (e.g., Telangana Blockchain District, Tamil Nadu Blockchain Policy 2020).
- **Digital India Initiatives:** Identifies blockchain as a key emerging technology.
- **Centre of Excellence for Blockchain Technology:** Established by NIC to create a nationwide interoperable blockchain ecosystem.

## Significance:

- The launch of the **Vishvasya-Blockchain Technology Stack** reflects India's commitment to advancing **blockchain technology** across multiple sectors, fostering innovation, enhancing transparency, and reducing dependency on foreign technology. It aims to position India as a global leader in **blockchain applications** and solutions.

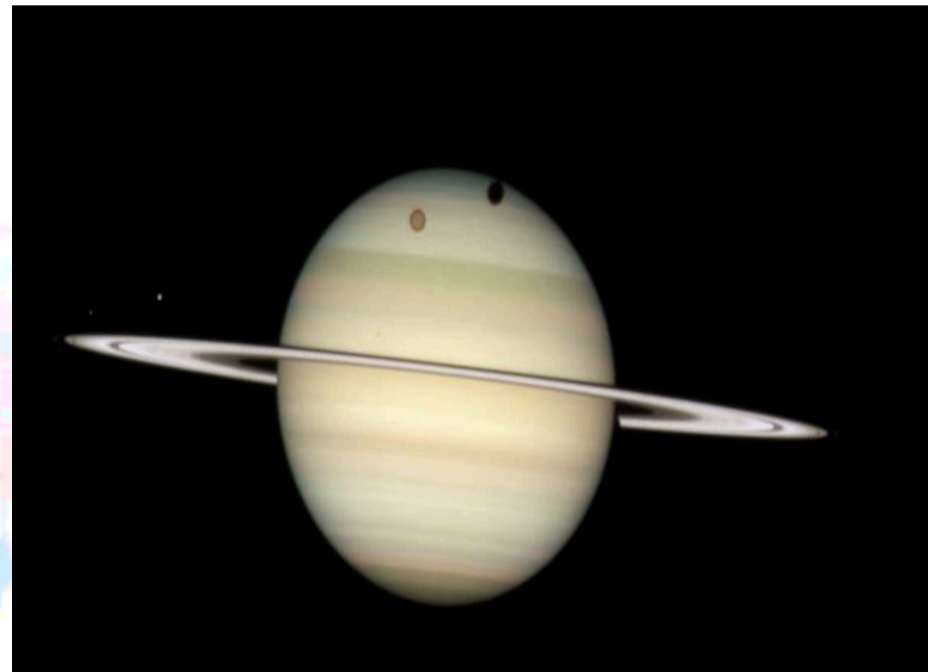
## Saturn's Rings: The Disappearing Act and What We Know

### Context:

- **Saturn's iconic rings** will appear to "disappear" from view in **March 2025** due to the planet's **axial tilt**, which will align the rings edge-on from **Earth's perspective**.
- This phenomenon, known as an **equinox**, happens twice during **Saturn's 29.5-year orbit** around the Sun, causing both hemispheres to receive equal sunlight, making the rings nearly invisible when viewed from Earth.
- The rings will **reappear later in 2025** as Saturn continues its orbit.
- This rare occurrence was first observed by **Galileo** in the 1600s using his early telescope.

### About Saturn's Rings:

- **Composition:**
  - Saturn's rings are vast, thin structures made primarily of **ice, dust, and rock particles** that orbit around the planet.
  - The rings consist of billions of tiny particles ranging from **dust grains** to large chunks the size of **mountains**.
  - These particles are thought to be remnants of **comets, asteroids, or moons** that were torn apart by Saturn's gravity.
- **Structure:**
  - The rings are the most prominent **ring system** in the solar system, extending up to **175,000 miles (282,000 km)** from Saturn but are only about **30 feet (10 meters)** thick.
  - They are divided into several main sections labeled **A, B, and C**, along with other smaller rings like **D, E, F, and G** rings.
- **Gravitational Influence:**
  - The rings are held in place by **Saturn's strong gravitational pull** and are influenced by its moons, which help to **shape and stabilize** the ring structures.



### Significance of the Disappearance:

- The phenomenon of Saturn's rings disappearing from view during an equinox provides a unique opportunity for astronomers to study the rings' **structure, composition, and dynamics**.
- Understanding the changes and movements within the rings can offer insights into their **origin and evolution**, as well as broader planetary ring systems.

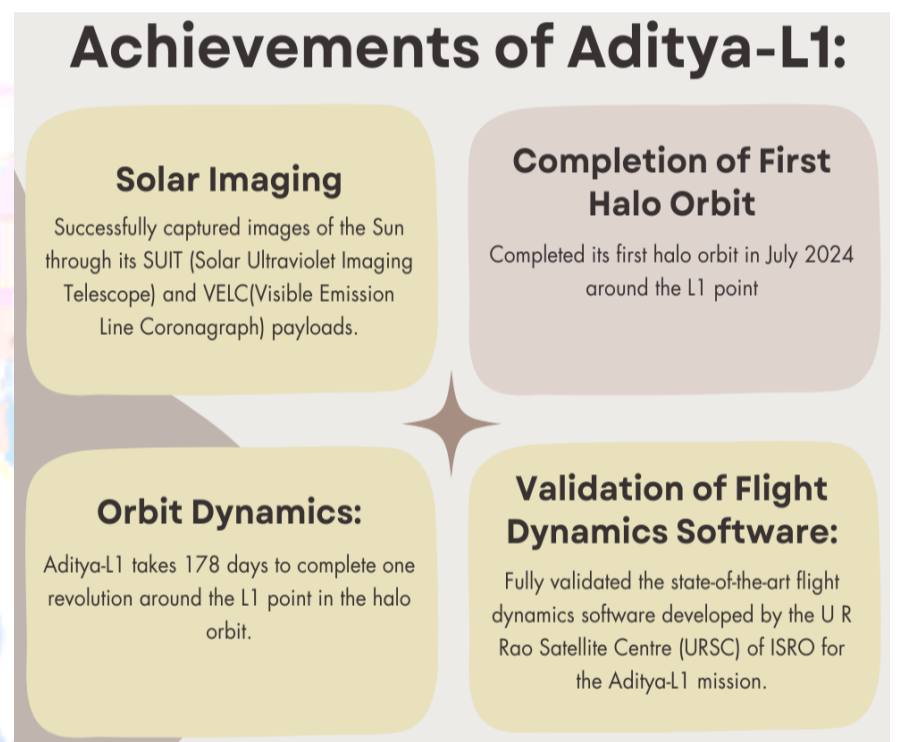
## One Year Since the Launch of India's First Solar Mission, Aditya L1

### Context:

- It has been one year since the launch of India's first solar mission, **Aditya L1**, which was sent to observe the Sun from a **halo orbit**.

## About Aditya-L1 Mission:

- **Launch Vehicle:** The mission was launched by **PSLV-C57** and successfully inserted into its targeted **halo orbit** in **January 2024**.
- **Objectives:**
  - To understand:
    - **Coronal Heating** and **Solar Wind Acceleration**.
    - The initiation of **Coronal Mass Ejection (CME)**, **flares**, and **near-Earth space weather**.
    - **Solar wind distribution** and **temperature anisotropy**, among other phenomena.
- **Positioning at Lagrangian Point L1:**
  - The spacecraft is placed at the **Lagrangian point L1**, allowing continuous observation of the Sun without **occultation or eclipses**.
  - This positioning reduces fuel consumption and provides uninterrupted solar observation.
- **Payloads:**
  - The mission carries **7 payloads**:
    - **Four payloads** directly view the Sun.
    - **Three payloads** perform in-situ studies of particles and fields at L1, providing insights into the propagation effects of solar dynamics in the interplanetary medium.
- **Lifespan:** Designed to operate for **5 years**.

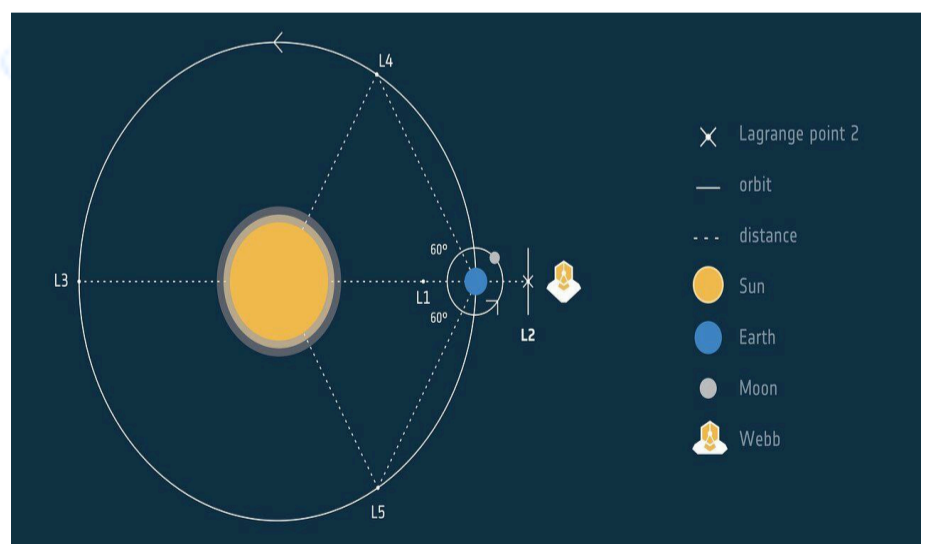


## Other Solar Missions:

- **Hinotori (ASTRO-A):** Launched by **Japan** in the 1980s.
- **Parker Solar Probe:** Launched by the **US** in **2018**, it is the first spacecraft to “touch” the Sun.
- **Solar and Heliospheric Observatory (SOHO):** Jointly launched by **NASA-ESA**; it is the longest-lived Sun-watching satellite.

## About Lagrange Points:

- **Definition:** At **Lagrange points**, the gravitational pull of two large masses (like the **Sun and Earth**) equals the centripetal force needed for a small object to move with them. This creates points where objects tend to remain stationary.
- **Types of Lagrange Points:** There are **five Lagrange points (L1, L2, L3, L4, L5)**:
  - **L1, L2, L3** are **unstable** points.
  - **L4, L5** are **stable** points.



## BIOTECHNOLOGY

### Mitochondria: Key to Understanding Parkinson's Disease

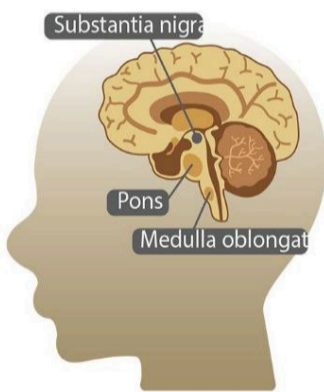
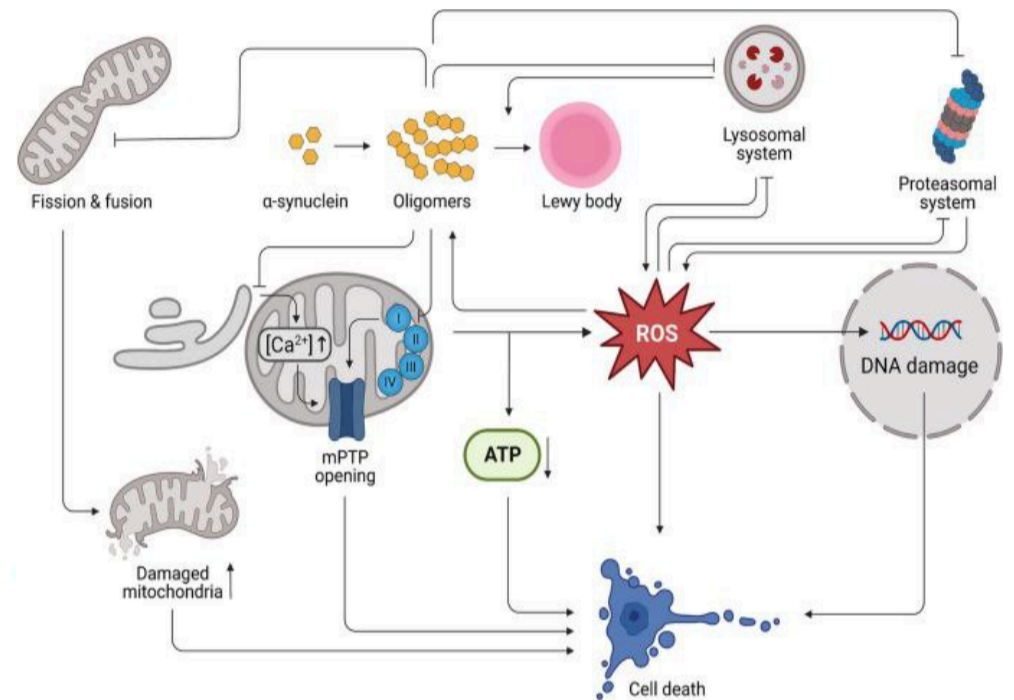
**Context:**

- Researchers are studying the role of **mitochondria**, often referred to as the **cell's powerhouses**, in **Parkinson's disease**.

**Key Points:**

**1. Role of Mitochondria:**

- Mitochondria are **dynamic organelles** that constantly change in **size, number, and location** to meet cellular energy demands.
- **Imbalances** in mitochondrial dynamics have been linked to **neurodegenerative diseases**, including Parkinson's disease.



**What is Parkinson's Disease?**

Parkinson's disease is a slow progressive degenerative disease of the brain. The disease affects the basal ganglia and substantia nigra of the brain, which are responsible for the production of dopamine. The loss of dopamine in the brain results in impairment of movement.

Parkinson's disease mainly affects the sufferer's motor system. Other symptoms of Parkinson's disease include:

<b>Physical Symptoms</b>	Slow movement	Expression-less face	<b>Emotional Symptoms</b>	
	Tremors	Drizzling	Depression	Anxiety
	Muscle rigidity	Changes in speech	<b>Other Symptoms</b>	
	Difficulty walking	Trouble with balance	Trouble with memory in the disease's advanced stages	Reduced sense of smell
		Constipation	Excessive sweating	
		Frequent urination, urinary incontinence	Dizziness and lightheadedness when getting up	

**2. Research Focus on Drp1 Protein:**

- The research focused on a protein called **Drp1 (Dynamin-related protein 1)**, which controls **mitochondrial division**.
- **Excessive activity** of Drp1 leads to **mitochondrial fragmentation**, causing **cellular dysfunction** and **cell death**.

**3. Research Findings:**

- By **reducing Drp1 activity** in lab models of Parkinson's (including cell cultures and animal models), researchers:
  - Restored **normal mitochondrial function**.
  - Protected **neurons** from disease.
  - Improved **motor function** in rats.
- These findings suggest that **targeting Drp1** could be a promising treatment strategy for Parkinson's disease.

**4. Potential Therapeutic Approach:**

- Researchers are now testing **FDA-approved compounds** that inhibit Drp1 as potential therapies for Parkinson's.

**About Parkinson's Disease:**

- A **neurodegenerative disorder** characterized by the **death of brain cells** that control movement.

- Symptoms include the disease's **signature tremors**, muscle rigidity, and bradykinesia (slowness of movement).

**Significance:** Understanding the role of **mitochondrial dynamics** and targeting proteins like **Drp1** offers new avenues for developing effective treatments for **Parkinson's disease** and potentially other neurodegenerative disorders.

## Vishanu Yuddh Abhyas: Mock Drill to Assess Zoonotic Outbreak Preparedness

### Context:

- The “**Vishanu Yuddh Abhyas**” mock drill was conducted under the **National One Health Mission (NOHM)** to evaluate India's preparedness for **zoonotic disease outbreaks**.

### Key Highlights of Vishanu Yuddh Abhyas:

1. **Objective:** To assess the readiness of the **National Joint Outbreak Response Team (NJORT)** comprising experts from human health, animal husbandry, and wildlife sectors.
2. **Exercise Details:** A **simulated outbreak scenario** was created to test the response of various agencies, including:
  - **National Centre for Disease Control (NCDC)**
  - **Indian Council of Medical Research (ICMR)**
  - **State authorities**
3. **Activities:**
  - Involved **virus identification** and **outbreak control measures**.
  - Independent observers monitored the response to ensure effective assessment.

**Significance:** The mock drill underscores India's commitment to **strengthening preparedness** and response capabilities against potential **zoonotic disease outbreaks**, fostering collaboration among various health sectors to ensure a coordinated approach.

## WHO's First Global Framework for Understanding Pathogen Origins

### Context:

- The **World Health Organization (WHO)** has launched the first **Global Framework** for understanding the origins of new or re-emerging pathogens, developed by the **Scientific Advisory Group for the Origins of Novel Pathogens (SAGO)**.

### About the Framework:

- **Developed by:** **SAGO**, established by **WHO** in 2021, consisting of **independent experts** from around the world.
- **Key Principles:**
  - Aligns with the **International Health Regulations (IHR)** and the **One Health approach**.



- **IHR (2005):** A legally binding framework adopted by WHO to provide a public health response to the international spread of diseases.
- **One Health Approach:** A unifying strategy aimed at sustainably balancing and optimizing the health of **people, animals, and ecosystems.**

### Significance of the Framework:

#### 1. Curtailing Emerging Pathogen Risks:

- Addresses the rising risk of known pathogens (e.g., **Ebola, Nipah**) and novel pathogens with epidemic and pandemic potential (e.g., **novel influenza, SARS-CoV-1**).

#### 2. Timely and Comprehensive Investigations:

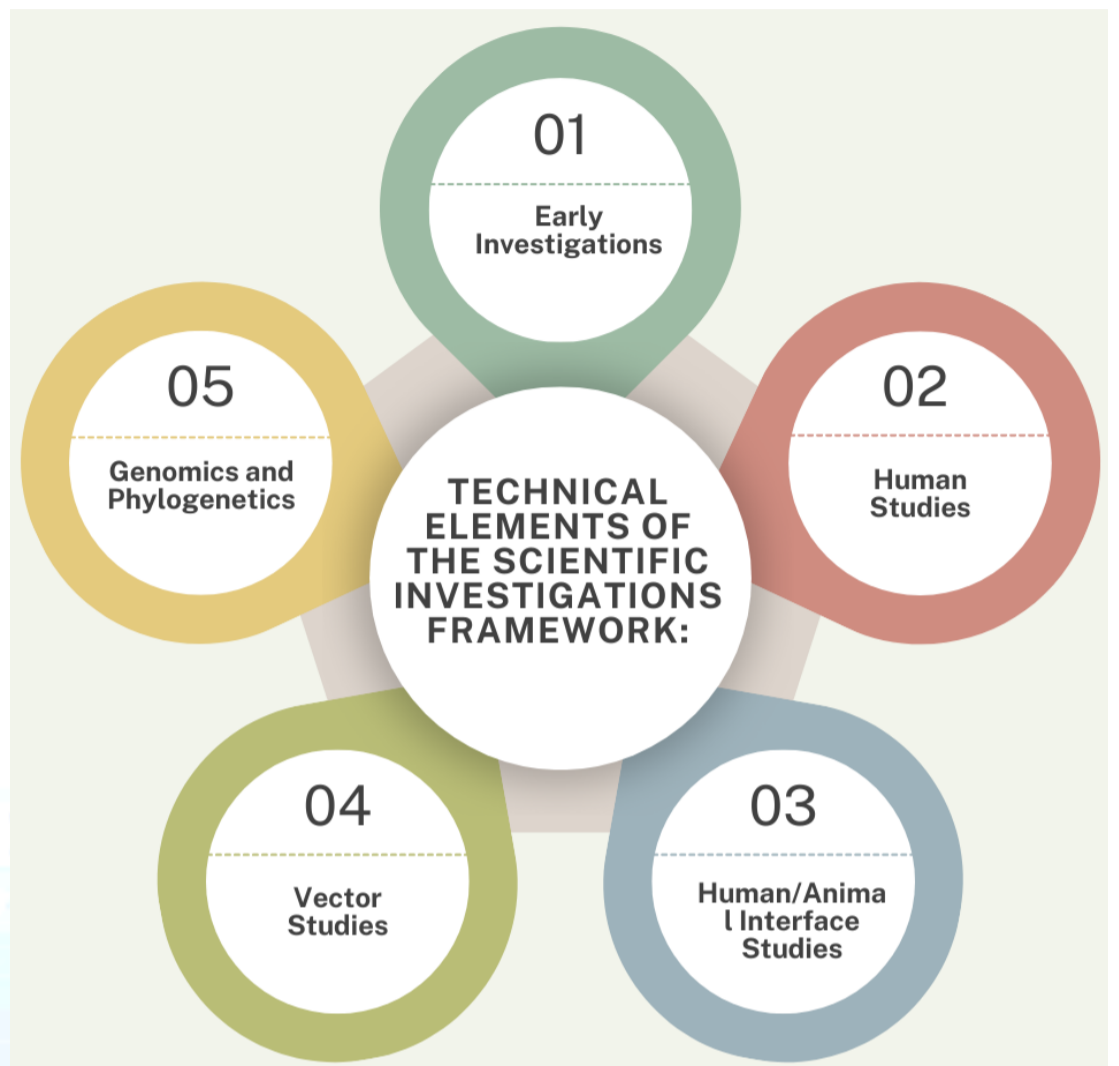
- Facilitates prompt and thorough investigations into the origins of pathogens to prevent and contain global health crises.

#### 3. Biosafety and Biosecurity Confirmation:

- Helps confirm or exclude the possibility of an unintentional breach in **laboratory biosafety and biosecurity.**

#### 4. Learning from Past Pandemics:

- If such a framework had existed during the **COVID-19** pandemic, it might have helped in finding its origin more effectively, reducing controversies.



## India Approves New Treatment Regimen for Multi-Drug Resistant Tuberculosis (MDR-TB)

### Context:

- The **Ministry of Health and Family Welfare** has approved a new treatment regimen for **Multi-Drug Resistant Tuberculosis (MDR-TB)**, aiming to enhance the country's efforts to eliminate TB by 2025.

### Types of Drug-Resistant TB:

1. **Multidrug-Resistant (MDR) TB:** Resistant to at least **Isoniazid and Rifampicin.**
2. **Extensively Drug-Resistant (XDR) TB:** Resistant to **Isoniazid, Rifampicin,** plus a **fluoroquinolone** and at least one of the three injectable second-line drugs.
3. **Totally Drug-Resistant (TDR) TB:** Resistant to **all first-line and second-line TB drugs.**

## About the New BPaLM Regimen:

- **Components:** Consists of four drugs: **Bedaquiline, Pretomanid, Linezolid, and Moxifloxacin.**
- **Benefits:**
  - Proven to be a **safer, more effective, and quicker treatment option** compared to previous regimens.
  - Reduces the treatment time to **6 months** from the earlier duration of **20 months.**
- **Approval and Use:** **Pretomanid** has already been approved and licensed for use in India by the **Central Drugs Standard Control Organization (CDSCO).**
- **Implementation:** Introduced under the **National TB Elimination Programme** and expected to boost progress toward India's goal of ending TB by **2025.**

## About Tuberculosis (TB):

- **Definition:** An **infectious disease** caused by the bacillus **Mycobacterium tuberculosis**, primarily affecting the lungs.
- **Prevention:** The **Bacille Calmette-Guerin (BCG) vaccine** provides immunity against TB.
- **Current Scenario:** According to the **India TB Report 2024**, there were **25.52 lakh** notified TB patients in 2023.

## Challenges in Tuberculosis Eradication:

1. **Social Stigma:** Leads to **delayed diagnosis** and treatment.
2. **High Treatment Costs:** Financial burden on patients, especially in rural areas.
3. **Comorbidities:** Conditions like **HIV** and **diabetes** complicate treatment.
4. **Lack of Diagnostic Facilities:** Limited access to diagnostic tools, especially in rural areas.

## Other Initiatives for Tuberculosis Eradication:

1. **Pradhan Mantri TB Mukh Bharat Abhiyan:** Provides additional patient support and promotes community involvement.
2. **Ni-kshay Mitra:** Ensures additional diagnostic, nutritional, and support services for TB patients.
3. **Nikshay Poshan Yojana:** Provides financial support to TB patients for their nutritional needs.

## Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H) Achieves BIS IMS Certification

### Context:

- The **Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H)** has achieved the **Bureau of Indian Standards (BIS) Integrated Management System (IMS) Certifications.**

### About PCIM&H:

- **Type:** Subordinate office under the **Ministry of AYUSH.**
- **Purpose:**

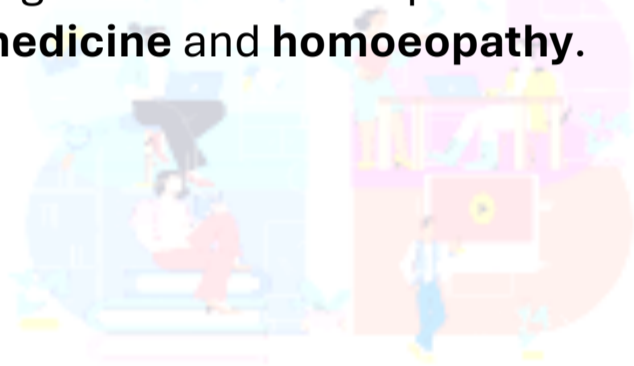
- Establishes and maintains **standards** for **Indian medicine** and **homoeopathy (IM&H)**.
- Acts as a **Central Drug Testing cum Appellate Laboratory** for **IM&H**.
- Provides **capacity building training** to drug regulatory authorities involved in quality control of IM&H.
- Maintains an **authentic Reference Raw Materials (RRM) Repository** for IM&H.

#### **Distinction from Indian Pharmacopoeia Commission (IPC):**

- The **Indian Pharmacopoeia Commission (IPC)** is a **separate autonomous institution** under the **Ministry of Health and Family Welfare**.
- **Role of IPC:**
  - Responsible for setting **standards of drugs** in the country.

#### **Significance of BIS IMS Certification:**

- The **BIS Integrated Management System (IMS) Certification** demonstrates PCIM&H's commitment to maintaining high standards in its processes and practices, thereby ensuring the quality and safety of **Indian medicine** and **homoeopathy**.



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## REPORTS & RANKINGS

### WHO's "South-East Asia Regional Status Report on Road Safety" Highlights Critical Challenges

#### Context:

- The "South-East Asia Regional Status Report on Road Safety" was released by the World Health Organization (WHO) at the 15th World Conference on Injury Prevention and Safety Promotion. The report highlights that the South-East Asia Region accounts for 28% of global road traffic deaths, with an estimated 330,222 deaths.

#### Findings Related to India:

- Road Traffic Deaths (2021):**
  - Estimated deaths: **216,618** (+2.1% change since 2010).
  - Reported road traffic deaths: **153,972**.
- Deaths Among Two-Three Wheelers:** Drivers/riders constitute the highest fatalities at **45.1%**.
- Road Traffic Deaths per 100,000 Population: 15.4 for India (2021)**, higher than the global rate of **15**.

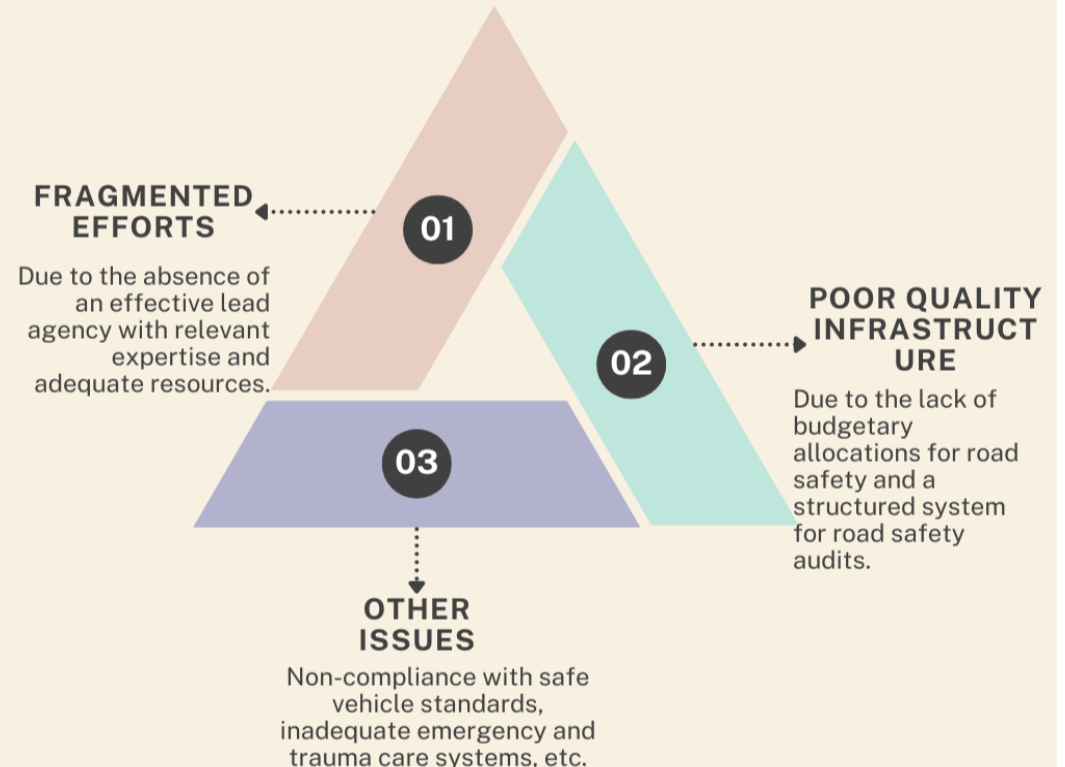
#### Recommendations of the Report for Road Safety:

- Integrate Road Safety:** Incorporate road safety into processes such as **urban planning, environment policy**, etc.
- Align Road Design:** Align road design with **star ratings** corresponding to **International Road Assessment Programme** standards.
- Other Recommendations:** Implement **time-bound targets**, strengthen the **post-crash care system**, establish dedicated **data surveillance departments**, etc.

#### Road Safety Measures in India:

- National Road Safety Policy (2010):** Aims to establish **road safety information databases**, encourage safer road infrastructure, and promote road safety audits.
- Motor Vehicle (Amendment) Act, 2019:** Provisions for creating a **Motor Vehicle Accident Fund**, implementation of a **Cashless Treatment Scheme during the Golden Hour**, etc.
- Integrated Road Accident Database:** An initiative of the **Ministry of Road Transport and Highways** to enhance accident databases.
- Other Measures:** Road safety audits, constitution of the **National Road Safety Council**, etc.

#### ISSUES RELATED TO ROAD SAFETY IN SOUTH-EAST ASIA:



## PLACES IN NEWS

### Ongoing Conflict in Sudan: A Humanitarian Crisis

#### Context:

- The **war in Sudan** has been raging for over **500 days**, involving a brutal power struggle between the **Sudanese Armed Forces (SAF)** and the **Rapid Support Forces (RSF)**.
- The conflict has caused widespread devastation, displacing entire communities and leaving over **25.6 million people** in **acute hunger**, with more than **755,000** on the **brink of famine**.

#### About Sudan:

- **Location: Northeast Africa**
  - Shares borders with:
    - **Central African Republic** to the southwest
    - **Chad** to the west
    - **Egypt** to the north
    - **Eritrea** to the northeast
    - **Ethiopia** to the southeast
    - **Libya** to the northwest
    - **South Sudan** to the south
  - Has a **coastline** along the **Red Sea**.
- **Historical Context:**
  - Before the **secession of South Sudan** in **2011**, Sudan was the **largest country** by area in both **Africa** and the **Arab League**.



#### Significance of the Situation:

- The ongoing conflict in Sudan has led to severe humanitarian consequences, threatening the lives and livelihoods of millions. The situation underscores the urgent need for peace and humanitarian assistance to address the acute hunger and potential famine facing the Sudanese population.

## Barakah Nuclear Energy Plant: A Milestone for the Arab World

### Context:

- The **United Arab Emirates (UAE)** has completed the **Barakah Nuclear Energy Plant**, the Arab world's first nuclear power plant, as announced by the **Emirates Nuclear Energy Corporation (ENEC)**.

### Key Features of the Barakah Nuclear Energy Plant:

- Location:** Situated in **Al Dhafra, Abu Dhabi**.
- Capacity:** A **four-reactor facility** that will supply **25% of the UAE's electricity needs**, roughly equivalent to New Zealand's annual consumption.



## SIGNIFICANCE

<p><b>1</b> <b>1. ENERGY DIVERSIFICATION:</b></p> <p>The plant is a cornerstone in the UAE's efforts to reduce reliance on fossil fuels and shift towards more sustainable energy sources.</p>	<p><b>ENVIRONMENTAL IMPACT:</b></p> <p>Helps the UAE in its ambition to achieve net-zero emissions, reducing the carbon footprint associated with electricity generation.</p> <p><b>2</b></p>
<p><b>4</b> <b>ECONOMIC BENEFITS:</b></p> <p>Provides a stable and reliable energy supply that is crucial for industrial sectors such as oil, steel, and aluminium production, thereby bolstering the country's economic resilience.</p>	<p><b>REGIONAL LEADERSHIP:</b></p> <p>As the first nuclear power plant in the Arab world, Barakah positions the UAE as a leader in nuclear energy within the region, setting a precedent for future projects in sustainable energy development.</p> <p><b>3</b></p>

- Contribution to Economy:**
  - Supports various sectors such as **oil, steel, and aluminium production** by providing a reliable electricity supply.
- Strategic Importance:**
  - Part of the UAE's strategy to **diversify energy sources** and achieve **net-zero emissions**.
  - Contributes to the country's goal of achieving **50% renewable energy by 2050**.

## Galathea Bay: India's New Major Port and Transshipment Hub

### Context:

- The **Centre** has designated **Galathea Bay** in the **Andaman & Nicobar Islands** as a '**Major Port**,' initiating a **₹44,000 crore project** aimed at boosting India's maritime capabilities.

### About Galathea Bay and the New Project:

- Location:** Situated in the **Great Nicobar Island** in the **Andaman & Nicobar Islands**.
- Project Overview:**
  - The **Great Nicobar Island International Container Transshipment Terminal (GNICTT)** at Galathea Bay is a **\$9 billion project**.
  - With a **depth of 20 meters**, it will be India's second **deep-water container transshipment terminal**, following the **Vizhinjam International Seaport**.
  - The terminal will be developed through a **public-private partnership (PPP)** model.

- Aims to capture transshipment cargo currently handled by ports outside India, such as Colombo, Singapore, and Klang.

## Significance of the Project:

- 1. Strategic Importance:** Strengthens India's presence in the **Indian Ocean Region (IOR)**, enhancing the country's maritime security and trade capabilities.
  - Reduces reliance on foreign ports for transshipment, retaining valuable cargo traffic within India.
- 2. Economic Boost:** Expected to attract significant **foreign investment** and create numerous jobs, stimulating economic growth in the region.
  - Supports the government's vision to develop the **Andaman & Nicobar Islands** as a maritime and logistics hub.
- 3. Infrastructure Development:** Part of India's broader strategy to enhance its port infrastructure and **logistics network**, improving the overall efficiency of cargo movement.
- 4. Enhanced Connectivity:** The terminal will serve as a vital link in connecting India's east and west coasts with international trade routes, improving **connectivity and trade flow** with Southeast Asia and beyond.

## Current Status of India's Ports:

- **India's Port Infrastructure:**
  - India has **12 major ports** and around **200 non-major ports**.
  - **Major Ports** are regulated by the **Major Ports Authority Act, 2021**.
  - **Non-major ports** are managed by respective **State Maritime Boards**.



## Kenya: Strategic Partner in Eastern Africa

### Context:

- The **3rd edition of the Joint Defense Cooperation Committee** meeting between **India and Kenya** was recently held in **New Delhi**.

### About Kenya:

- **Capital:** Nairobi
- **Location:** Situated in **Eastern Africa**.
- **Neighboring Countries:**
  - **Somalia** to the **Northeast**
  - **Ethiopia** to the **North**
  - **South Sudan** to the **Northwest**
  - **Uganda** to the **West**
  - **Tanzania** to the **South**
- **Maritime Border:** Bordered by the **Indian Ocean** to the **East**.

### Political Features:

- **International Organizations:**
  - **UNEP (United Nations Environment Programme)** and **UN-HABITAT (United Nations Human Settlements Programme)** are headquartered in **Nairobi**.

### Geographical Features:

- **Equator:** Almost bisects Kenya horizontally.
- **Major Lakes:**
  - **Lake Turkana:** Located in northern Kenya.
  - **Lake Victoria:** Shared by Kenya, Tanzania, and Uganda.
- **Major Rivers:**
  - **Athi/Galana River**
  - **Tana River**
  - **Mara River**
- **Mountain Ranges:**
  - **Aberdare Range**
  - **Mau Escarpment**
- **Highest Point:** Mount Kenya (second highest mountain in Africa).



Kenya

Kenya (second



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