

# WEEKLY NEWS

November 10-16, 2024

## Antariksha Abhyas 2024



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## CoP-29: Landmark Carbon Market Standards Finalized




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## HIGHLIGHTS

- Odisha Villages Recognized Tsunami Ready
- RBI Releases List of D-SIBs

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# Disease Elimination Strategy

## ● Why in News?

- ➔ **Wave Life Sciences**, a US-based biotechnology company, has successfully demonstrated **RNA editing** in humans to treat **Alpha-1 Antitrypsin Deficiency (AATD)**.

## ● Key Highlights

### ➔ About Alpha-1 Antitrypsin Deficiency (AATD)

An **inherited disorder** where abnormal levels of the protein **α-1 antitrypsin** accumulate, impacting the **liver** and **lungs**.

### ➔ Understanding RNA Editing

The RNA editing technique was used to correct mRNA function, enabling the production of normal proteins in affected cells.

## ● Understanding RNA Editing

### ➔ What is RNA Editing?

A process that modifies genetic information in **RNA sequences** by **insertion, deletion, or substitution**.

### ➔ Method Used

**Adenosine Deaminase Acting on RNA (ADAR)** with **guide RNA (gRNA)** was employed.

**gRNA**: Small RNA molecules that guide the editing machinery by pairing with specific mRNA regions for modification.

### ➔ How it Works

RNA is made of **Adenine (A), Guanine (G), Uracil (U), and Cytosine (C)**.

ADAR converts **adenosine (A)** in mRNA to **inosine (I)**, which mimics **guanosine (G)**.

Cells recognize inosine in place of adenosine, triggering a **cellular response** to correct the mismatch.

The process restores the mRNA's original function, allowing the production of **normal proteins**.

## ● Challenges in RNA Editing

- ➔ **Lack of Specificity**: ADAR enzymes may make **non-targeted changes** due to the lower accuracy of gRNA, increasing the risk of side effects.

- ➔ **Transient Nature**: RNA editing effects are temporary, requiring **repeated treatments** to sustain therapy outcomes.

● **RNA Editing vs. DNA Editing**

<b>Aspect</b>	<b>RNA Editing</b>	<b>DNA Editing</b>
<b>Permanence</b>	Temporary changes	Permanent changes
<b>Safety</b>	Safer and flexible, as changes fade	Risk of irreversible errors
<b>Immune Reactions</b>	Lower risk of immune response	Higher risk due to bacterial proteins used
<b>Mechanism</b>	Uses ADAR enzymes naturally present	Uses external bacterial proteins

● **Way Forward**

- ➔ **Enhance Specificity:** Develop more accurate gRNA to reduce non-targeted modifications and potential side effects.
- ➔ **Sustainability of Effects:** Innovate methods to prolong the therapeutic impact of RNA editing.
- ➔ **Wider Applications:** Explore RNA editing for other genetic and rare diseases.
- ➔ **Public Awareness:** Educate stakeholders on the **safety and flexibility** of RNA editing over DNA editing.



# Supreme Court Rules on POCSO Cases

## ● Why in News?

- ➔ The **Supreme Court** ruled in the **Ramji Lal Bairwa & Anr vs State of Rajasthan & Ors** case that **sexual assault cases under the POCSO Act, 2012, cannot be quashed** based on a compromise between the parties involved.

## ● Case Background

- ➔ The **Supreme Court (SC)** reviewed a **Rajasthan High Court** decision that had quashed a sexual assault case under the **Protection of Children from Sexual Offences (POCSO) Act** based on a compromise between the parties.
- ➔ This case was heard as a **Special Leave Petition (SLP)** under **Article 136 of the Constitution**, which grants the SC special power to allow appeals in matters involving judgments/orders by any court or tribunal.

## ● Key Observations by the Supreme Court

- ➔ **Rejection of Compromise Precedent:**

The SC cited the **State of M.P. v. Laxmi Narayan (2019)** case, which held that **offenses against society cannot be compromised**.

It also endorsed the **Delhi High Court** decision in **Sunil Raikwar v. State**, stating that **POCSO offenses are not eligible for settlement**.

- ➔ **Non-Private Nature of the Offense:**

The Court emphasized that **sexual assault offenses under POCSO** cannot be viewed as **private matters** suitable for compromise-based dismissal.

Cases with **serious societal implications** should not be quashed merely due to a settlement.

## ● About POCSO Act, 2012

- ➔ **Aim:**

The POCSO Act is a **gender-neutral legislation** focused on ensuring **child safety** and penalizing offenders based on the **severity of offenses**.

It comprehensively addresses **child sexual abuse** with the goal of protecting children's rights.

● **About POCSO Act, 2012**

- ➔ **Definition of Child:** Under the Act, a **child** is defined as any individual below the age of **18** years.
- ➔ **Offenses Covered:** The Act categorizes **punishable offenses** into three broad areas: **sexual assault, sexual harassment, and using a child for pornography.**
- ➔ **2019 Amendment:** The **2019 amendment** introduced **harsher penalties**, including the **death penalty** for certain sexual offenses against children.



# Participatory Approaches in AI Development and Governance

## ● **Why in News?**

- ➡ IIT Madras released a paper advocating for participatory approaches in AI to enhance fairness and effectiveness in algorithm outcomes.

## ● **About Participatory AI (PAI)**

- ➡ **Definition:** Involves diverse stakeholders, beyond developers, in AI creation.
- ➡ **Principle:** Draws from participatory governance models to include community perspectives in AI deployment.

## ● **Need for PAI**

- ➡ Rapid advancements and widespread deployment of AI, such as facial recognition in law enforcement, necessitate more inclusive decision-making.

## ● **Benefits of PAI**

- ➡ **Counter Top-Down Decision-Making:** Reduces risks of unilateral decisions in AI deployment.
- ➡ **Inclusion and Fairness:** Addresses bias and discrimination, promoting equity for affected communities.
- ➡ **Feedback Mechanism:** Allows for ongoing impact assessment and flagging of technical issues post-deployment.
- ➡ **Increased Trust:** Lower error rates (false positives/negatives) enhance user trust and adoption.

## ● **Challenges with PAI**

- ➡ **Co-optation:** Risk of dominant actors influencing AI outcomes for their interests.
- ➡ **Expert-Only Participation:** Current AI governance often restricts input to select experts, limiting broader societal involvement.
- ➡ **Participatory Washing:** Stakeholder input might be superficial or for mere compliance.
- ➡ **Transparency Paradox:** Information disclosure can also empower malicious actors.



● **Participatory Governance Models**

➡ **India:**

**Land Acquisition Act, 2013:** Includes social impact assessments with affected families.

**Forest Rights Act, 2006:** Empowers Gram Sabhas for inclusive governance.

➡ **International:**

**Nagoya Protocol:** Ensures benefit-sharing with indigenous communities for traditional knowledge use.



# FAO's State of Food and Agriculture 2024 Report

## ● Why in News?

→ The **Food and Agriculture Organization (FAO)** released its **State of Food and Agriculture 2024** report, emphasizing the need for a **value-driven transformation** of agrifood systems.

The report builds on previous estimates of **hidden costs** in global agrifood systems.

## ● Key Highlights

### → Hidden Costs in Agrifood Systems

**Definition:** Hidden costs refer to **negative externalities** or economic losses caused by market or policy failures.

#### Global Estimates:

**Industrial and diversifying agrifood systems** are the largest contributors, with hidden costs reaching **\$5.9 trillion (2020 PPP dollars)**.

Dominated by **health hidden costs**, particularly from **non-communicable diseases (NCDs)**.

**Unhealthy diets** (e.g., low intake of whole grains, high sodium intake) account for 70% of all hidden costs.

Other contributors:

**Social costs** (undernourishment, poverty)

**Environmental costs** (e.g., greenhouse gas emissions).

### → India-Specific Findings

#### Hidden Costs:

India ranks **3rd globally** with total hidden costs of **\$1.3 trillion annually**, after China and the USA.

Major drivers: **Unhealthy dietary patterns** and related health impacts.



## ● **Recommendations for Agrifood System Transformation**

### ⇒ **Industrial Agrifood Systems**

Characterized by **long value chains** and **high urbanization**.

Suggested measures:

Upgrade **food-based dietary guidelines** with an agrifood systems approach.

Implement **mandatory nutrient labels** and certifications.

Conduct **information campaigns** for consumer awareness.

### ⇒ **Traditional Agrifood Systems**

Characterized by **short value chains** and **low urbanization**.

**Recommendations:** Combine **productivity-enhancing interventions** with **environmental and dietary strategies** to prevent increasing environmental footprints.

## ● **India's Initiatives to Reform Agrifood Systems**

### ⇒ **Sustainable Farming Practices**

**Paramparagat Krishi Vikas Yojana (PKVY):** Promotes organic farming.

**Per Drop More Crop (PDMC):** Focuses on efficient water usage.

**National Bamboo Mission (NBM):** Encourages bamboo cultivation and industry growth.

### ⇒ **Agricultural Infrastructure**

**Agriculture Infrastructure Fund (AIF):** Provides financial support for agri-infrastructure projects.

**Agricultural Marketing Infrastructure (AMI) Scheme:** Improves market access and storage facilities.

### ⇒ **Boosting Farmers' Welfare**

**Pradhan Mantri Kisan Samman Nidhi (PM-KISAN):** Direct income support to farmers.

**Formation and Promotion of Farmer Producer Organizations (FPOs):** Enhances farmers' collective bargaining and income.

## ● **Way Forward**

⇒ Promote **healthy dietary patterns** to reduce health-related hidden costs.

⇒ Strengthen **environmentally sustainable practices** in agrifood value chains.

⇒ Increase **awareness campaigns** on hidden costs and their long-term impacts.

⇒ Leverage **India's agrifood initiatives** to align with FAO's recommendations for systemic transformation.



# Justice Sanjiv Khanna Becomes 51st Chief Justice of India

## ● Why in News?

- ⇒ Justice **Sanjiv Khanna** was sworn in as the **51st Chief Justice of India (CJI)**.
- ⇒ The oath of office was administered by **President Droupadi Murmu** at a ceremony in Rashtrapati Bhavan.

## ● Appointment of the CJI

### ⇒ Process of Appointment

The **senior-most Supreme Court judge**, deemed fit for the role, is usually recommended as the CJI.

The **outgoing CJI** sends the recommendation to the **Union Minister of Law, Justice, and Company Affairs**.

The Minister forwards it to the **Prime Minister**, who advises the **President** for the appointment.

### Constitutional Provision:

Under **Article 124(2)**, Supreme Court judges, including the CJI, are appointed by the President.

Judges hold office until the age of **65 years**.

**Exceptions to Convention:** The seniority convention was breached in **1964, 1973, and 1977**.

## ● Key Roles of the CJI

### ⇒ Judicial Leadership

Referred to as the **first among equals**, the CJI is the head of the judiciary but does not hold superior judicial authority over other Supreme Court judges.

**Case Reference: State of Rajasthan vs Prakash Chand (1997).**

### ⇒ Master of the Roster

Holds the **exclusive power** to constitute benches, including **Constitution Benches**, to hear cases.

## ● **Key Roles of the CJI**

### ⇒ Collegium Head

Leads the **Collegium system** for judicial appointments and transfers in the higher judiciary.

### ⇒ Administrative Authority

Responsible for the **appointment of officers and servants** of the Supreme Court under **Article 146**.

## ● **About the Collegium System**

### ⇒ Structure and Functions

A system for recommending appointments of judges to the **Supreme Court (SC)** and **High Courts (HC)**.

Judges are appointed by the **President** under:

**Article 124:** For the Supreme Court.

**Article 217:** For High Courts.

### ⇒ Composition of the Collegium

For the Supreme Court: **CJI** and the **four senior-most judges** of the SC.

For High Courts:

HC-level Collegium: Chief Justice of the HC and **two senior judges** of the same HC.

SC-level Collegium: **CJI** and **two senior-most judges** of the SC.

## ● **Way Forward**

⇒ Ensure **transparency and accountability** in the Collegium system.

⇒ Promote greater **diversity** in judicial appointments.

⇒ Strengthen mechanisms for smooth coordination between the judiciary and the executive.

# WIPO World Intellectual Property Indicators Report 2024

## ● Why in News?

- ➔ The World Intellectual Property Organization (WIPO) has released the World Intellectual Property Indicators Report 2024, highlighting India's substantial growth in intellectual property (IP) filings.

## ● Key Findings for India

### ➔ Patents

India ranks 6th globally with 64,500 patent filings in 2023.

Patent-to-GDP ratio increased significantly from 144 (2013) to 381 (2023).

### ➔ Trademarks

India's IP office is the 2nd highest globally in trademark filings.

India now ranks 4th globally for trademark filings.

### ➔ Industrial Design

India ranks 10th globally, with a 36% increase in industrial design filings in 2023, indicating growth in the creative design sector.

## ● Factors Behind Surge in Patent Filings

- ➔ **Government Initiatives & Policy Support:** Implementation of policies like the Patents (Amendment) Rules 2024 (reduced renewal fees and filing frequency) and the National IPR Policy 2016.
- ➔ **Timely Processing of Applications:** India granted 1.03 lakh patents in the financial year 2023-24, enhancing efficiency.
- ➔ **Strengthened IP Infrastructure:** Digital patent filing processes and establishment of IPR facilitation centers have streamlined IP management.

## ● **Challenges in Patents**

- ➡ **Abolition of the Intellectual Property Appellate Board:** The void in handling IP appeals creates challenges for efficient resolution.
- ➡ **Evergreening of Patents:** Strategic extension of patents by companies to retain drug monopolies poses ethical and economic concerns.
- ➡ **Other Issues:** Challenges include compulsory licensing and the absence of fixed timelines in the patent procedure.

## ● **Patent Regulations**

- ➡ **Global Framework:** World Intellectual Property Organization (WIPO), WTO TRIPS Agreement (1994), Patent Cooperation Treaty (1970), and Budapest Treaty (1977) set the international patent standards.
- ➡ **India's Framework:** Indian Patents Act, 1970, amended in 2005 to comply with WTO TRIPS, governs patents in India.

## ● **Way Forward**

- ➡ Strengthening IP infrastructure further and addressing procedural gaps, particularly in appellate mechanisms and timely processing of applications, could reinforce India's IP landscape and drive innovation.

# Antariksha Abhyas 2024

## ● Why in News?

- ➡ Antariksha Abhyas 2024, India's first space defense exercise, was held in Delhi.
- ➡ Conducted by the **Defense Space Agency (DSA)**, the exercise aims to secure **national strategic objectives in space** and integrate India's **space capabilities into military operations**.

## ● Space Defense Overview

### ➡ Objectives

Prevent threats to space assets, including:

- Kinetic threats** (physical attacks).
- Direct energy attacks** (laser-based damage).
- Cyber threats** (jamming, hacking).
- Jamming and tracking operations**.

### ➡ Key Components

**Countermeasures:** Strategies to neutralize potential threats.

**Space Defense Scope:** Includes protection against both **military** and **non-military** threats.

## ● Need for Space Defense

### ➡ Non-Military Threats

**Space Debris:** Risks from fragments of defunct satellites.

**Radiation:** Natural phenomena causing satellite system failures.

### ➡ Military Threats

#### **Cyber-attacks:**

- Hacking of onboard sensors.
- Jamming uplink and downlink communication.
- Disrupting tracking operations.

#### **Anti-Satellite Weapons (ASAT):**

- Direct-ascent ASAT missiles.
- Orbital ASAT systems.

## ● **Need for Space Defense**

### ⇒ **Military Threats**

#### **Rendezvous and Proximity Operations:**

- De-orbiting satellites.
- Directed energy attacks from nearby satellites.
- Strategic deterrence.

#### **Surveillance and Reconnaissance:**

- High-resolution cameras and synthetic aperture radars for:
  - Weapon deployment.
  - Border security.

## ● **Challenges to Space Defense in India**

- ⇒ **Limited Private Investment:** Insufficient participation from private players.
- ⇒ **Lack of National Defense Space Strategy:** Absence of a cohesive framework.
- ⇒ **Functional Silos:** Lack of collaboration among key stakeholders like **DSA, ISRO, and DSRO**.
- ⇒ **Slow Procurement Process:** Lengthy defense procurement procedures hinder progress.

## ● **Steps Taken by India for Space Defense**

- ⇒ **2010:** Creation of the **Integrated Space Cell** within the Integrated Defence Staff headquarters.
- ⇒ **2018:** Formation of the **Defense Space Agency (DSA)**.
- ⇒ **2019:** Establishment of the **Defense Space Research Organisation (DSRO)**.
- ⇒ **2019:** Successful test of the **Anti-Satellite (ASAT) missile** under **Mission Shakti**.

## ● **Way Forward**

### ⇒ **Policy and Strategy**

**Finalize Remote Sensing and Satcom Policies:** Expedite approval and implementation of the draft policies.

**National Defense Space Strategy:** Formulate a unified framework for space defense.

### ⇒ **Enhancing Collaboration**

**Integration of Satcom with Battle Plans:** Leverage satellite communication for military operations.

**Close Coordination Among Agencies:** Strengthen ties between **DSA, DSRO, and ISRO**.

### ⇒ **Modernization Efforts**

**Fast-track Defense Procurement:** Streamline procedures to reduce delays.

**R&D Strategy:** Identify and invest in cutting-edge space defense technologies.



# CoP-29: Landmark Carbon Market Standards Finalized

## ● Why in News?

- ➡ **International Carbon Market Standards** were finalized at the **Conference of Parties (CoP)-29** under the **UNFCCC** in Baku.
- ➡ These standards establish a **centralized carbon market** under the **United Nations**, concluding negotiations under **Article 6** of the Paris Agreement.

## ● Key Features of Article 6 of the Paris Agreement

- ➡ **Objective:** Allows countries to cooperate voluntarily to meet climate goals through carbon credit transfers.

### ➡ Components:

#### Article 6.2:

Enables **bilateral or multilateral trading** of emission reductions/removals.

Credits are called **Internationally Transferred Mitigation Outcomes (ITMOs)**.

Measured in **CO2 equivalent (CO2e)** or other metrics.

#### Article 6.4 (Crediting Mechanism):

Establishes a **global carbon market** under the **Article 6.4 Supervisory Body (6.4SB)**.

Credits, referred to as **A6.4ERs**, can be bought by countries, companies, or individuals.

Proposed standards were finalized during the **6.4SB meeting in Baku**.

## ● Significance of the Carbon Market Standards

- ➡ **Supports Developing Countries:** Unlocks financial assistance to developing nations.
- ➡ **Ensures Market Reliability:** Facilitates post-credit monitoring and enhances long-term trust in carbon markets.



## ● **Carbon Markets and Pricing Instruments**

### ⇒ **India's Framework**

#### **Compliance Mechanisms:**

**Perform Achieve Trade (PAT):** Focused on **Energy Saving Certificates**.

#### **Voluntary Mechanisms:**

Include frameworks like the **Clean Development Mechanism (CDM)**.

## ● **Way Forward**

- ⇒ **Enhancing Participation:** Encourage more countries to adopt and operationalize the agreed carbon market standards.
- ⇒ **Strengthening Monitoring:** Develop robust systems for post-credit tracking to ensure transparency.
- ⇒ **Support Developing Nations:** Facilitate technical and financial aid for their participation in carbon markets.
- ⇒ **Domestic Reforms:** Expand India's voluntary mechanisms to align with international standards for better integration.



# Reclassification of FPI to FDI by RBI & SEBI

## ● Why in News?

- ➡ **RBI and SEBI Framework:** The Reserve Bank of India (RBI) and Securities and Exchange Board of India (SEBI) have introduced a framework allowing Foreign Portfolio Investment (FPI) to be reclassified as Foreign Direct Investment (FDI) under specified conditions.

## ● Key Features of FPI Reclassification

- ➡ **Current FPI Cap:** FPIs can hold a maximum of 10% of an Indian company's paid-up equity capital.
- ➡ **Reclassification Option:** If this cap is exceeded, FPIs now have an alternative to divestment by opting to reclassify their holdings as FDI.

## ● RBI's Operational Framework on FPI to FDI Reclassification

- ➡ **Sector Restrictions:** Reclassification is not allowed in sectors where FDI is prohibited, such as chit funds and gambling.
- ➡ **Approval Requirements:** FPI investments from border-sharing countries require government approval and agreement from the Indian investee company.
- ➡ **Compliance Conditions:** Investments must comply with entry routes, sectoral caps, investment limits, pricing norms, and FDI-specific regulations.
- ➡ **Regulatory Compliance:** Reclassification will follow the Foreign Exchange Management (Mode of Payment and Reporting of Non-Debt Instruments) Regulations, 2019.

## ● Significance

- ➡ **Investment Attractiveness:** Simplifies attracting foreign investments and adds flexibility for FPIs transitioning to strategic FDI holdings.
- ➡ **Enhanced Clarity:** Improves transparency and regulatory clarity for foreign investors in India.

## ● About Foreign Direct Investment (FDI)

- ➡ **Definition:** FDI refers to a foreign investor acquiring stakes in Indian companies, often as a long-term investment, and is largely a non-debt capital flow.



● **FDI Approval Routes**

- ➡ **Automatic Route:** Does not require government approval for investment.
- ➡ **Government Route:** Requires approval from the respective Administrative Ministry/Department for investments needing oversight.

# India's Potential Membership in RCEP and CPTPP

## ● Why in News?

- ➔ NITI Aayog CEO advocated for India's inclusion in the **Regional Comprehensive Economic Partnership (RCEP)** and **Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)**.
- ➔ India remains one of the few major economies not part of large trade agreements that eliminate trade barriers and harmonize global standards.

## ● Benefits of Joining

- ➔ **Support MSMEs:** MSMEs contribute 40% of India's exports; participation would enhance global competitiveness.
- ➔ **Integration into Global Supply Chains:** RCEP and CPTPP countries account for 70% of global trade.
- ➔ **Leverage the "China Plus One" Strategy:** Lower tariffs can attract diversification of supply chains away from China.  
**Boost Productive Capacity:** Facilitates easier imports, creating jobs, enhancing private-sector profits, and increasing capacity utilization.
- ➔ **Political and Strategic Advantage:** Opportunity to influence the emerging global trade architecture, including **E-commerce regulations**.

## ● Concerns for India

- ➔ **Increase in Cheap Imports:** Tariff elimination may worsen trade deficits due to higher imports.
- ➔ **Impact on Domestic Enterprises:** Stringent labor and environmental regulations may challenge less competitive industries.
- ➔ **Sector-Specific Challenges:** Opposition from the **Indian dairy sector**, fearing competition with industrialized nations.

## ● Way Forward

- ➔ **Reassess Previous Agreements:** Use data-driven methods to navigate complexities in global trade and ensure favorable outcomes.
- ➔ **Focus on Long-Term Goals:** Align trade participation with self-reliance, job creation, and strategic autonomy.



● **About RCEP**

➡ **Members:**

**10 ASEAN countries** (Brunei, Cambodia, Indonesia, Malaysia, Myanmar, Singapore, Thailand, Philippines, Laos, and Vietnam).

**FTA partners:** India, China, Japan, South Korea, Australia, and New Zealand.

➡ **India's Status:**

Withdrew from negotiations in 2019 over concerns about trade deficits and competition.

● **About CPTPP**

➡ **Members: 11 Nations:** Australia, Brunei, Canada, Chile, Japan, Malaysia, Singapore, Vietnam, Peru, Mexico, and New Zealand.

➡ **Objective:** Facilitate reciprocal investment, reduce trade barriers, and harmonize labor and environmental standards.



# SC's Pan-India Guidelines on Halting Illegal Demolitions

## ● Why in News?

- ➡ The Supreme Court (SC) issued guidelines to prevent **illegal demolition of private property**, invoking extraordinary powers under **Article 142**.
- ➡ These guidelines emphasize the principle of **Separation of Power** but exclude protection for **encroachments on public land or unauthorized structures**.

## ● Concerns Over Illegal Demolitions

- ➡ **Violation of Natural Justice:** Demolitions based on mere accusations disregard principles of **due process of law** and **rule of law**.
- ➡ **Infringement on Fundamental Rights:** Violates **Right to Shelter** guaranteed under **Article 21**.

## ● Supreme Court Guidelines

### ➡ Prior Notice:

House owners must receive notice via **registered post** detailing:

Nature of unauthorized construction.

Specific violations.

For unauthorized constructions, **15 days' notice** must be given to:

Remove the structure.

Find alternative accommodation.

- ➡ **Opportunity for Personal Hearing:** Accused must be allowed to present their case before a **designated authority**.

- ➡ **Accountability for Officials:** Officials violating court orders will face **personal liability**.

### ➡ Videography & Reporting:

Demolitions must be **recorded on video** as evidence of legality.

A report on the demolition must be submitted to the **Municipal Commissioner**.



## ● **About Separation of Power**

⇒ **Definition:** Concept by **Montesquieu** advocating the independent functioning of the **Legislative, Executive, and Judiciary** without overlapping powers.

⇒ **Global Practices:**

**USA:** Follows strict separation.

**India:** Allows overlap, as the Executive is derived from the Legislative.

## ● **Way Forward**

⇒ Strengthen **judicial oversight** in cases of property disputes.

⇒ Enhance transparency in **state actions** to protect constitutional rights.

⇒ Educate local authorities on following proper procedures and respecting **fundamental rights**.



# State of the Cryosphere 2024: Lost Ice, Global Damage Report

## ● Why in News?

- ➡ The "State of the Cryosphere 2024: Lost Ice, Global Damage Report" was released, coordinated by the **International Cryosphere Climate Initiative (ICCI)**.
- ➡ The report highlights alarming trends in cryosphere degradation and its global implications.

## ● About the Cryosphere

### ➡ Definition:

Refers to areas of Earth's surface with snow or ice present at least part of the year, with temperatures below 0°C.

Includes **continental ice sheets, ice caps, glaciers, permafrost, etc.**

- ➡ **Examples:** Greenland, Antarctica, Hindu Kush Himalaya, Arctic, and Antarctic regions.

## ● Key Findings

### ➡ Ice Sheet Loss:

**Greenland Ice Sheet losing 30 million tons of ice per hour.**

Ice shelves in northern Greenland have reduced by **35% in volume since 1978.**

### ➡ Sea-Level Rise:

The rate of global sea-level rise has doubled over the last 30 years.

Projected to reach **6.5 mm/year by 2050** under current trends.

### ➡ Glacier Melting:

Venezuela lost its last glacier, joining Slovenia, the first modern country to lose all its glaciers.

## ● Impact of Cryosphere on Global Climate

- ➡ **Ocean Circulation:** Weakening of the **Atlantic Meridional Overturning Circulation (AMOC)** and slowing of the **Antarctic Circumpolar Current (ACC)** disrupt global ocean systems.
- ➡ **Permafrost Thawing:** Thawing permafrost releases trapped ice, leaving behind water and soil, worsening local damage and global climate feedback loops.





## ● **Impact of Cryosphere on Global Climate**

- ⇒ **Albedo Effect:** Reduced reflective ability of melting sea ice contributes to faster warming, increased CO<sub>2</sub> emissions, and further depletion of the ozone layer.
- ⇒ **Flood Risks:** Growing danger of **glacial lake outburst floods (GLOFs)** with catastrophic potential.

## ● **Initiatives to Protect the Cryosphere**

### ⇒ **Global Efforts:**

**UN Decade of Action for Cryospheric Sciences (2025–2034)** approved by the **UN General Assembly**.

**World Meteorological Organization (WMO)** adopted four high-level ambitions for cryosphere protection.

### ⇒ **India's Contribution:**

**National Mission for Sustaining Himalayan Ecosystem (NMSHE):** Aims to monitor and sustain the health of the Himalayan ecosystem, including its glaciers.

## ● **Way Forward**

- ⇒ **Strengthening Monitoring:** Invest in technologies and programs for real-time cryosphere observation.
- ⇒ **Global Collaboration:** Enhance international cooperation for mitigation strategies targeting cryospheric degradation.
- ⇒ **Community Engagement:** Promote awareness about cryosphere loss and its cascading effects on global climate systems.
- ⇒ **Policy Frameworks:** Adopt stringent policies to limit greenhouse gas emissions and prevent further ice loss.

# RBI Releases 2024 List of D-SIBs

## ● Why in News?

- ➔ The Reserve Bank of India (RBI) has identified **State Bank of India (SBI), HDFC Bank, and ICICI Bank as Domestic Systemically Important Banks (D-SIBs)** for 2024.
- ➔ These banks continue to be recognized for their critical importance to India's financial system.

## ● About D-SIBs

### ➔ Definition:

D-SIBs are banks whose failure could significantly disrupt essential services in the banking system and the economy.

Often referred to as "**too big to fail**" institutions.

### ➔ Criteria for Classification:

Determined based on their **size, complexity, interconnections, cross-jurisdictional activities, and lack of substitutes** for their services.

### ➔ Framework for Declaration:

Governed by the **D-SIB Framework (2014)** developed by the RBI, inspired by the **Basel Committee on Banking Supervision (BCBS)** framework.

Banks with assets **2% or more of GDP** are considered for the D-SIB list.

## ● Classification System

### ➔ Bucket-Based Categorization:

Banks are divided into **five buckets** based on their systemic importance.

**Bucket 1** banks maintain the lowest **Additional Common Equity Tier 1 (CET1)**, while **Bucket 5** banks maintain the highest.

### ➔ Foreign Bank Requirements:

If a foreign bank operating in India is classified as a **Global Systemically Important Bank (G-SIB)**, it must meet additional CET1 capital surcharge requirements.

## ● **Key Terms**

### ➡ **Risk-Weighted Assets (RWAs):**

Represents assets weighted by risk to calculate the minimum capital required for a bank.  
Helps determine the risk profile of lending and other banking activities.

### ➡ **Common Equity Tier 1 (CET1):**

Highest quality regulatory capital, composed primarily of a bank's common stock.  
Absorbs losses directly, providing resilience during financial stress.

## ● **Global Context**

➡ The **Financial Stability Board (FSB)** releases the list of **Global Systemically Important Banks (G-SIBs)** annually.

## ● **Way Forward**

➡ **Strengthen Risk Management:** Regular monitoring of D-SIBs to mitigate risks associated with their systemic importance.

➡ **Compliance with International Standards:** Align with **Basel III norms** for capital adequacy and stress testing.

➡ **Ensure Financial Stability:** Continue building resilience in D-SIBs to safeguard the overall financial system from disruptions.

# CAG's Compendium on 74th CAA Implementation

## ● Why in News?

- ⇒ The Comptroller and Auditor General (CAG) released a compendium of performance audits assessing the implementation of the 74th Constitutional Amendment Act (CAA), 1992, across 18 states.

## ● About 74th Constitutional Amendment Act (CAA), 1992

- ⇒ **Constitutional Status:** Granted constitutional recognition to Urban Local Self-Governments (ULSGs) through Part IXA.
- ⇒ **State Authority:** Empowered state legislatures to enact laws for enabling ULSGs to function as self-governing institutions.
- ⇒ **Twelfth Schedule:** Introduced with 18 specific functions to be devolved to ULSGs.

## ● Key Findings of the Report

- ⇒ **Limited Autonomy:** While 17 out of 18 functions in the Twelfth Schedule have been devolved by law, only 4 functions are effectively implemented with full autonomy.
- ⇒ **Women's Representation:** 6 out of 14 states exceed the constitutional mandate, reserving 50% of city council seats for women instead of 33%.
- ⇒ **Financial Challenges:**
  - ULSGs' own revenue constitutes only 32% of their total income, with the rest coming from state and central transfers.
  - There is a **42% gap** between ULSGs' resources and expenditures, with just 29% of expenditure allocated for developmental activities.
- ⇒ **Human Resource Deficit:** Urban Local Bodies (ULBs) face an average **37% vacancy rate** against sanctioned posts.

● **Recommendations for Strengthening 74th CAA Implementation**

- ➡ **Strengthening Decentralization:** Empower ULSGs to handle critical functions like planning and regulation.
- ➡ **Improving Election Timeliness:** Strengthen State Election Commissions to ensure regular municipal elections.
- ➡ **Enhancing Financial Sustainability:** Develop ULSGs' tax collection capabilities for increased self-reliance.
- ➡ **Workforce Management:** Establish robust systems to address staff shortages and fill vacant positions.

● **Way Forward**

- ➡ A multi-pronged approach emphasizing decentralization, financial independence, and operational efficiency is crucial to make urban local governance more effective and self-sustainable.



# 'PPP plus PPP' Model to Combat Diabetes in India

## ● Why in News?

- ➔ The **Ministry of Science & Technology** introduced the '**PPP plus PPP**' model on **World Diabetes Day (14th November)** to address the growing diabetes challenge in India.
- ➔ **World Diabetes Day** was established by WHO and the **International Diabetes Federation (IDF)** in 1991 and made a global UN observation in 2006.

## ● About the 'PPP plus PPP' Model

### ➔ Two-Tiered Collaboration:

Combines India's **public and private sectors** to strengthen healthcare infrastructure.

Engages with **international counterparts** to exchange knowledge and enhance resources.

## ● About Diabetes Mellitus (DM)

- ➔ **Definition:** A chronic, metabolic disorder causing elevated blood glucose levels (**hyperglycemia**).
- ➔ **Symptoms:**
  - Loss of glucose through urine.
  - Formation of harmful compounds called **ketone bodies**.
- ➔ **Complications:** Can cause severe damage to the **heart, blood vessels, eyes, kidneys, and nerves**.

## ● Types of Diabetes

- ➔ **Type 1 (Juvenile/Insulin-Dependent Diabetes):** An autoimmune disorder where the immune system destroys insulin-producing cells.
- ➔ **Type 2 (Most Common):** Occurs in adults when the body becomes resistant to insulin or produces insufficient insulin.
- ➔ **Gestational Diabetes:** Develops during pregnancy and may lead to complications if untreated.



## ● **Key Statistics**

### ➡ **Global Prevalence:**

**830 million people globally** affected, with **212 million in India**.

Majority are from **low- and middle-income countries**.

### ➡ **Treatment Gap:**

Over **50% of individuals** lack treatment.

**64 million men** and **69 million women** in India are at high risk of severe complications.

### ➡ **WHO Target:** Aim to halt the rise in diabetes and obesity by **2025**.

## ● **About Insulin**

### ➡ **Definition:** A peptide hormone secreted by **β-cells of the pancreas**.

### ➡ **Role:**

Regulates **glucose homeostasis**.

Acts on **hepatocytes** and **adipocytes**, enhancing cellular glucose uptake and utilization.

### ➡ **Production:** Modern insulin is produced through **recombinant technology** using **E. coli** or **Saccharomyces cerevisiae**.

## ● **Way Forward**

### ➡ **Enhance Infrastructure:**

Strengthen healthcare facilities under the **PPP plus PPP model**.

Increase accessibility to diagnostics and treatment.

### ➡ **Awareness Programs:** Conduct public awareness campaigns to educate on prevention and early detection.

### ➡ **Technology Integration:** Leverage AI and digital tools for real-time monitoring and effective management of diabetes.

### ➡ **Global Collaboration:** Foster partnerships with international organizations for resource sharing and research advancements.



# Odisha Villages Recognized as 'Tsunami Ready' by UNESCO-IOC

## ● Why in News?

- ➡ 24 coastal villages in Odisha were acknowledged as **Tsunami Ready** during the **2nd Global Tsunami Symposium** in Indonesia.
- ➡ Recognition was based on verification by the **National Tsunami Ready Recognition Board (NTRB)**.

## ● About Tsunami Ready Recognition Programme (TRRP)

- ➡ **Implemented By:** NTRB, which includes experts from **Indian National Centre for Ocean Information Services (INCOIS)** and officials from **National Disaster Management Authority (NDMA)**.
- ➡ **Objective:** Enhance risk prevention and mitigation across coastal zones globally.
- ➡ **Aim:** Build **tsunami resilience** by promoting awareness and preparedness to safeguard lives, livelihoods, and property.
- ➡ **Features:**
  - Uses **12 preparedness indicators** for evaluation.
  - Recognition is renewable every **four years**.

## ● About Tsunamis

- ➡ **Definition:** A series of large waves triggered by underwater disturbances such as **earthquakes, volcanic eruptions, landslides, or coastal rock falls**.
- ➡ **Origin of the Term:** Derived from the Japanese words "**tsu**" (**harbor**) and "**nami**" (**wave**).
- ➡ **Characteristics:**
  - Speed:** Can exceed **500 mph** in deep water, slowing to 20–30 mph in shallow water.
  - Wave Dynamics:** As water depth decreases, the wavelength shortens and wave height increases.
- ➡ **Dependence:** Wave speed depends on **ocean depth**, not distance from the source.



## ● **Steps Taken by India**

### ➡ **Early Warning Systems:**

Indian Tsunami Early Warning Centre (ITEWC) provides advisories to **25 Indian Ocean countries**.

Equipped with a network of **tsunami buoy systems** transmitting real-time data.

### ➡ **Real-Time Monitoring:** INCOIS established a **real-time tide gauge network** along the Indian coastline.

### ➡ **NDMA Guidelines:** Focused on comprehensive **management of tsunamis** in India.

### ➡ **Modeling and Mapping:** Conducted along the Indian coast for early warning of **tsunamis and storm surges**.

## ● **Way Forward**

### ➡ **Strengthen Local Resilience:**

Expand the Tsunami Ready programme to more coastal communities.

Promote community-based disaster preparedness training.

### ➡ **Enhance Technology:** Invest in advanced **real-time monitoring systems** and tsunami forecasting models.

### ➡ **Global Collaboration:** Share expertise and technology with international counterparts to improve **early warning systems**.

### ➡ **Awareness Campaigns:** Regularly conduct public awareness programs to educate on **tsunami risks and preparedness measures**.

# International Day Against Transnational Organized Crime

## ● Why in News?

- ➔ 15 November declared as the **International Day for Prevention of and Fight against All Forms of Transnational Organized Crime (TOC)** by the **UN General Assembly** in March 2024.
- ➔ First observance of the **International Day against Transnational Organized Crime**.

## ● About Transnational Organized Crime (TOC)

- ➔ **Definition:** Organized crime activities coordinated across national borders, involving groups or individuals working across multiple countries to carry out illegal ventures.

### ➔ Types of TOC:

- Drug trafficking
- Human trafficking
- Smuggling of migrants
- Money laundering
- Trafficking in firearms
- Counterfeit goods

## ● Linkages Between TOC and Terrorism

### ➔ Financing of Terrorism:

Terrorists often rely on proceeds from organized crime for funding their activities.

Example: Northeast militant groups fund operations through illegal drug and arms trafficking.

### ➔ Movement of Terrorists:

Organized crime groups assist terrorists by facilitating the transport of militants across borders.

Example: **Entry points in Southeast Asia** like **Moreh** and **Cox's Bazaar** are major routes for the movement of militants and illegal activities.

- ➔ **Counterfeit Currency:** Terrorist organizations are involved in circulating counterfeit currency, such as in **Kashmir**, which spreads throughout India.



## ● **Initiatives Undertaken**

- ➡ **UN Convention against Transnational Organized Crime (2000):** The **primary international framework** for addressing and combating TOC globally.
- ➡ **Financial Action Task Force (FATF):** Sets **international standards** for combating **money laundering** and **terrorist financing**.
- ➡ **INTERPOL:** The world's largest police organization, comprising **196 member countries**, working to combat international crime.
- ➡ **United Nations Office on Drugs and Crime (UNODC):** Works globally to tackle TOC, corruption, terrorism, and illicit drugs.

## ● **Way Forward**

- ➡ **Strengthen International Cooperation:** Enhance collaboration between nations to **tackle cross-border crime**.
- ➡ **Address Root Causes:** Focus on **reducing the economic incentives** for engaging in transnational organized crime through **poverty alleviation and better governance**.
- ➡ **Enhanced Law Enforcement:** Improve coordination among **law enforcement agencies**, especially **border security** forces, to curb the trafficking of goods and people.
- ➡ **Public Awareness:** Increase global awareness about the **negative impact** of TOC on communities and national security.
- ➡ **Continuous Monitoring and Policy Reform:** Regular **evaluation of international conventions** and standards to adapt to evolving criminal methods.



# Direct-to-Device (D2D) Satellite Connectivity

## ● Why in News?

- ➔ **BSNL Launch:** BSNL unveiled India's first D2D satellite connectivity service, bringing satellite-based internet to daily consumers.
- ➔ **Global Comparisons:** Similar technology is used by AST SpaceMobile, Lynk Global, SpaceX-Starlink, etc.

## ● Working of D2D Satellite Technology

- ➔ **Core Principle:** Satellites function as cell towers in space, eliminating the need for terrestrial towers.
- ➔ **Signal Transmission:** Signals are directly transmitted between satellites and devices on the ground.
- ➔ **Non-Terrestrial Network (NTN):** Enables seamless two-way communication between devices and satellites.
- ➔ **Technology Partner:** BSNL leverages Viasat's geostationary L-band satellites positioned 36,000 km above Earth for uninterrupted connectivity.

## ● Significance

- ➔ **Reliable Connectivity:** Provides consistent internet access, irrespective of weather conditions.
- ➔ **Expands Reach:** Delivers high-speed internet to the remotest areas where traditional networks are unavailable.
- ➔ **Supports UPI Payments:** Enhances digital transactions in rural and underserved regions.
- ➔ **Emergency Communication:** Enables calls and SOS messaging in areas without cellular or Wi-Fi networks, benefiting travelers and adventurers.



## ● **Challenges**

- ➡ **Latency Issues:** Maintaining minimal delays for real-time applications like video calls and streaming.
- ➡ **Regulatory Complexities:** Cross-border operations require navigating international regulations.
- ➡ **Spectrum Allocation:** Ensuring sufficient bandwidth for seamless communication.
- ➡ **Device Compatibility:** Guaranteeing the technology works across diverse smartphones and operating systems.
- ➡ **Signal Propagation:** Addressing interference and signal loss in various environments.

## ● **Way Forward**

- ➡ **R&D Investments:** Focus on reducing latency and improving technology for real-time applications.
  - ➡ **Regulatory Alignment:** Collaborate with global and domestic regulators for smooth operations.
  - ➡ **Public Awareness:** Increase knowledge about device compatibility and usage.
  - ➡ **Infrastructure Development:** Enhance ground-support facilities to strengthen satellite-based communication systems.
- This innovative step by BSNL sets the stage for the future of communication in India, bridging digital gaps in remote and underserved areas.




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