

# CIVIL SERVICES EXAMINATION focus

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## CURRENT AFFAIRS ANALYSIS

logical. simple . targeted  
analysis & explanation  
of relevant news

## DATA

Factual data &  
summaries for  
Prelims

## EXAM-ORIENTED NOTES

Examination-  
oriented and  
clear

**FEBRUARY  
2026**



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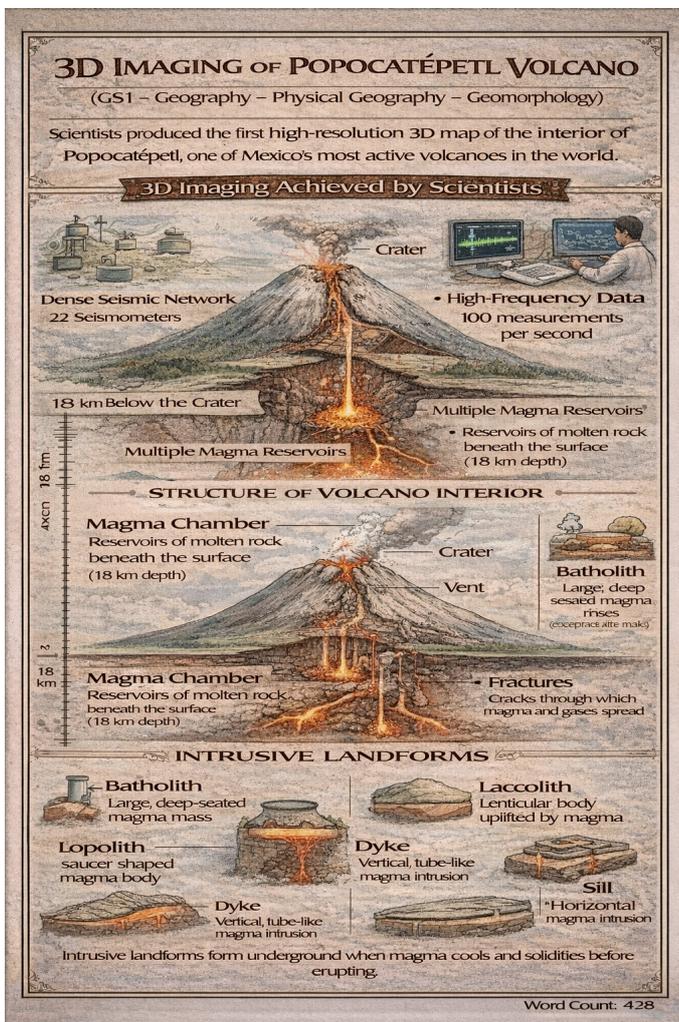
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# GEOGRAPHY

## GS PAPER 1

### PEERING INSIDE A GIANT: 3D MAPPING OF MEXICO'S POPOCATÉPETL VOLCANO



#### CONTEXT

Scientists from Mexico's National Autonomous University have produced the first high-resolution three-dimensional image of the interior of Popocatépetl volcano, one of the most active stratovolcanoes in the world. The breakthrough provides unprecedented insight into the volcano's internal magma plumbing system and represents a major advance in volcanology and hazard assessment.

#### A NEW VIEW OF VOLCANIC INTERIORS

Using five years of seismic observations, researchers mapped the volcano's interior down to nearly 18 km below the crater. The study revealed that Popocatépetl contains multiple magma reservoirs at varying depths rather than a single large magma chamber as assumed in classical models. These magma pockets are unevenly distributed, with greater concentration toward the southeast flank of the volcano.

This finding challenges the traditional "single-chamber" concept of volcanoes and supports modern views that volcanic systems consist of interconnected magma storage zones and conduits.

#### METHODOLOGY: SEISMIC IMAGING WITH ARTIFICIAL INTELLIGENCE

The breakthrough was enabled by deploying a dense seismic network around the volcano. The number of monitoring stations increased from 12 to 22, ensuring full perimeter coverage. These sensors recorded ground vibrations at high frequency—around 100 measurements per second—capturing subtle subsurface movements.

Artificial intelligence algorithms then classified different types of seismic tremors and inferred subsurface properties such as temperature, composition, depth, and phase state. This integration of dense seismic monitoring with AI-based analysis produced a highly resolved 3D image of magma distribution beneath the volcano.

#### SIGNIFICANCE OF THE DISCOVERY

The 3D mapping has major implications for disaster management and volcanology. First, identifying multiple magma reservoirs improves interpretation of seismic signals, enhancing eruption forecasting accuracy. Popocatépetl poses a major hazard because nearly 25 million people live within a 100-km radius, including Mexico City and Puebla. Detailed knowledge of magma pathways enables more precise evacuation planning and risk zoning.

Second, the study establishes a new global benchmark for volcano monitoring by combining dense seismic arrays with machine-learning analysis. This approach can be replicated for other high-risk volcanoes worldwide, improving early-warning systems and reducing disaster risk.

## STRUCTURE OF A VOLCANO INTERIOR

A volcano's internal system consists of several components: magma chambers (molten reservoirs), conduits (magma pathways), vents (surface openings), fractures (crustal cracks), and gas pockets that increase explosivity. When magma fails to erupt and solidifies underground, it forms intrusive volcanic landforms such as batholiths, laccoliths, lopoliths, sills, and dykes.

## CONCLUSION

The first 3D imaging of Popocatepetl marks a paradigm shift from simplified volcanic models to realistic, data-driven representations of magma plumbing systems. By improving eruption prediction and hazard mapping, the study strengthens volcanic risk preparedness and sets a new scientific standard for monitoring active volcanoes globally.

## GREENLAND'S HIDDEN TREASURE: CRITICAL MINERALS, ENERGY WEALTH AND ARCTIC GEOPOLITICS



## CONTEXT

Greenland is emerging as a key geopolitical and economic hotspot due to its vast reserves of **critical raw materials, strategic minerals, and hydrocarbon potential**—resources that are increasingly valuable in the global **clean-energy transition** and intensifying Arctic competition. As climate change accelerates ice melt, access to these deposits is increasing, creating both opportunity and risk.

## WHY GREENLAND MATTERS

Greenland is the **world's largest non-continental island**, located between the **Arctic and Atlantic Oceans**, functioning as a strategic bridge between **North America and Europe**. Nearly **80% of Greenland is covered by the world's second-largest ice sheet** (after Antarctica). While geographically part of North America, it is an **autonomous territory within the Kingdom of Denmark**, with internal self-government but Danish control over **foreign policy, defence, and currency**.

Importantly:

- Greenland is under **NATO Article 5 protection**
- It is **not part of the European Union**
- Hosts the **Pituffik Space Base**, crucial for US and NATO Arctic security

## GREENLAND'S RESOURCE WEALTH

### 1. Hydrocarbon Potential

According to the **USGS**, Greenland may hold about **31 billion barrels of oil-equivalent hydrocarbons** in onshore northeast areas, including ice-covered regions. **Sedimentary basins**, particularly the **Jameson Land Basin**, are viewed as among the most promising oil-gas zones, often compared to **Norway's hydrocarbon-rich shelf**.

### 2. Critical Minerals and Rare Earth Elements (REEs)

Greenland is predicted to contain around **40 million tonnes of dysprosium and neodymium**, potentially meeting **over 25% of projected future global demand**. These are essential for:

- Wind turbines
- EV motors
- defence electronics
- advanced communication systems

### 3. Special Minerals and Metals

Greenland also hosts:

- diamond-bearing **kimberlite pipes**
- native iron lumps
- lead, copper, zinc and iron (often in ice-free basins)

#### WHY IS GREENLAND SO RESOURCE-RICH? (GEOLOGICAL EXPLANATION)

Greenland's geology spans nearly **4 billion years**, containing some of the **oldest rocks on Earth**. This long geological history enabled repeated mineral-forming events.

Uniquely, Greenland experienced all **three major resource-generating geological pathways**:

1. **Mountain Building (Orogeny):** Compression created fractures and fault zones that allowed formation of deposits like gold, graphite, and gemstones.
2. **Rifting:** Repeated rifting (including during the Atlantic opening ~200 million years ago) formed **sedimentary basins**, ideal for hydrocarbons and metals.
3. **Volcanism and Hydrothermal Activity:** Igneous intrusions and hydrothermal fluids concentrated REEs like niobium, tantalum, ytterbium and terbium.

#### CLIMATE CHANGE LINK: OPPORTUNITY VS EMISSIONS TRAP

Climate change is unlocking Greenland's deposits at an unprecedented pace.

- Since 1995, Greenland has lost ice over an area roughly **the size of Albania**
- Exposed terrain is expanding mining feasibility

However, there is a major contradiction:

- Ice melt enables extraction
- but large-scale extraction—especially oil and gas—could **worsen emissions**, accelerating warming

Greenland is warming about **four times faster than the global average**, and its ice melt contributes significantly to **global sea-level rise**. The melting ice also affects the **Atlantic Meridional Overturning Circulation (AMOC)**, impacting weather patterns worldwide.

#### GEOPOLITICAL SIGNIFICANCE: THE ARCTIC CHESSBOARD

##### Pituffik Space Base (Thule Air Base)

- Northernmost US military base

- Located ~1,200 km north of the Arctic Circle
- Operational year-round despite harsh conditions
- Critical for:
  - ballistic missile early warning
  - satellite tracking
  - space monitoring for US/NATO
- Renamed from Thule Air Base in **2023**, reflecting Greenlandic heritage
- Established under a **1951 US-Denmark defence agreement**

#### STRATEGIC COMPETITION

Resource access and new shipping lanes are increasing interest from major powers:

- the US and NATO (security + supply chain resilience)
- China (critical minerals and polar routes)
- Russia (Arctic militarisation and dominance)

Thus, Greenland has become central to:

- critical mineral diplomacy
- Arctic security strategy
- climate governance debates

#### ECONOMIC DIMENSION

Greenland's economy is still highly dependent on:

- **fishing (≈90% of exports)**
- Denmark's annual subsidy (≈20% of GDP)

Mining and energy extraction could provide revenue and autonomy, but risks damaging Arctic ecosystems and indigenous livelihoods if poorly regulated.

#### CONCLUSION

Greenland's rising importance reflects the intersection of **geology, climate change, and geopolitics**. Its mineral reserves could strengthen global clean-energy supply chains, but extraction in the Arctic must be balanced with climate responsibilities. In the coming decades, Greenland is likely to remain a focal point of **resource competition, strategic security planning, and environmental debate**.

## WHEN THE ARCTIC BREAKS LOOSE: POLAR VORTEX DISRUPTIONS AND THE U.S. WINTER STORM



## CONTEXT

A powerful winter storm swept across nearly 17 states in the United States, affecting around **157 million people**. The event was triggered by a southward expansion and weakening of the **polar vortex**, allowing frigid Arctic air to spill deep into mid-latitude regions and cause heavy snowfall, prolonged freezing temperatures, and widespread disruptions.

## UNDERSTANDING THE POLAR VORTEX

The **polar vortex** is a large-scale, persistent **low-pressure system** of extremely cold air that circulates around the Earth's polar regions during winter. It exists over both the **North Pole and the South Pole** and plays a crucial role in shaping large-scale atmospheric circulation.

Seasonally, the polar vortex **strengthens during winter** when the temperature contrast between the poles and mid-latitudes is sharp, and **weakens during summer** as this gradient reduces. Under normal conditions, it remains relatively stable and confined to the polar regions, keeping Arctic air locked in.

## TYPES OF POLAR VORTEX

### 1. Tropospheric Polar Vortex

- Located in the lower atmosphere (up to ~10–15 km).
- Directly influences day-to-day weather, including cold waves, blizzards, and winter storms.

### 2. Stratospheric Polar Vortex

- Exists higher up (15–50 km altitude).
- Strongest in autumn and winter; weakens or collapses in summer.
- Sudden disturbances here can cascade downward, affecting surface weather weeks later.

## HOW POLAR VORTEX DISRUPTIONS TRIGGER EXTREME COLD

- **Southward Cold Air Spill:** When the vortex weakens or splits, large lobes of Arctic air detach and move southward, bringing sudden and intense cold to regions unaccustomed to such temperatures.
- **Jet Stream Distortion:** A strong polar vortex keeps the jet stream relatively straight. When weakened, the jet stream becomes **wavy**, allowing cold Arctic air to plunge south and warm air to surge north.
- **Prolonged Cold Waves:** These altered circulation patterns can trap cold air over an area for extended periods, leading to **long-lasting freezes**, heavy snowfall, and repeated winter storms, as seen in the recent U.S. event.

## ROLE OF CLIMATE CHANGE

Climate change is increasingly linked to polar vortex instability:

- **Arctic Amplification:** The Arctic is warming **nearly four times faster** than the global average. This reduces the temperature difference between the poles and mid-latitudes—the very gradient that sustains a strong vortex.
- **Increased Atmospheric Instability:** A weaker temperature gradient makes the polar vortex and jet stream more prone to **disruption, wobbling, and displacement**.
- **Extreme Weather Paradox:** While global temperatures rise overall, vortex disruptions can paradoxically increase the **frequency and intensity of extreme winter cold events** in mid-latitude regions.

## WHY THIS MATTERS

Polar vortex-related events have major **economic, social, and infrastructural impacts**, including power outages, transport disruptions, crop losses, and public health risks. For policymakers and disaster managers, understanding these dynamics is essential for **climate-resilient planning**, improved weather forecasting, and adaptive infrastructure design.

The recent U.S. winter storm underscores that climate change does not eliminate cold extremes—it can **rearrange and intensify them**, making atmospheric science central to future risk governance.

## COKING COAL GOES STRATEGIC: SECURING INDIA'S STEEL BACKBONE

**Coking Coal Notified as Critical & Strategic Mineral**  
GS1 – Geography – Economic Geography – Mineral Resources  
2026 Theme: "Take Control of Your Data"

**What is Coking Coal?**

- High-grade bituminous coal
- Converts to coke in absence of air
- Essential for blast furnace steelmaking

**MMDR Act, 1957**

- Central Government controls mining auctions
- Ensures supply security & faster clearances

**India's Coking Coal Landscape**

- 90% reserves → Jharia Coalfield (Jharkhand)
- Minor deposits → West Bengal
- High import vulnerability

85% import dependency

India's Coking Coal Landscape: Australia, Russia, USA

**Critical & Strategic Mineral Status:**

- Notified under MMDR Act, 1957
- Central Government controls mining auctions
- Ensures supply security & faster clearances

**Policy Push: Mission Coking Coal 2030**

- Goal: 140 MT domestic production
- Beneficiation, underground mining, tech upgrade

**Link with National Strategy**

- Supports Aatmanirbhar Bharat
- Aligns with Viksit Bharat @2047
- Complements National Critical Mineral Mission (NCMM)

MAP NOT TO SCALE | ILLUSTRATION FOR EDUCATIONAL PURPOSES ONLY  
Sources: PIB, Ministry of Coal, MMDR Act

### CONTEXT

The Government of India has notified **coking coal** as a **Critical and Strategic Mineral** under the **Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)**. The move is aimed at reducing import dependence, strengthening the domestic steel ecosystem, and supporting the long-term goals of **Aatmanirbhar Bharat** and **Viksit Bharat @2047**.

### WHY COKING COAL MATTERS

Coking coal is a premium grade of bituminous coal that transforms into **coke** when heated in the absence of air. Coke is indispensable in blast furnaces, acting both as a fuel and a reducing agent in iron-making. Unlike thermal coal, coking coal has high carbon content, low moisture, and strong **caking properties**, which enable it to form a hard, porous mass essential for steel production.

India's geological endowment of coking coal is limited and geographically concentrated. Over **90% of known reserves lie in the Jharia coalfield of Jharkhand**, with smaller deposits in West Bengal and Madhya Pradesh. Despite being the world's second-largest steel producer, India imports **around 85% of its coking coal requirement**, primarily from Australia, Russia, and the United States—making the steel sector vulnerable to global supply shocks and price volatility.

### WHAT DOES 'CRITICAL & STRATEGIC MINERAL' STATUS CHANGE?

Critical minerals are those essential for economic development and national security but exposed to supply-chain risks. The MMDR Act creates a special legal category of "**Critical and Strategic Minerals**", for which the **Central Government has exclusive authority to auction mining leases**.

By bringing coking coal into this category:

- Policy priority** is accorded to domestic exploration and production.
- Faster clearances and coordinated planning** become possible.
- Supply security for steel—an input sector for infrastructure, defence, and manufacturing—is strengthened.

This aligns with **Mission Coking Coal 2030**, launched in 2021, which targets **140 million tonnes of domestic coking coal production by 2030** through beneficiation, underground mining, and technology upgradation.

### LINK WITH INDIA'S CRITICAL MINERALS STRATEGY

In 2023, India identified **30 critical minerals** such as lithium, cobalt, nickel, graphite, copper, and rare earth elements. These are vital for **sunrise sectors** including electric vehicles, semiconductors, renewable energy, and defence systems. The **National Critical Mineral Mission (NCMM) 2025** seeks to secure these minerals through domestic mining, recycling, and overseas acquisitions.

Notifying coking coal as critical and strategic reflects a broader shift—from viewing minerals as raw commodities to treating them as **strategic assets** essential for industrial sovereignty.

### CONCLUSION

The strategic classification of coking coal recognises a hard reality: steel remains the backbone of India's infrastructure and industrial growth, and steel security depends on assured coking coal supply. While green steel technologies are evolving, coking coal will remain indispensable in the medium term. The new status under the MMDR Act is thus a pragmatic step to insulate India's growth ambitions from external vulnerabilities while preparing for a gradual transition to cleaner industrial pathways.

# SOCIETY

## GS PAPER 1

### MAKING RABIES VISIBLE: DELHI'S PUSH FOR MANDATORY DISEASE NOTIFICATION

**Making Rabies Visible:**  
Delhi's Push for Mandatory Disease Notification

**CONTEXT:** Delhi Government to declare human rabies a notifiable disease under the Epidemic Diseases Act, 1897.

- MANDATORY REPORTING:** All healthcare providers must report suspected, probable and confirmed human rabies cases.

**NATIONAL ALIGNMENT**  
Aligned with India's goal to eliminate rabies by 2030 under NAPRE

**STATE PRECEDENT:** 20 Indian states already list human rabies as a notifiable disease

**WHAT DOES "NOTIFIABLE DISEASE" MEAN?**

- Legal obligation:** Diagnosis requires reporting to health authorities.
- Authority:** States declare under local laws or Epidemic Diseases Act
- Surveillance:** Cases are monitored via Integrated Disease Surveillance Programme (IDSP)
- Timelines:** Urgent within 24 hours; routine within 3 days
- Authority:** States declare under local laws or Epidemic Diseases Act

**WHY NOTIFYING RABIES MATTERS**

- EARLY DETECTION**  
Identifies outbreaks swiftly, tracks clustering
- PUBLIC HEALTH RESPONSE**  
Enables timely post-exposure shots & animal control
- RESOURCE ALLOCATION**  
Aids planning for vaccines, immunoglobulin, & workforce

**ABOUT RABIES**

Delhi

**RABIES BURDEN IN INDIA**

- India accounts for **-36%** of global rabies deaths
- NAPRE: National Rabies Control Programme provides free vaccines, immunoglobulin, surveillance &
- NAPRE: Adopts "One Health" approach to eliminate rabies by 2030

Source: Delhi Govt | GoI | WHO

#### CONTEXT

The Delhi government has announced its decision to declare **human rabies a notifiable disease** under the **Epidemic Diseases Act, 1897**. This move mandates compulsory reporting of all suspected, probable, and confirmed rabies cases by public and private healthcare providers. The decision aligns with the **National Action Plan for Dog-Mediated Rabies Elimination (NAPRE)**, which aims to eliminate rabies in India by **2030**, and follows similar steps already taken by **20 Indian states**.

#### WHAT DOES "NOTIFIABLE DISEASE" MEAN?

A notifiable disease is one that **must be reported to government health authorities** upon diagnosis or suspicion.

- Legal obligation:** Reporting is mandatory, with penalties for non-compliance under public health laws.
- Timelines:** Urgent cases require reporting within **24 hours**, while routine cases must be reported within **three days**.
- Authority:** States notify diseases under state laws or the Epidemic Diseases Act, while the Centre can mandate nationwide notification (e.g., tuberculosis in 2012).
- Surveillance:** All reported cases are integrated into the **Integrated Disease Surveillance Programme (IDSP)** for real-time monitoring.

#### WHY NOTIFYING RABIES MATTERS

- Early Detection:** Mandatory reporting helps identify outbreaks quickly and track spatial clustering.
- Public Health Response:** Enables timely interventions such as post-exposure prophylaxis, contact tracing, and animal control measures.
- Resource Allocation:** Assists governments in planning vaccine supply, immunoglobulin distribution, and workforce deployment.
- Accountability:** Improves transparency and reduces under-reporting of a highly fatal disease.

#### ABOUT RABIES

Rabies is a **viral disease of the central nervous system** that is **almost 100% fatal once symptoms appear**, but is entirely **preventable** with timely vaccination.

- Causative agent:** Rabies virus (RABV).
- Transmission:** Mainly through saliva via dog bites or scratches; not transmitted through blood, urine, or faeces.
- Reservoir:** Domestic dogs account for nearly **99% of global human rabies cases**.
- Incubation period:** Usually **1-3 months**, but can exceed one year.
- Global goal:** The WHO-led **"Zero by 30"** initiative aims to eliminate dog-mediated human rabies deaths by 2030.

## RABIES BURDEN IN INDIA

- India accounts for **about 36% of global rabies deaths**, making it the world's most affected country.
- The **National Rabies Control Programme (NRCP)** provides free vaccines, rabies immunoglobulin, surveillance, and awareness campaigns.
- **NAPRE** adopts a **One Health approach**, integrating human health, animal health, and municipal governance to eliminate rabies.

## SIGNIFICANCE OF DELHI'S DECISION

Declaring rabies a notifiable disease marks a shift from **reactive treatment to proactive surveillance**. It strengthens epidemiological tracking, supports India's global elimination commitments, and underscores the role of data-driven governance in public health. If effectively implemented, Delhi's step can serve as a **model for urban rabies control** across India.

## COUNTING AHEAD: HOW CENSUS 2027 REDEFINES INDIA'S POPULATION MAPPING

**Counting Ahead: Census 2027 Ushers in a Digital Era**

India to begin the first phase of Population Census 2027, known as the Houselisting and Housing Census, in April 2026.

**What is the Houselisting and Housing Census?**  
Not a population count, it maps every structure for accurate census preparation.

Not a population count, it maps every structure for accurate census preparation.

**What Makes Census 2027 Different?**

- India's First Digital Census**
- Housing Data**
- Expanded Indicators**
  - ▶ Cooking fuel
  - ▶ Migration
  - ▶ Caste
  - ▶ Gender identity
  - ▶ Digital access
- Full Caste Enumeration Since 1931**  
Detailed count of every individual with demographic, economic & social data.

**What's Ahead?**

**POPULATION ENUMERATION NEXT**  
Detailed count of every individual with demographic, economic & social data.

**FASTER RESULTS**  
Digital processes mean final figures in 6-9 months

## CONTEXT

India will begin the first phase of the Population Census 2027—the **Houselisting and Housing Census (HLHC)**—from **April 2026**. This preparatory phase lays the administrative and digital foundation for the full population enumeration scheduled later, marking a significant transformation in how India counts and understands itself.

## WHAT IS THE HOUSELISTING AND HOUSING CENSUS?

The Houselisting and Housing Census is **not a headcount of people**. Instead, it focuses on **mapping the physical and housing infrastructure** of the country to prepare an accurate sampling frame for population enumeration.

### Key elements include:

- **Structure Listing:** Enumeration of every building, house, and household—residential and non-residential.
- **No Personal Data:** Unlike the Population Enumeration phase, it excludes individual demographic details.
- **Housing Conditions:** Data on construction material, number of rooms, ownership status, access to electricity, toilets, drinking water, and household assets.
- **Digital Geotagging:** Each structure will receive a **unique latitude-longitude coordinate** using Digital Layout Mapping, improving spatial accuracy.

This phase ensures that **no household is missed** during the actual population count.

## WHAT MAKES CENSUS 2027 DIFFERENT?

Census 2027 represents a **structural break from earlier censuses**, both technologically and substantively.

### Major innovations include:

- **Fully Digital Census:** India's first census conducted entirely through mobile applications with real-time data upload.
- **Self-Enumeration:** Citizens can voluntarily fill census details online before enumerator visits, reducing errors and costs.
- **Expanded Indicators:** New questions on digital access, gender identity, climate-induced migration, and cooking fuel.

- **Comprehensive Caste Enumeration:** The first full caste count since **1931**, providing crucial data for social policy.
- **Central Monitoring:** A Census Management and Monitoring System (CMMS) will track progress, flag inconsistencies, and ensure quality control.
- **Faster Data Release:** Digital workflows aim to publish final population figures within **6–9 months**, compared to several years earlier.
- **Policy Integration:** Machine-readable datasets will be shared with ministries via APIs, strengthening evidence-based governance.

## WHY THE HOUSELISTING PHASE MATTERS

Accurate housing data is essential for:

- Urban planning and housing policy
- Targeted delivery of welfare schemes
- Infrastructure planning (water, sanitation, electricity)
- Disaster preparedness and climate resilience mapping

Errors at this stage can cascade into **systemic undercounting** in the population phase.

## WHAT COMES NEXT?

The second phase—**Population Enumeration (PE)**—will record detailed **demographic, social, economic, and educational data** for every individual residing in India.

Together, the two phases will produce the **most granular and policy-relevant census dataset in India's history**.

## CONCLUSION

Census 2027 is not merely a counting exercise—it is a **digital governance reform**. By beginning with a robust, geotagged housing census, India is repositioning its population data architecture to meet the demands of a complex, mobile, and climate-affected society.

# UNIFYING THE HIGHER EDUCATION LANDSCAPE: INDIA'S NEW REGULATORY RESET



## CONTEXT

India's higher education ecosystem has expanded rapidly in scale but remains constrained by fragmented regulation and uneven quality. The **Viksit Bharat Shiksha Adhishthan Bill, 2025 (Higher Education Regulation Bill, 2025)** seeks to overhaul governance by replacing multiple legacy regulators with a unified, transparent, and outcome-oriented framework aligned with **NEP 2020**.

## WHY REGULATION REFORM IS NECESSARY

- **System Explosion:** India hosts over **1,000 universities and ~42,000 colleges** (AISHE), yet approvals and monitoring remain slow and inconsistent due to regulatory overlap.
- **Low Participation:** India's **Gross Enrolment Ratio (GER) ~28%** remains far below the NEP ambition, signalling access and capacity constraints.
- **Research Deficit:** With **~0.7% of GDP spent on R&D** (OECD), institutions often prioritise compliance over innovation and research outcomes.

- **Global Quality Gap:** Despite scale, only ~45 Indian institutions feature in **QS World University Rankings 2025**, reflecting limited global competitiveness.
- **Employability Challenge:** India produces ~1.5 crore graduates annually, yet only ~45-50% are readily employable, indicating a skill-education mismatch.

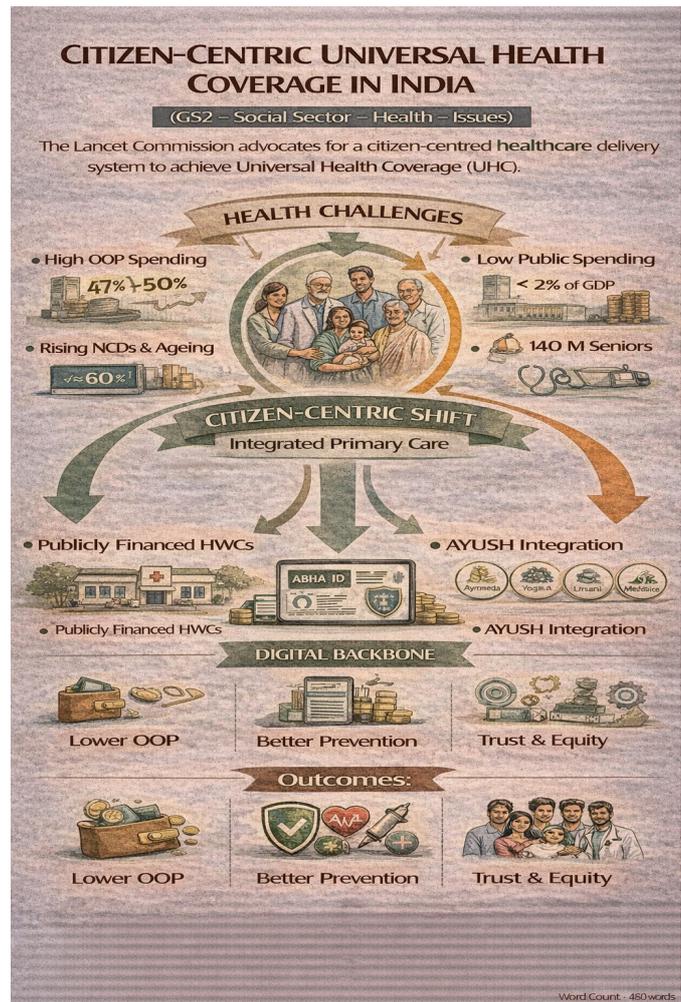
### KEY PROVISIONS OF THE VBSA BILL, 2025

- **Apex Body:** Establishes the **Viksit Bharat Shiksha Adhishthan (VBSA)** as the umbrella regulator.
- **Three Councils:** Distinct councils for **Regulation, Accreditation, and Academic Standards**.
- **Regulatory Unification:** Repeals **UGC Act, 1956; AICTE Act, 1987; NCTE Act, 1993**.
- **Outcome-Based Accreditation:** Shifts focus from inputs to learning outcomes and institutional performance.
- **Foreign Universities:** Provides a framework for entry and operation of foreign universities in India.
- **Grant Separation:** Removes grant-disbursal from the regulator; funding routed via the Ministry.
- **Digital Transparency:** Mandatory online self-disclosure of finances, courses, and governance.
- **Coverage:** Central & State Universities, Colleges, Institutions of National Importance, Eminence, Technical & Teacher Education Institutions.
- **Exemptions:** Medicine, Dentistry, Nursing, Law, Pharmacology, Veterinary Sciences.

### EXPECTED IMPACT

- **Access Expansion:** Single-window clearances can accelerate capacity creation, supporting a rise in **GER from ~28% to 50% by 2035** (NEP target).
- **Global Trust & Mobility:** Unified standards and credible accreditation can boost international recognition; India currently hosts only ~0.5% of global international students.
- **Accountability Loop:** Structured student feedback and grievance redressal can improve teaching quality and institutional governance.

## PLACING THE CITIZEN AT THE CENTRE OF INDIA'S UNIVERSAL HEALTH COVERAGE



### CONTEXT

The **Lancet Commission on Universal Health Coverage (UHC)** has called for a **citizen-centric healthcare delivery system** in India, arguing that people’s lived experiences and long-term care needs must guide reforms. The recommendation comes amid persistent out-of-pocket (OOP) costs, rising non-communicable diseases (NCDs), and uneven access to quality care.

### WHY CITIZEN-CENTRIC UHC IS ESSENTIAL FOR INDIA

India’s health system continues to impose a heavy financial burden on households. **Out-of-pocket expenditure remains around 47-50%** of total health spending, exposing families to medical impoverishment. At the same time, **public health expenditure is below 2% of GDP**, well short of the **National Health Policy target of 2.5%**.

Epidemiological transition further strengthens the case for reform. **Non-communicable diseases account for nearly 60% of all deaths**, demanding continuous, preventive and primary-level care rather than episodic hospitalisation. Additionally, India has about **140**

**million elderly persons (60+)**, increasing demand for chronic disease management, rehabilitation and long-term care.

## KEY CHALLENGES IN THE EXISTING SYSTEM

- **Human Resource Gaps:** Many states report **20–30% vacancies** in specialists and medical officers in public facilities, affecting service quality and continuity.
- **Weak Financial Protection:** Around **14–17% of households** face catastrophic health expenditure, indicating gaps in effective risk pooling.
- **Fragmented Care Delivery:** Nearly **70% of outpatient care** is delivered by the private sector, leading to discontinuity, duplication of tests and variable standards.
- **Limited Preventive Focus:** Low screening rates mean conditions like diabetes and hypertension often remain undiagnosed for years, raising complication costs.

## LANCET COMMISSION'S KEY RECOMMENDATIONS

### 1. Citizen-Centric Integrated Care

The Commission advocates shifting from top-down planning to **including people's priorities and feedback** in health decisions. **Kerala's People's Plan** demonstrates how local participation can strengthen accountability.

Publicly financed and provided care should form the **backbone of UHC**, with **Ayushman Bharat Health and Wellness Centres (HWCs)** acting as the primary vehicle.

Further, **AYUSH practitioners** should be integrated into care teams to expand preventive and promotive services.

### 2. Workforce and Frontline Empowerment

Instead of relying only on formal qualifications, the focus should move towards **competency, ethics, and motivation** in real-world service delivery.

Frontline workers must be empowered through training and decision support, as seen in **Tamil Nadu's "Makkalai Thedi Maruthuvam"**, which delivers doorstep care for chronic patients.

### 3. Digital Technology-Led Reform

Digital platforms should integrate providers, payers and patients for seamless care pathways. The **Ayushman Bharat Digital Mission (ABDM)**, using **ABHA IDs**, is central to this vision.

Emerging technologies such as **AI-enabled diagnostics, genomics and portable innovations** can bring advanced care closer to communities.

### 4. Governance and Financing Reforms

Efficient **digital fund flows** and simplified procedures are needed to improve utilisation.

The Commission recommends shifting from line-item budgeting to **outcome-based financing**, linking funding to measurable health outcomes to build trust and accountability.

## CONCLUSION

A citizen-centric approach to Universal Health Coverage can transform India's health system from episodic and fragmented care to **continuous, preventive and people-responsive healthcare**, aligning equity, efficiency and dignity.

# POLITY, GOVERNANCE & SOCIAL JUSTICE

## GS PAPER 2

### REDEFINING MATRIMONIAL CRUELTY: SUPREME COURT'S EVOLVING JURISPRUDENCE

#### Judicial Contours of Matrimonial Cruelty

**Context:** The Supreme Court ruled that **financial dominance** by a husband does not automatically amount to cruelty unless it results in clear mental or physical harm.

#### MATRIMONIAL LAWS IN INDIA

- IPC Section 498A**  
Criminalises cruelty by husband or relatives causing grave injury or harassment linked to unlawful demands, now mirrored by BNS Section 85 (2023) with similar safeguards
- Dowry Prohibition Act, 1961**  
Penalises giving, taking or demanding dowry, requiring proof of demand and a direct nexus with harassment or coercion
- Protection of Women from Domestic Violence Act, 2005**  
Provides civil remedies against physical, emotional and economic abuse, including protection orders and maintenance

#### KEY JUDGEMENTS OF THE COURT

- FINANCIAL CONTROL TEST**  
Monetary dominance or budgeting control, without demonstrable harm, does not meet the threshold of criminal cruelty
- SPECIFIC ALLEGATIONS RULE**  
Courts require clear, precise and repeated acts to be specifically attributed to each accused to initiate prosecution
- MISUSE OF SAFEGUARD**  
Criminal law cannot be permitted to act as a weapon for vendetta or to settle personal scores in matrimonial disputes

#### COURT'S REASONING FOR THE JUDGMENT

- ORDINARY DISCORD**  
Many allegations reflected routine marital disagreements and insensitive conduct, which do not cross the threshold of criminal
- PROCESS PROTECTION**  
Entertaining vague claims would expose individuals to prolonged and oppressive litigation, undermining fairness.
- EVIDENCE STANDARD**  
Criminal prosecution requires tangible material and specific acts, not inferences drawn from marital dissatisfaction
- CIVIL REMEDY BURDEN**  
Redirecting economic control disputes to civil law may delay relief  
Eg. In maintenance cases, the average delay from filing to final order often exceeds 12-18 months (NJDG)

Source: Supreme Court | NCRB | NJDG

#### CONTEXT

The Supreme Court recently clarified that **financial dominance by a husband does not automatically constitute matrimonial cruelty**, unless it results in **clear mental or physical harm** to the wife. The ruling delineates the boundary between criminal cruelty and ordinary marital discord, especially under **Section 498A of the IPC** (now mirrored by **Section 85 of the Bharatiya Nyaya Sanhita, 2023**).

#### MATRIMONIAL LAWS GOVERNING CRUELTY IN INDIA

India addresses matrimonial cruelty through a combination of **criminal and civil laws**:

- **IPC Section 498A / BNS Section 85 (2023):** Criminalises cruelty by the husband or his relatives involving grave injury, harassment, or coercion linked to unlawful demands.
- **Dowry Prohibition Act, 1961:** Penalises giving, taking, or demanding dowry, requiring proof of demand and a direct nexus with harassment.
- **Protection of Women from Domestic Violence Act, 2005 (PWDVA):** Provides civil remedies against physical, emotional, sexual, and economic abuse, including protection orders and maintenance.

#### KEY JUDICIAL PRINCIPLES EVOLVED BY THE SUPREME COURT

- **Financial Control Test:** Mere control over household finances or budgeting decisions, without demonstrable harm, does not meet the threshold of criminal cruelty.
- **Specific Allegations Rule:** Courts require **clear, precise, and repeated acts**, specifically attributed to each accused, to initiate prosecution.
- **Misuse Safeguard:** Criminal law cannot be used as a tool for vendetta or to settle personal scores in matrimonial disputes.

#### COURT'S REASONING

The Court emphasised that **ordinary marital discord**, insensitivity, or routine disagreements—though undesirable—do not amount to criminal cruelty. Allowing vague or omnibus allegations would expose individuals to **prolonged and oppressive litigation**, undermining procedural fairness.

Further, criminal prosecution demands a **high evidentiary threshold**, requiring tangible material and specific acts rather than inferences drawn from marital dissatisfaction or economic imbalance alone.

#### CRITICISM AND CONCERNS

Despite its legal clarity, the judgment has drawn criticism on social grounds:

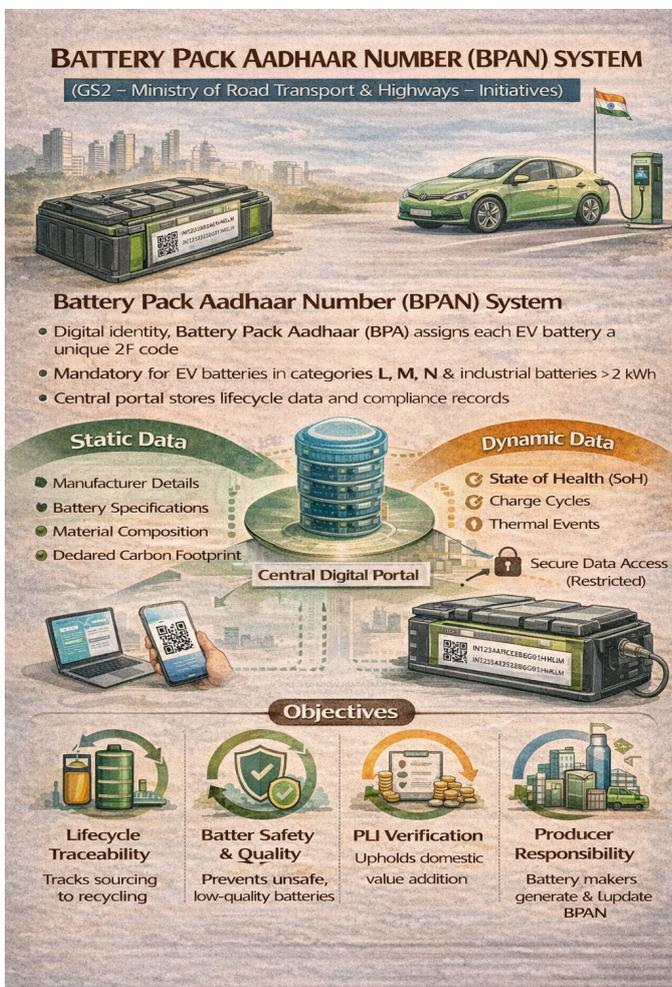
- **High Prevalence of Cruelty:** Crimes under cruelty by husband or relatives exceed **1.3 lakh cases annually**, raising concerns that genuine victims may face higher barriers.

- **Under-Reporting Risk:** Normalising financial dominance risks discouraging reporting, especially in a context where crimes against women exceed **4.4 lakh annually**, with acknowledged under-reporting.
- **Delay in Civil Remedies:** Redirecting economic-control disputes to civil law under the PWDVA may delay relief, as **maintenance cases often take 12-18 months** to reach final orders (NJDG data).

## CONCLUSION

The Supreme Court’s ruling attempts to **balance protection of women with safeguards against misuse of criminal law**. While it strengthens procedural fairness and evidentiary discipline, effective protection against matrimonial cruelty now hinges on **robust civil remedies, faster maintenance adjudication, and sensitive judicial application**, ensuring that genuine victims are not left without timely relief.

## DIGITAL FINGERPRINTING OF EV BATTERIES: STRENGTHENING SAFETY, TRACEABILITY AND ACCOUNTABILITY



## CONTEXT

In a significant step towards safer and more transparent electric mobility, the Ministry of Road Transport and Highways (MoRTH) has released draft guidelines proposing a **Battery Pack Aadhaar Number (BPAN)** system. The initiative aims to digitally track electric vehicle (EV) batteries across their entire lifecycle, from manufacturing to recycling.

## WHAT IS THE BATTERY PACK AADHAAR NUMBER (BPAN)?

The **Battery Pack Aadhaar (BPA) Number** is a **unique 21-character alphanumeric digital identity**, embedded in the form of a **QR code**, assigned to every eligible EV battery.

### Coverage:

- EV batteries used in vehicle categories **L, M, and N**
- **Industrial batteries above 2 kWh**

Each battery’s BPAN will be linked to a **centralised digital portal**, ensuring standardised and verifiable information access.

## DATA ARCHITECTURE UNDER BPAN

The BPAN system adopts a **two-layer data framework**:

### 1. Static Data (Publicly Accessible)

- Manufacturer and importer details
- Battery chemistry and specifications
- Material composition
- Declared carbon footprint

### 2. Dynamic Data (Secure & Restricted Access)

- State of Health (SoH)
- Charge-discharge cycle history
- Thermal events and safety incidents

This separation balances **transparency** with **data security** and commercial confidentiality.

## ROLES AND RESPONSIBILITIES

Battery **manufacturers and importers** will be legally responsible for:

- Generating the BPAN
- Ensuring accuracy of uploaded data
- Updating lifecycle information

This directly aligns with the principle of **Extended Producer Responsibility (EPR)** in the EV ecosystem.

## KEY OBJECTIVES OF BPAN

- **Lifecycle Traceability:** Enables tracking of batteries from raw material sourcing to end-of-life recycling or disposal.
- **Quality and Safety Assurance:** Helps curb counterfeit, substandard, and unsafe refurbished batteries in the market.

- **PLI Scheme Verification:** Facilitates verification of domestic value addition under the Production Linked Incentive (PLI) scheme for Advanced Chemistry Cells (ACC).

## WHY BPAN MATTERS

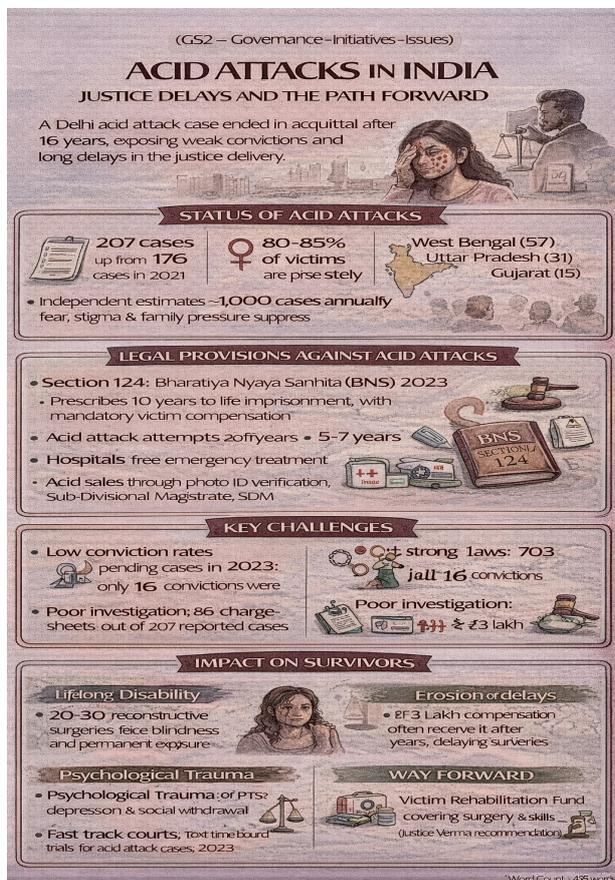
India has witnessed multiple EV fire incidents linked to poor battery quality and thermal runaway. BPAN introduces **digital accountability**, improving recall efficiency, safety audits, and consumer trust.

Further, by enabling accurate tracking of battery materials, the system supports India's transition to a **circular economy**, ensuring responsible reuse and recycling of critical minerals such as lithium, cobalt, and nickel.

## CONCLUSION

The Battery Pack Aadhaar Number marks a shift from fragmented battery oversight to **technology-enabled governance**. By combining safety, sustainability, and industrial policy goals, BPAN can become a cornerstone of India's EV regulatory architecture—provided it is backed by robust enforcement and data integrity safeguards.

## ACID ATTACKS IN INDIA: JUSTICE DELAYS AND THE NEED FOR STRONGER ENFORCEMENT



## CONTEXT

A 2009 Delhi acid attack case recently ended in acquittal after **16 years**, highlighting serious weaknesses in India's criminal justice response—low conviction rates, prolonged trials, and gaps in investigation and survivor rehabilitation. Despite legal reforms, acid attacks remain a persistent form of gender-based violence.

## STATUS OF ACID ATTACKS IN INDIA

According to NCRB trends, **207 acid attack cases** were reported in **2023**, rising from **176 in 2021**, showing that deterrence remains limited. Women constitute nearly **80-85% of victims**, while perpetrators are overwhelmingly male.

However, the true scale is likely higher. Independent estimates suggest around **1,000 cases annually**, indicating significant underreporting due to fear, stigma, and family pressure.

In 2023, the highest reported cases came from:

- **West Bengal (57)**
- **Uttar Pradesh (31)**
- **Gujarat (15)**

## LEGAL FRAMEWORK AGAINST ACID ATTACKS

India has strengthened its legal provisions through the **Bharatiya Nyaya Sanhita (BNS), 2023**:

- **Section 124** specifically criminalises acid attacks, prescribing **10 years to life imprisonment** with mandatory compensation.
- **Attempt to acid attack** is punishable with **5-7 years imprisonment**.
- Hospitals (public and private) are legally bound to provide **free emergency treatment**, with penalties for denial including imprisonment up to one year and/or fine.
- Acid sale is regulated through **photo ID verification**, maintenance of buyer registers, and SDM-level monitoring.

## KEY IMPLEMENTATION GAPS

Despite strong laws, enforcement remains weak:

- **Low conviction rate:** Out of **703 cases pending in courts (2023)**, only **16 convictions** were recorded.
- **Judicial delays:** Trials often extend beyond a decade, undermining survivor faith in justice.
- **Weak investigation:** In 2023, only **86 cases were charge-sheeted out of 207**, reflecting poor evidence collection and compromised inquiry processes.
- **Compensation delays:** Survivors entitled to **₹3 lakh compensation** often receive it after years, delaying surgeries and rehabilitation.

## IMPACT ON SURVIVORS AND SOCIETY

### Acid attacks cause lifelong harm:

- Survivors often require **20–30 reconstructive surgeries**, face blindness and permanent disfigurement, and suffer economic exclusion.
- Psychological consequences include **PTSD, depression, and social withdrawal**, worsened by prolonged court proceedings.
- Persistent impunity erodes trust in the justice system and discourages reporting.

## WAY FORWARD

### A stronger response requires:

- National lifelong rehabilitation fund** covering surgery, counselling, and skilling (as recommended by the Justice J.S. Verma Committee).
- Strict regulation of acid sales** through licensing, audits, and enforcement (Bangladesh's model shows strong results).
- Fast-track courts** and time-bound trials for acid attack cases.
- Mandatory sensitisation training** for police, prosecutors, and judges.

## CONCLUSION

Acid attacks represent both a criminal justice failure and a governance challenge. Stronger enforcement, faster trials, and survivor-centric rehabilitation are essential to restore deterrence and uphold dignity.

## RECASTING INDIA'S PESTICIDE GOVERNANCE FRAMEWORK



## CONTEXT

The Union Government has invited public feedback on the **Draft Pesticides Management Bill, 2025**, prepared by the **Ministry of Agriculture and Farmers Welfare (MoA&FW)**. The Bill seeks to repeal and replace the **Insecticides Act, 1968** and the **Insecticides Rules, 1971**, which are considered inadequate to address contemporary challenges such as spurious pesticides, environmental risks, and global trade requirements.

## RATIONALE AND OBJECTIVES

The primary objective of the Draft Bill is to **modernise pesticide regulation** and ensure **effective management across the entire lifecycle**—from manufacture and import to distribution, use, and disposal. Recognising pesticides as a matter of national importance, **Section 2** explicitly brings the regulation of the pesticide industry under the **Union Government**, citing public interest.

This centralisation aims to ensure uniform standards, prevent regulatory arbitrage among States, and strengthen accountability.

## INSTITUTIONAL ARCHITECTURE

The Bill introduces a **two-tier regulatory structure**:

### 1. Central Pesticides Board (CPB)

- An advisory body.
- Includes representatives from Agriculture, Health, and Environment ministries.
- Responsible for recommending safety norms, disposal mechanisms, and policy guidance.

### 2. Registration Committee (RC)

- The executive authority.
- Evaluates applications for pesticide registration based on **safety, efficacy, and necessity**.

This separation of advisory and executive roles is intended to enhance regulatory clarity and scientific rigour.

## KEY PROVISIONS OF THE DRAFT BILL

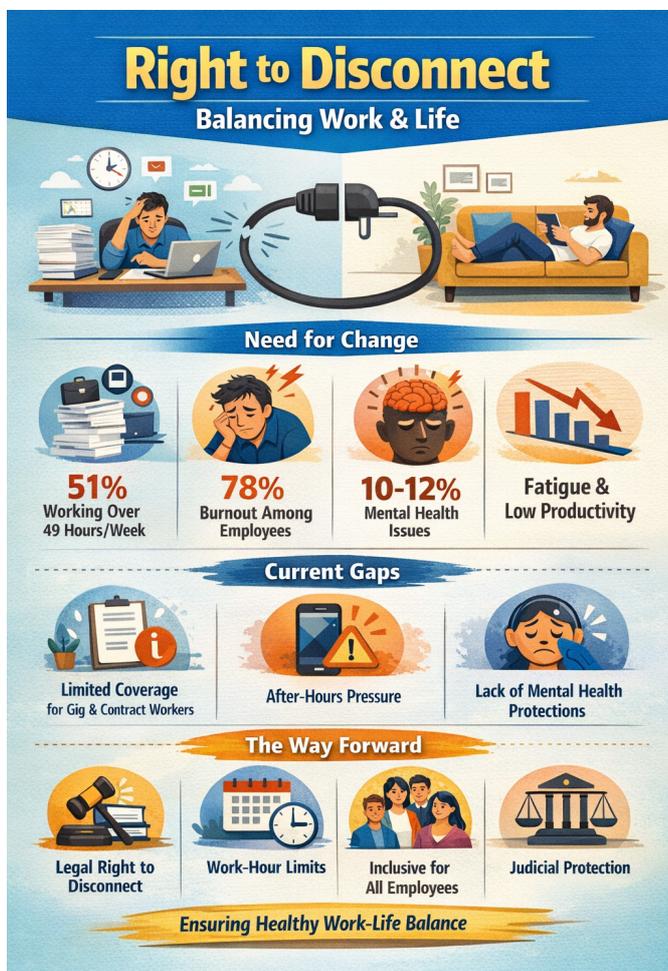
- Curbing Spurious and Counterfeit Pesticides:** Stricter penalties and tighter controls are introduced to address the widespread issue of substandard and fake products, which harm crops, farmers, and consumers.
- Decriminalisation of Minor Offences:** Procedural and technical lapses are made compoundable, reflecting the government's **ease-of-doing-business and ease-of-living** approach.
- Time-bound Registration:** Decisions on pesticide registration must be taken within **12–18 months**. For generic pesticides, approval is deemed after 18 months if no decision is communicated, ensuring regulatory certainty.

- **Digital Traceability:** Mandatory **digital licensing** and technology-enabled supply-chain tracking are proposed to enhance transparency and product authentication.
- **Laboratory Accreditation:** All pesticide testing laboratories must be accredited, improving data credibility and enabling **global benchmarking**.
- **Enhanced Safety Standards:** Provisions cover worker training, occupational health, and the protection of **beneficial organisms**, particularly pollinators.
- **Promotion of Sustainable Alternatives:** The Bill provides legal backing to promote **biopesticides**, **Integrated Pest Management (IPM)**, and **traditional knowledge-based solutions**, aligning with sustainable agriculture goals.

## SIGNIFICANCE

The Draft Pesticides Management Bill, 2025 represents a shift from a narrow “insecticide control” approach to a **holistic pesticide governance framework**, balancing farmer needs, public health, environmental protection, and innovation.

## RECLAIMING PERSONAL TIME IN THE DIGITAL AGE: THE CASE FOR A RIGHT TO DISCONNECT



## CONTEXT

India's rapid digitalisation has transformed workplaces, enabling flexibility and efficiency. However, it has also entrenched an “always-on” culture, where employees remain tethered to work communications beyond official hours. This erosion of work-life boundaries has intensified stress, burnout, and health risks, raising the policy question of whether India needs a **statutory Right to Disconnect**—the right of employees to disengage from work-related communications outside working hours without fear of adverse consequences.

## WHY A STATUTORY RIGHT TO DISCONNECT IS NECESSARY

India faces a convergence of labour market pressures that make legislative intervention timely:

- **Excessive Working Hours:** Around 51% of India's workforce works more than 49 hours per week, placing the country among the highest globally in long working hours (ILO).
- **Burnout and Stress:** Nearly 78% of Indian employees report job burnout, reflecting severe psychosocial strain.
- **Public Health Impact:** Work-related stress accounts for an estimated 10–12% of mental health cases in India.
- **Productivity Paradox:** Longer hours often result in fatigue-driven presenteeism, reducing quality of output, increasing errors, and accelerating attrition.
- **Constitutional Ethos:** Article 21 (Right to Life) has been judicially interpreted to include health, rest, and humane conditions of work, reinforced by Articles 39(e) and 42, which mandate protection of workers' health and just working conditions.

## GAPS IN THE EXISTING LEGAL FRAMEWORK

Despite recent labour reforms, India lacks explicit safeguards against digital overreach:

- **Limited Coverage:** The Occupational Safety, Health and Working Conditions Code, 2020 primarily regulates “workers,” leaving many contractual, white-collar, freelance, and gig workers outside its ambit.
- **Power Asymmetry:** Employees often comply with after-hours digital demands due to fear of penalties, poor appraisals, or job insecurity.
- **Mental Health Blind Spot:** Labour laws remain focused on physical safety, offering weak and unenforceable protections for psychological well-being in digital workplaces.

## WAY FORWARD

A balanced regulatory approach can protect workers without undermining enterprise flexibility:

- **Statutory Recognition:** Explicitly incorporate the Right to Disconnect within the Occupational Safety, Health and Working Conditions Code, 2020.

- **Clear Digital Work-Hour Caps:** Define enforceable daily and weekly limits on digital work communications, with sector-specific flexibility. Portugal (2021) provides a useful model by penalising after-hours employer contact.
- **Judicial Reinforcement:** Courts can interpret labour statutes in light of constitutional values of dignity, health, and humane work conditions.
- **Inclusive Coverage:** Extend protections to gig and contract workers by broadening the definition from “workers” to all “employees,” drawing lessons from Australia’s 2024 amendments to its Fair Work framework.

**WHY IT MATTERS**

Institutionalising the Right to Disconnect would recalibrate India’s digital workplaces toward sustainability—protecting mental health, improving productivity, and aligning economic growth with constitutional morality.

**SECURING INDIA’S NETWORKS: ITSAR AND THE TELECOM CYBERSECURITY PUSH**

**Securing the Network: India's Telecom Security Assurance Requirements**

ITSAR are stringent technical security standards for telecom equipment aimed at safeguarding network integrity and national security.

**About ITSAR**

**Indian Telecom Security Assurance Requirements**

- Issued by **National Centre for Communication Security (NCCS)** under **Department of Telecommunications (DoT)**
- Applies** to telecom equipment sold, imported, or used in India
- Legally binding on **OEMs, importers, dealers, and telecom service providers**

**Key Provisions of ITSAR**

- Security:** Equipment must be free of undisclosed backdoors and malware
- Testing:** Evaluated at **Telecom Security Test Labs** before deployment
- Crypto Control:** Uses NCCS-approved cryptographic algorithms

**Proposed Provisions for Smartphones:**

- Source Code Disclosure:** Share proprietary threats rising globally
- App Removal:** Uninstall non-essential pre-installed apps
- Keep security logs for 1 year**
- Malware Scanning:** Automatic & periodic malware scans
- Update NCCS before major software updates**

**Why Telecom Security Matters**

- Rising Cyber Threats:** Espionage & sabotage threats rising globally
- Telecom backbone of India's digital economy**
- Global concerns:** Advertisements, Agricul, Investors

**CONTEXT**

The Ministry of Electronics and Information Technology (MeitY) clarified that the Government of India **has not mandated smartphone manufacturers to disclose proprietary source code** under the **Indian Telecom Security Assurance Requirements (ITSAR)**. This clarification followed public concern that telecom security rules could compel blanket source-code disclosure, raising issues of intellectual property protection and compliance burden. At the same time, the episode highlights India’s broader push to harden telecom infrastructure against cyber threats.

**WHAT IS ITSAR?**

The **Indian Telecom Security Assurance Requirements (ITSAR)** are **technical security standards** for telecom equipment designed to safeguard **network integrity** and **national security**. They aim to prevent vulnerabilities such as hidden backdoors, malware insertion, or supply-chain compromise in telecom systems.

**Authority:** ITSAR is issued by the **National Centre for Communication Security (NCCS)** under the **Department of Telecommunications (DoT)**.

**Applicability:** ITSAR applies to designated telecom equipment sold, imported, or deployed in India that connects to telecom networks.

**Coverage:** The requirements are legally binding on:

- Original Equipment Manufacturers (OEMs),
- importers/dealers, and
- telecom service providers.

**WHY TELECOM SECURITY MATTERS**

Telecom infrastructure supports critical domains including:

- digital payments and banking,
- government communications,
- emergency response systems,
- defence connectivity, and
- power and transport networks.

Therefore, vulnerabilities in telecom equipment can enable **espionage, disruption, sabotage, or mass surveillance**. As cyber threats become more sophisticated and cross-border, telecom security has become a core element of national security policy.

**Key ITSAR Provisions**

1. **Security Assurance:** Equipment must be free from **undisclosed backdoors and malware**, ensuring trust in telecom networks.
2. **Testing Requirement:** Telecom network elements must undergo security evaluation in **Telecom Security Test Laboratories** before deployment.

3. **Crypto Control:** Equipment must use only **NCCS-approved cryptographic algorithms and protocols**, reducing risks linked to weak encryption or compromised standards.

## PROPOSED SECURITY MEASURES FOR MOBILE DEVICES

Policy discussions have considered extending security requirements to consumer devices due to their growing role as entry points into networks. Proposed provisions include:

- **Source code access for testing:** Manufacturers may be asked to share code only with **government-approved labs** for security testing (MeitY clarified no blanket disclosure mandate currently exists).
- **App removal:** Users should be able to uninstall non-essential pre-installed apps to reduce attack surfaces.
- **Log retention:** Devices may store key security logs (system events, login records) for **one year**.
- **Malware scanning:** Periodic OS-level malware scans.
- **Update reporting:** Firms may inform NCCS before major updates/patch releases.

## POLICY CHALLENGE

India must balance two priorities:

- **strong cybersecurity and trusted networks**, and
- **innovation, privacy, and protection of proprietary intellectual property.**

A calibrated approach—limited access in secure labs, confidentiality safeguards, and targeted testing—can strengthen security without harming competitiveness.

## REFORMING SPORTS ADMINISTRATION IN INDIA: NATIONAL SPORTS GOVERNANCE RULES, 2026



**KEY PROVISIONS**

**ATHLETE INCLUSION & WOMEN QUOTA**

- Min. 4 Sportspersons of Outstanding Merit (SOMs) in General Bodies of all NSFs.
- SOMs must be 25+ & 1 yr retired from active sports
- 10-tier grading prioritises Olympic/international medalists for governance
- 50% of SOMs will be women, Min. 4 women in Exe. Committees

**ELECTION OVERSIGHT**

- National Sports Election Panel (NSEP) to supervise all NSF elections.
- Oversight ensures free, fair, and manipulation-free process.

**ALIGNMENT & DEADLINE**

- All NSFs must align constitutions/by-laws with the new rules.
- Timeline: Mandated to amend within 6 months of rules notification.

**SIGNIFICANCE of the RULES**

**Enhanced Athlete Representation**

- Athletes gain a voice in decision-making, ensuring their perspectives guide sports policy.

**Fair and Ethical Elections**

- Oversight by independent panel ensures free, fair, and transparent processes

**Accountable Governance**

- Disqualification of criminals and deadline adherence improve integrity of Indian sports bodies

**Time-limits. Data transparency**

- Waiting for deserts, plains, & semi-urban theatres, particularly along the western front

Source: Ministry of Youth Affairs & Sports

## CONTEXT

The **Ministry of Youth Affairs and Sports (MoYAS)** has notified the **National Sports Governance Rules, 2026** under the **National Sports Governance Act, 2025**. The rules aim to institutionalise transparency, athlete representation, gender equity, and electoral integrity in National Sports Federations (NSFs).

## ABOUT NATIONAL SPORTS GOVERNANCE RULES, 2026

- Statutory governance framework applicable to all **National Sports Federations** recognised by the Government of India.
- Seeks to correct long-standing issues of **opaque elections, administrative capture, and athlete exclusion.**
- Mandates structural reforms in **governance, elections, and representation.**

## KEY PROVISIONS OF THE RULES

1. **Athlete Representation (SOM Inclusion)**
  - NSFs must include **at least four Sportspersons of Outstanding Merit (SOMs)** in their General Body.
  - **Eligibility Conditions:**
    - Minimum age: **25 years**
    - At least **one year retired** from active sports
  - **Merit Grading:** A **10-tier achievement system** prioritises Olympic, World Championship, and international medalists for governance roles.

## 2. Gender Equity Measures

- **50% of SOM nominees must be women.**
- Executive Committees must have a **minimum of four women members.**
- Aims to correct chronic gender under-representation in sports governance.

## 3. Election Oversight Mechanism

- Establishes a **National Sports Election Panel (NSEP).**
- Responsible for supervising NSF elections to ensure:
  - Free and fair conduct
  - Transparency
  - Absence of political or factional manipulation

## 4. Disqualification Norms

- Individuals **convicted by courts and sentenced to imprisonment** are barred from:
  - Contesting NSF elections
  - Holding committee positions
- Strengthens ethical standards and institutional credibility.

## 5. Mandatory Bye-law Alignment

- All NSFs must **amend constitutions/bye-laws within six months.**
- Non-compliance can lead to **derecognition and withdrawal of government support.**

## SIGNIFICANCE OF THE RULES

**Athlete-Centric Governance:** Institutionalises athlete voices in decision-making.

**Gender Justice:** Aligns sports administration with constitutional equality principles.

**Electoral Integrity:** Reduces litigation, factionalism, and administrative paralysis.

**Global Alignment:** Conforms to IOC-recommended governance standards.

**Performance Linkage:** Better governance improves athlete welfare, preparation, and outcomes.

## IMPLEMENTATION CHALLENGES

**Resistance from Incumbents:** Entrenched administrators may resist power redistribution.

**Operational Capacity:** Smaller federations may struggle to identify eligible SOMs.

**Legal Challenges:** Election outcomes and disqualifications may face litigation.

**Compliance Lag:** Uniform bye-law amendments across federations may be delayed.

## WAY FORWARD

**Capacity Building:** Training programmes for athlete-governors and federation officials.

**Digital Election Systems:** Use secure e-voting and online compliance monitoring.

**Independent Audits:** Annual governance audits linked to funding and recognition.

**Judicial Backing:** Fast-track courts for sports governance disputes.

**Outcome Review:** Periodic evaluation linking governance reforms to medal performance.

## CONCLUSION

The **National Sports Governance Rules, 2026** mark a decisive shift from personality-driven sports administration to **rule-based, athlete-led governance.** If implemented effectively, they can transform Indian sports from governance fragility to global competitiveness.

## EXPORTING ELECTORAL CREDIBILITY: INDIA'S LEADERSHIP IN GLOBAL ELECTION MANAGEMENT

**Exporting Electoral Credibility: India's Leadership in Global Election Management**

**CONTEXT:** Election Commission of India (ECI) hosts the India International Conference on Democracy and Election Management (IICDEM) 2026.

**IICDEM 2026**

- 3-DAY GLOBAL MEET
- Democracy & election management
- 400+ Election Management Bodies (EMBs) Bharat Mandapam, New Delhi

**KEY FOCUS AREAS**

- ELECTORAL ROLL INTEGRITY**
  - Special Intensive Revision (SIR) framework
  - Ensuring accuracy, inclusion, removal of duplicates
- ELECTION TECH & INNOVATION**
  - Technology-enabled elections
  - Digital voter rolls, polling logistics
  - Trust & transparency

**ORGANISER: IICDEM**

Training arm of Election Commission of India

- Founded in 2011 in New Delhi
- Trained 2800+ global participants

**ELECTION COMMISSION OF INDIA (ECI)**

- Constitution of India, Article 324
- Chief Election Commissioner (CEC) + 2 Election Commissioners
- Independent, autonomous body

**SIGNIFICANCE**

- DEMOCRATIC DIPLOMACY**
  - Exporting electoral best practices
- SOFT POWER EXPANSION**
  - Enhancing India's global democratic credibility
- SOUTH-SOUTH COOPERATION**
  - Building capacity in developing democracies
- COUNTERING DISINFORMATION**
  - Reinforcing rule driven election systems

Source: Election Commission of India

## CONTEXT

The **Election Commission of India (ECI)** is hosting the **inaugural India International Conference on Democracy and Election Management (IICDEM) 2026** in New Delhi. The three-day global conference is being held at **Bharat Mandapam** and brings together **Election Management Bodies (EMBs)** from across the world to exchange best practices in electoral governance.

## ABOUT IICDEM 2026

- A **global platform on democracy and election management**, focused on institutional learning and peer exchange.
- Organised by the **India International Institute of Democracy and Election Management (IIIDEM)** under the aegis of the **ECI**.
- Aims to position India as a **norm-setter in election administration**, especially for emerging democracies.

## KEY FOCUS AREAS OF THE CONFERENCE

### 1. Electoral Roll Integrity

- Showcasing India's **Special Intensive Revision (SIR)** of electoral rolls as a best practice.
- Focus on removing duplication, ensuring inclusion, and maintaining accuracy.
- Addresses challenges such as migration, urbanisation, and demographic changes.

### 2. Election Technology & Innovation

- Discussions on **technology-enabled elections**, including digital roll management, polling logistics, and result dissemination.
- Emphasis on balancing **technology adoption with electoral integrity, transparency, and trust**.

## ABOUT IIIDEM

- **Training and capacity-building arm** of the Election Commission of India.
- Established in **2011** to professionalise election administration and democratic processes.
- Located at an **independent campus in Dwarka, New Delhi**.
- Has conducted **1300+ national training programmes** and trained **2800+ international**

**participants**, making it a key hub for global election management learning.

## ELECTION COMMISSION OF INDIA: CONSTITUTIONAL POSITION

- **Article 324** grants ECI superintendence, direction, and control over elections to Parliament, State Legislatures, and the offices of the President and Vice-President.
- Elections are governed under **Part XV of the Constitution (Articles 324–329)**.
- A **multi-member constitutional body** comprising the Chief Election Commissioner (CEC) and two Election Commissioners.
- **Autonomy Safeguards:**
  - CEC can be removed only like a Supreme Court judge.
  - Election Commissioners can be removed only on the recommendation of the CEC.

## SIGNIFICANCE OF IICDEM 2026

**Democratic Diplomacy:** Positions India as a global exporter of electoral best practices.

**Soft Power Expansion:** Enhances India's credibility as the world's largest democracy.

**South-South Cooperation:** Supports capacity-building in developing democracies.

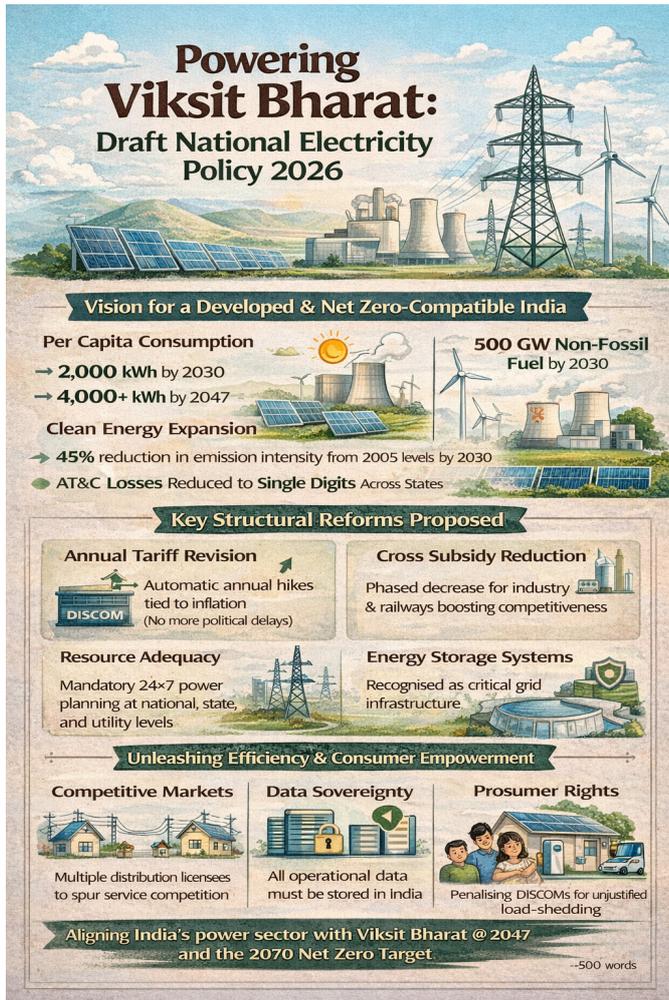
**Countering Disinformation:** Reinforces trust-based, rule-driven election systems amid global democratic backsliding.

**Institutional Learning:** Allows ECI to assimilate global innovations while showcasing Indian reforms.

## CONCLUSION

By convening IICDEM 2026, India is transitioning from being a **successful electoral practitioner** to a **global thought leader in election management**. The initiative reinforces India's constitutional commitment to free and fair elections while strengthening democratic resilience worldwide.

## POWERING VIKSIT BHARAT: DRAFT NATIONAL ELECTRICITY POLICY 2026



## CONTEXT

The Ministry of Power has released the **Draft National Electricity Policy (NEP) 2026** for public consultation, proposing to replace the **National Electricity Policy, 2005**. The draft seeks to realign India's power sector with the long-term vision of **Viksit Bharat @ 2047**, while supporting climate commitments under India's Net Zero target for 2070.

## VISION AND CLIMATE TRANSITION

The Draft NEP 2026 aims to transform India from a power-deficient country into a **reliable, competitive, and low-carbon electricity economy**. Key long-term targets include:

- **Per Capita Electricity Consumption:**
  - 2,000 kWh by 2030
  - Over 4,000 kWh by 2047
- **Clean Energy Expansion:**
  - 500 GW of non-fossil fuel capacity by 2030
  - 100 GW nuclear power capacity by 2047
- **Climate Commitments:**
  - 45% reduction in emission intensity from 2005 levels by 2030

- Alignment with Net Zero emissions by 2070
- **Efficiency Goal:**
  - Reduction of Aggregate Technical and Commercial (AT&C) losses to **single digits** across all states.

## KEY STRUCTURAL REFORMS PROPOSED

### 1. Tariff and Financial Reforms

To restore the financial health of distribution companies (DISCOMs), the draft mandates:

- **Automatic annual tariff revisions** by State Electricity Regulatory Commissions.
- If tariff orders are delayed, **indexation-based automatic revisions** will apply.

This marks a shift away from politically delayed tariff decisions, a major cause of DISCOM losses.

### 2. Rationalising Cross-Subsidies

The policy proposes a **progressive reduction in cross-subsidies**, particularly for:

- manufacturing sector, and
- Indian Railways,

to enhance industrial competitiveness and support export-led growth.

### 3. Universal Service Obligation (USO) Flexibility

Regulators may exempt DISCOMs from **USO** for consumers with connected loads of **1 MW and above**, allowing large consumers to source power competitively without burdening utilities.

## GRID PLANNING AND MARKET DESIGN

- **Resource Adequacy Planning:** Mandatory 24x7 power planning at national, state, and utility levels to prevent shortages.
- **Competition in Distribution:** Multiple distribution licensees permitted in the same supply area.
- **Distribution System Operators (DSOs):** Introduced to manage rooftop solar, electric vehicles, and other distributed energy resources.
- **Energy Storage:** Battery Energy Storage Systems (BESS) and pumped storage recognised as **critical grid infrastructure**.

## GOVERNANCE, DATA, AND CONSUMER RIGHTS

- **Data Sovereignty:** All operational power-sector data must be stored within India.
- **Grid Governance Reform:** State Load Despatch Centres (SLDCs) to be functionally unbundled from State Transmission Utilities.
- **Consumer Empowerment:** Recognition of **prosumers** and imposition of penalties on DISCOMs for unjustified load-shedding.

## SIGNIFICANCE

The Draft NEP 2026 represents a decisive shift from capacity addition alone to **efficiency, competition, and consumer-centric governance**, positioning electricity as the backbone of India's energy transition and economic growth.

## INSTITUTIONALISING EQUITY ON CAMPUS: UGC'S NEW ANTI-DISCRIMINATION FRAMEWORK

**Institutionalising Equity on Campus:**  
UGC's New Anti-Discrimination Framework

CONTEXT: UGC notifies enforceable 2026 regulations to prevent discrimination across universities.

**WHY THE REGULATIONS WERE NEEDED**

118% RISE	6X BACKLOG	HIGH-PROFILE INCIDENTS
Caste-discrimination complaints from 173 (2019-20) to 378 (2023)	Pending cases increased from 18 to 108 (2023-24)	Rohith Vemula, Payal Tadvi (2016) & Payal Tadvi (2019)

\*Institutional failures triggered demand for stronger safeguards

**KEY INSTITUTIONAL MECHANISMS**

EQUAL OPPORTUNITY CENTRE (EOC)	EQUITY COMMITTEE	EQUITY SQUADS	EQUITY AMBASSADORS
Nodal body to enforce equity policies	Inquiry body under EOC with diverse campus representation	Mobile vigilance teams monitoring campuses	Departmental nodes to promote equity & reporting

**ENFORCEABLE COMPLAINT HANDLING PROCESS**

MULTIPLE CHANNELS	FAST TIMELINES	OMBUDSPERSON	APPEAL
Online portal, email, written complaints helpline	Inquiry within 24 hours report within 15 working days	Independent authority for appeals & penal provisions	Independent authority for appeals & binding directions

APPEAL: Ombudsperson review within 30 days

Source: University Grants Commission

## CONTEXT

The **University Grants Commission (UGC)** has notified the **Promotion of Equity in Higher Education Institutions Regulations, 2026**, replacing the earlier advisory framework with enforceable mechanisms to prevent discrimination across universities and colleges in India.

## WHY THE NEW REGULATIONS WERE NEEDED

- **Rising Complaints:** Caste-based discrimination complaints reported to UGC rose **118.4%**, from 173 (2019-20) to 378 (2023-24).
- **Backlog Concerns:** Pending cases increased from **18 to 108** during the same period, indicating recurring disputes and uneven resolution.
- **High-Profile Incidents:** The **Rohith Vemula (2016)** and **Payal Tadvi (2019)** cases highlighted institutional failures and triggered demands for stronger safeguards.

## SHIFT FROM THE 2012 REGULATIONS

- **Advisory → Enforceable:** The 2012 regulations lacked penalties; the 2026 rules empower UGC to take **binding action** against non-compliant institutions.
- **Clear Procedures:** Time-bound inquiry and appeal mechanisms introduced.
- **Expanded Coverage:** **OBCs explicitly included** within caste-based discrimination.
- **Wider Definition:** Covers explicit, implicit, indirect, and structural discrimination.

## KEY INSTITUTIONAL MECHANISMS UNDER THE 2026 REGULATIONS

## 1. Equal Opportunity Centre (EOC)

- Mandatory nodal body in every Higher Education Institution (HEI).
- Responsible for equity policy implementation and grievance coordination.

## 2. Equity Committee

- Inquiry body under EOC, chaired ex-officio by the Head of Institution.
- Includes faculty, non-teaching staff, civil-society members, and student representatives.
- Mandatory representation of **SC, ST, OBC, women, and persons with disabilities**.

## 3. Equity Squads

- Mobile vigilance teams to monitor vulnerable campus spaces and deter discriminatory practices.

## 4. Equity Ambassadors

- Designated nodal persons in departments, hostels, libraries, and common facilities to promote equity awareness and reporting.

## 5. 24×7 Equity Helpline

- Confidential, round-the-clock grievance access.
- Serious cases may be linked to law-enforcement where penal provisions apply.

## 6. Ombudsperson

- Independent appellate authority to review Equity Committee decisions and issue binding directions.

## COMPLAINT HANDLING PROCESS

- **Multiple Channels:** Online portal, email, written complaints, and helpline.
- **Fast Timelines:**
  - Committee must convene within **24 hours** of complaint receipt.
  - Inquiry report to be submitted within **15 working days**.
- **Appeal:** Ombudsperson review within **30 days**.

## CONCERNS RAISED

- Absence of explicit safeguards against **false or malicious complaints**.
- Risks of **reputational harm** to accused during inquiries.
- Compressed timelines may affect **procedural fairness**.
- Potential chilling effect on **academic freedom** due to police linkage.

## WAY FORWARD

- Issue **clear evidentiary thresholds** and interpretative guidelines.
- Ensure **confidentiality protections** during inquiry stages.
- Provide **capacity-building training** for Equity Committees.
- Allow **graded timelines** in complex cases to ensure due process.

## CONCLUSION

The UGC Anti-Discrimination Regulations, 2026 mark a decisive move from symbolic compliance to **institutional accountability**. If implemented with procedural safeguards, they can significantly strengthen social justice and trust within India's higher-education ecosystem.

# REGULATING THE DIGITAL SCREEN: INDIA'S PUSH FOR AGE-APPROPRIATE ONLINE CONTENT

**Regulating the Digital Screen: India's Digital Age-Based Content Classification System**

Proposed rules will regulate **content** on OTT platforms like streaming services and online media, setting age-based restrictions aligned with constitutional safeguards.

**Five-Tier Age Classifications**

U	U/A 7+	U/A 13+	U/A 16+	A (Adult)
All Ages	Parental Guidance (7+)	Parental Guidance (13+)	Parental Guidance (16+)	Adults Only (18+)

**Proposed Age Ratings Rules**

MANDATORY LABELS	PARENTAL CONTROLS	PARENTAL CONTROLS	CONTENT RESTRICTIONS
Platforms must clearly display age ratings and cautionary warnings about violence.	Systems required for 13+ content & verified access for adult material	Systems required for 13+ content & verified access for adult material	No content attacking religions, promoting communal disharmony, glorifying violence, crime or substance abuse.

**Key Concerns:**

Digital Fit	Vagueness	Speech Impact
Broadcast-era norms may not suit user-driven OTT	Ambiguous terms like 'decency' invite arbitrary enforcement.	Loose standards may deter creators & free expression

**Balancing Child Protection and Digital Freedoms**

—450 words

## CONTEXT

The Ministry of Information and Broadcasting (MoIB) has proposed the **Draft Information Technology (Digital Code) Rules, 2026** to introduce an age-based classification framework for online content. Framed under **Section 87(1) of the Information Technology Act, 2000**, the draft seeks to regulate obscenity and harmful material on digital platforms while aligning with constitutional safeguards on free speech.

## WHAT THE DRAFT RULES PROPOSE

The draft rules aim to extend content standards—long applicable to television—to the rapidly expanding digital ecosystem. Drawing from the **Cable Television Networks Rules, 1994**, they attempt to create parity between broadcast and online content regulation.

**Key provisions include:**

- **Five-Tier Age Classification:**
  - **U (Universal)**
  - **U/A 7+**
  - **U/A 13+**
  - **U/A 16+**
  - **A (Adult)**
- **Mandatory Content Labels:** Clear age ratings and warnings for violence, nudity, or substance use must be displayed before streaming begins.
- **Parental Safeguards:** Platforms must offer parental controls for 13+ content and verified access mechanisms for adult-only material.
- **Content Restrictions:** Digital platforms are barred from hosting material that attacks religions, promotes communal disharmony, glorifies violence or crime, or encourages substance abuse.
- **Professional Exemptions:** Content meant exclusively for professional, medical, scientific, or academic audiences is exempted from general classification norms.
- **Intermediary Liability:** Online Curated Content Providers (OCCPs) face civil consequences for non-compliance with obscenity and classification requirements.
- **Obscenity Standard:** Content is deemed obscene if it is lascivious, prurient, corrupting to viewers' minds, or offensive to good taste and decency.

**CONSTITUTIONAL AND LEGAL BALANCE**

The framework reflects Supreme Court guidance on balancing:

- **Freedom of speech and expression (Article 19(1)(a)),** and
- **Reasonable restrictions (Article 19(2))** relating to morality, decency, and public order.

By introducing prior labelling rather than blanket bans, the rules attempt to empower viewers—especially parents—without resorting to outright censorship.

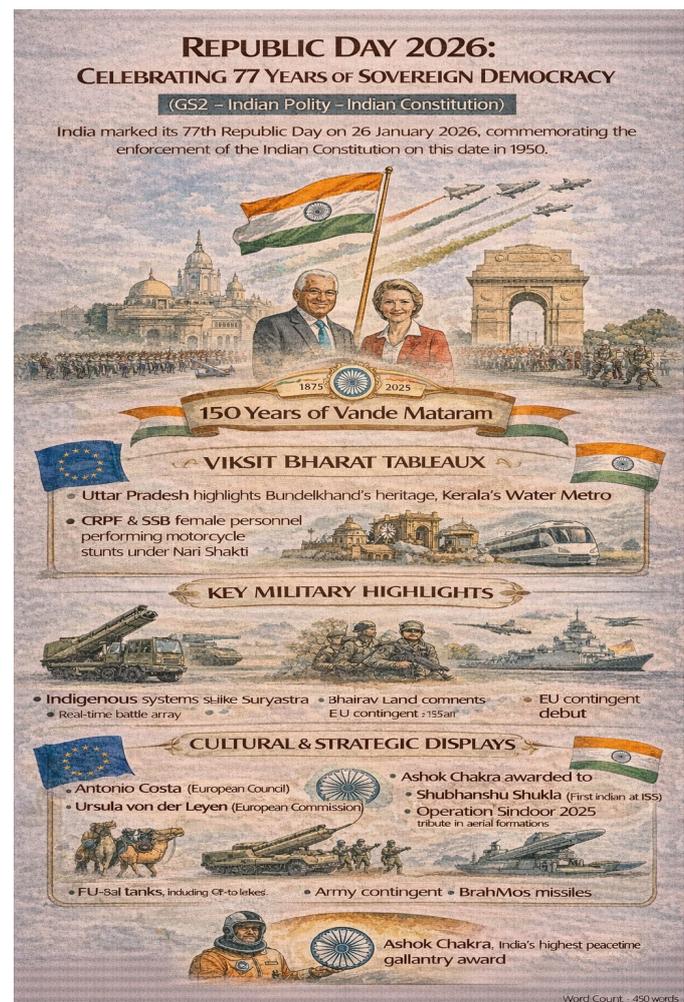
**KEY CONCERNS AND CRITICISMS**

Despite its intent, the draft has raised several concerns:

- **Digital Fit:** Applying broadcast-era norms to on-demand, user-driven platforms may not reflect the flexibility and diversity of digital consumption.
- **Vagueness:** Terms like “decency” and “good taste” are subjective, increasing the risk of arbitrary enforcement.
- **Chilling Effect:** Strict intermediary liability could discourage creative experimentation and self-censorship among creators.
- **OTT Distinction:** Industry stakeholders argue that pull-based OTT platforms differ fundamentally from push-based television and require lighter-touch regulation.

**WAY FORWARD**

A consultative approach is essential to refine definitions, strengthen procedural safeguards, and ensure proportional enforcement. Clearer standards, independent oversight, and periodic review can help India strike a sustainable balance between **child protection, cultural sensitivities, and digital free expression.**

**REPUBLIC DAY 2026:  
CELEBRATING CONSTITUTIONAL  
LEGACY AND A CONFIDENT  
NEW INDIA****CONTEXT**

India celebrated its **77th Republic Day on 26 January 2026**, commemorating the enforcement of the **Indian Constitution in 1950**. The occasion reaffirmed India's commitment to constitutional democracy while showcasing its cultural depth, military strength, technological progress, and expanding global partnerships.

## WHY 26 JANUARY MATTERS

The choice of **26 January** is rooted in the freedom struggle. In **December 1929**, the Indian National Congress adopted the resolution of **Purna Swaraj** at Lahore and observed **26 January 1930 as Independence Day**. To honour this historic resolve, the Constitution came into force on **26 January 1950**, transforming India into a **Sovereign Democratic Republic**, with **Dr Rajendra Prasad** as its first President.

## REPUBLIC DAY 2026: KEY HIGHLIGHTS

### 1. International Dimension

For the **first time**, two leaders from the **European Union** attended as Chief Guests:

- **Antonio Costa**, President of the European Council
- **Ursula von der Leyen**, President of the European Commission

Their presence underscored deepening **India-EU strategic and defence ties**.

### 2. Central Theme and Cultural Focus

The central theme, **"150 Years of Vande Mataram"**, marked the **150th anniversary** of the national song.

- *Vande Mataram* was composed by **Bankim Chandra Chattopadhyay** in **1875** and adopted as India's **National Song on 24 January 1950**.

Other tableaux reflected themes such as **"Viksit Bharat"** and **"Bharat - Loktantra ki Matraka"**, highlighting development anchored in democratic values.

### 3. Gallantry and Public Participation

- **Shubhanshu Shukla**, the **first Indian to visit the International Space Station (ISS)**, was awarded the **Ashok Chakra**, India's highest peacetime gallantry award.
- The **Jan Bhagidari** initiative continued, with around **10,000 citizens** invited, including beneficiaries of the **PM Shram Yogi Maandhan** scheme, reinforcing people-centric governance.

## NOTABLE TABLEAUX

- **Ministry of Information & Broadcasting:** *Bharat Gatha* traced India's storytelling tradition from **Shruti** (oral traditions) to **Kriti** (Mahabharata) and modern cinema (**Drishti**).
- **Ministry of Home Affairs:** Highlighted *Jan Kendrit Nyay Pranali* and *Aatmanirbhar Bharat*.
- **Uttar Pradesh:** Showcased **Bundelkhand's heritage**, Kalinjar Fort, and **ODOP** crafts.
- **Kerala:** Presented India's **first Water Metro** and achievement of **100% digital literacy**.
- **Nari Shakti:** Women personnel from **CRPF and SSB** performed high-skill motorcycle formations.

## MILITARY INNOVATION AND STRATEGIC MESSAGING

- **First-time military debuts** included:
  - **Suryastra:** Indigenous long-range multi-calibre rocket launcher
  - **Bhairav Light Commando Battalion:** Rapid-response combat unit
  - **Shaktibaan Regiment:** Drone warfare unit using swarm and loitering munitions
- An **EU military contingent** participated for the first time outside Europe.
- The Army showcased its first **Phased Battle Array Format**, integrating ground and aerial assets.
- **Bactrian camels, Zanskar ponies, and black kites** highlighted operational diversity.
- Several displays paid tribute to **Operation Sindoor (2025)**.

## CONCLUSION

Republic Day 2026 blended **constitutional remembrance** with a confident projection of India's **strategic autonomy, indigenous capability, and democratic vitality**, reflecting continuity between India's historic ideals and its contemporary aspirations.

## DIGITAL GOVERNANCE AT THE GRASSROOTS: PANCHAM CHATBOT INITIATIVE

**PANCHAM CHATBOT FOR PANCHAYATS**  
Digital Governance at the Grassroots

**WHAT IS IT?**

- AI-based governance chatbot
- Digital companion for PRIs

**FEATURES**

- WhatsApp access
- Multilingual & voice support
- 24/7 assistance

**BENEFITS**

- Less corruption (no middlemen)
- Faster service delivery
- Faster service delivery
- Real-time feedback
- Better transparency

**GOAL**

Digital bridge: Centre ↔ Panchayats

## CONTEXT

The **Ministry of Panchayati Raj** launched **PANCHAM (Panchayat Assistance & Messaging Chatbot)** as a major digital governance initiative aimed at strengthening Panchayati Raj Institutions (PRIs). Introduced around the 77th Republic Day, the platform is envisioned as a **digital companion for Panchayat Elected Representatives (PERs) and local functionaries**, enabling easier access to schemes, workflows, and grievance systems.

## WHAT IS PANCHAM?

PANCHAM is an **AI-enabled chatbot platform** designed to provide **contextual governance guidance** and simplified procedural assistance to grassroots officials. It bridges information gaps that often slow down service delivery at village levels.

The initiative supports India's broader push toward **digital public infrastructure**, ensuring that governance tools are accessible even in remote rural areas.

## KEY FEATURES

- **WhatsApp-Based Interface:** Operates through WhatsApp, removing the need for a separate application and ensuring high accessibility.
- **Multilingual Support:** Supports regional languages and voice messages, overcoming literacy and language barriers.
- **24x7 Availability:** Provides round-the-clock responses for governance-related queries.
- **Simplified Workflows:** Offers step-by-step procedural guidance for Panchayat-level tasks.
- **Real-Time Feedback:** Enables two-way communication between field officials and higher authorities.
- **Photo-Based Grievances:** Allows uploading of images for complaint registration, with automated status updates.

## GOVERNANCE SIGNIFICANCE

- **Reduces Intermediaries:** Direct access to information curbs dependence on middlemen, lowering corruption risks.
- **Improves Transparency:** Automated updates and digital records enhance accountability.
- **Faster Service Delivery:** Real-time assistance helps resolve operational bottlenecks quickly.
- **Capacity Building:** Acts as a continuous learning tool for elected representatives and staff.
- **Digital Inclusion:** Integrates rural governance into India's expanding digital ecosystem.

## WHY IT MATTERS

India has over **2.5 lakh Panchayats**, which are responsible for implementing welfare schemes, maintaining local infrastructure, and managing

rural development programmes. However, gaps in awareness, procedural complexity, and administrative overload often hinder effective delivery. PANCHAM addresses these challenges by creating a **direct digital bridge between the Union government and grassroots governance structures**.

It supports the vision of **"Digital India"** and **decentralised governance**, ensuring that last-mile officials are digitally empowered rather than administratively isolated.

## FRANCE TIGHTENS DIGITAL GUARDRAILS FOR CHILDREN: IMPLICATIONS FOR GLOBAL ONLINE SAFETY

**FRANCE'S SOCIAL MEDIA CONTROLS FOR MINORS**  
(GS2 - International Relations)

National Assembly passed a law regulating social media and mobile phone use among minors under 15 years of age.

**BAN ON SOCIAL MEDIA FOR UNDER 15s**

- New accounts banned from 2026 school year.

**SCHOOL PHONE BAN:**

- Expands existing mobile phone prohibition to high schools (in effect since 2018 for middle schools).

**MENTAL HEALTH FOCUS:**

- Aims to protect child mental health from social-media-induced stress and negative emotions.

**ACCOUNT DEACTIVATION RULE:**

- Social media must deactivate existing minor accounts by December 31 annually.

**ALGORITHM SAFEGUARD:**

- Blocks manipulative platform algorithms exploiting children's psychology.

**INDIA'S SOCIAL MEDIA CONTROLS**

IT Act, 2000, Rules 2021, DPDP Act 2023 regulate online platforms.

>500M+ social-media users pose a major governance challenge.

- 65% surge in cybercrimes (2019-2023), 400% rise in child cybercrimes.
- Leads the world in WhatsApp misinformation spread.

Word Count: ~465 words.

## CONTEXT

France's National Assembly has passed a landmark bill **banning social media use for minors under 15 and restricting mobile phone usage in high schools**. The move reflects growing global concern over the impact of excessive screen time, algorithmic manipulation, and online misinformation on **child mental health and democratic resilience**.

## KEY FEATURES OF FRANCE'S SOCIAL MEDIA CONTROL BILL

### 1. Phased Implementation

The ban on creating **new social media accounts for children below 15** will begin from the **2026 school year**, allowing platforms time to adapt age-verification systems and enforcement mechanisms.

### 2. Mobile Phone Restrictions in Schools

- Mobile phone use is **prohibited in high schools**, extending France's **2018 ban in middle schools**.
- The objective is to reduce distraction, cyberbullying, and screen dependency during formative years.

### 3. Mandatory Account Deactivation

Social media platforms must **disable existing accounts** that violate age norms by **31 December** following enforcement, shifting compliance responsibility onto technology companies.

### 4. Mental Health Protection

The law explicitly targets harms linked to **excessive screen exposure**, including anxiety, emotional stress, sleep disorders, and declining adolescent well-being.

### 5. Algorithmic Safeguards

Platforms are required to prevent **behavioural manipulation of minors** driven by engagement-maximising algorithms that promote addictive content loops.

### 6. Foreign Influence Mitigation

By limiting youth exposure, the law seeks to reduce **external digital influence** on political opinions and social attitudes of minors.

### 7. Limited Exemptions

Educational platforms and **online encyclopedias** are exempt, ensuring that learning and informational access remains unaffected.

## INDIA'S SOCIAL MEDIA REGULATION LANDSCAPE

India faces a similar but larger-scale challenge due to its vast digital footprint:

- **Legal Framework:**
  - Information Technology Act, 2000
  - IT (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021
  - Digital Personal Data Protection (DPDP) Act, 2023
- **Scale of Usage:**
  - Over **820 million internet users** and **500 million social media users**.
- **Cybercrime Trends:**
  - **65% rise in cybercrimes (2019–2023)**.
  - **Child-related cyber offences increased over 400%** (NCRB data).
- **Misinformation Challenge:**
  - India reports the **highest global spread of WhatsApp misinformation**, linked to mob violence and public disorder incidents.

### • Child Data Protection:

- Under the **DPDP Act, 2023**, minors (below 18) require **verifiable parental consent**.
- Platforms are barred from **tracking, profiling, or targeted advertising** to children, reinforcing a privacy-first approach.

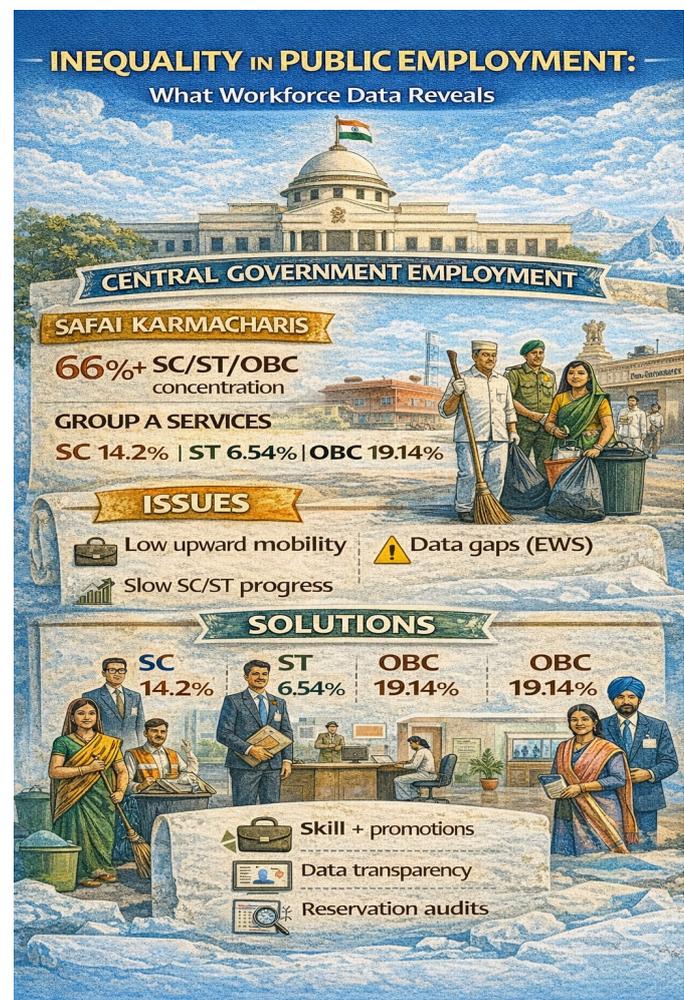
## SIGNIFICANCE AND GLOBAL IMPLICATIONS

France's move signals a shift from **platform self-regulation to state-led child protection**, potentially setting a precedent for other democracies. For India, it offers policy lessons on **age verification, algorithm accountability, and school-based digital discipline**, while balancing free expression and child welfare.

## CONCLUSION

France's social media controls underscore a growing recognition that **digital freedom must be balanced with psychological safety**, especially for children. As online platforms increasingly shape behaviour and opinions, robust governance frameworks are becoming a democratic necessity rather than a regulatory choice.

## INEQUALITY IN PUBLIC EMPLOYMENT: WHAT WORKFORCE DATA REVEALS



## CONTEXT

The latest **Department of Personnel and Training (DoPT) Annual Report 2024–25** highlights persistent caste-linked patterns in central government employment. A large proportion of **Group C safai karmacharis** belong to Scheduled Castes (SC), Scheduled Tribes (ST), and Other Backward Classes (OBC), underscoring structural occupational segregation despite decades of reservation policy.

## KEY TRENDS IN SOCIAL REPRESENTATION

- **Occupational Segregation:** Over **66% of sanitation workers** come from SC, ST, and OBC groups, reflecting the historic concentration of marginalised communities in sanitation roles.
- **Under-Representation in Higher Services:** In **Group A services**, representation remains low — SCs **14.20%**, STs **6.54%**, OBCs **19.14%**, below their combined reservation entitlements.
- **Slow SC Progress:** SC share fell from **17.49% (2018–19)** to **16.84% (2024–25)**, indicating stagnation.
- **Uneven Gains:** OBC representation rose from **21.57% to 26.32%**, while SC and ST growth remained marginal.
- **Transparency Gap:** EWS category data is not disclosed, limiting assessment of inclusive recruitment.
- **Reporting Delays:** Workforce data in recent years covered only **19–20 lakh** employees instead of the full **~32 lakh**, weakening monitoring.

## GOVERNANCE CONCERNS

These trends show that **vertical mobility within public employment remains limited**. While entry-level representation exists in lower cadres, movement into decision-making positions is inadequate. Persistent caste clustering in sanitation roles also raises concerns about the effectiveness of anti-discrimination and occupational diversification measures.

## WAY FORWARD

- **Upward Mobility:** Expand competency-based training, promotions, and leadership development under **Mission Karmayogi**.
- **Occupational Diversification:** Facilitate transition from sanitation roles to technical and administrative posts via **Skill India** and **PMKVY** skilling frameworks.
- **Data Transparency:** Publish annual caste-wise and EWS-wise workforce data through digital HR dashboards.
- **Reservation Compliance:** Conduct regular audits and special recruitment drives to clear backlog vacancies.

- **Institutional Support:** Provide mentoring and exam coaching for higher civil services through SC/ST/OBC welfare schemes.

## SIGNIFICANCE

Ensuring equitable representation in public employment is vital for **social justice, administrative inclusivity, and democratic legitimacy**. Without transparent monitoring and structured mobility pathways, reservations risk becoming confined to lower occupational tiers rather than enabling transformative representation.

## OVERSEAS CITIZEN OF INDIA (OCI): BRIDGING THE DIASPORA-INDIA RELATIONSHIP

**Overseas Citizen of India (OCI)**  
Bridging India's Diaspora Connection

**OCI at a Glance**

- ♥ **Lifelong Visa**  
Allows foreign nationals of Indian origin to live, work, and travel in India without time limits.
- ⊘ **Non-Citizenship Status**  
OCI is not dual citizenship. OCI holders cannot vote, run for office, or hold constitutional positions.

Eligibility Criteria	Mandatory Disqualifications
<ul style="list-style-type: none"> <li>✓ Indian citizenship past or eligibility since 26 Jan 1950</li> <li>→ Ancestor from a territory that became part of India after 15 Aug 1947</li> <li>→ Minor child of an Indian citizen or OCI holder</li> </ul>	<ul style="list-style-type: none"> <li>⊘ Citizen, or descendant, of Pakistan or Bangladesh</li> <li>⊘ Serving or retired from foreign military, defence, or police</li> <li>⊘ Security risk or convicted of fraud/material concealment</li> </ul>
Key Benefits of OCI Cardholders	Major Restrictions for OCI Cardholders
<ul style="list-style-type: none"> <li>→ <b>Lifelong Visa</b> Multi-entry, multi-purpose visa with no stay limit</li> <li>→ <b>FRRO Exemption</b> No registration needed with Indian immigration</li> </ul>	<ul style="list-style-type: none"> <li>⊘ <b>No Voting Rights</b> OCIs cannot vote, run for office, or hold legislative positions</li> <li>⊘ <b>Constitutional Bar</b> Ineligible for President, Vice-President, or judge posts</li> </ul>
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—450 words

## CONTEXT

At the conclusion of the India–EU Free Trade Agreement discussions, the President of the European Council, **Antonio Costa**, publicly displayed his Overseas Citizen of India (OCI) card—bringing renewed attention to India's unique citizenship-linked diaspora framework.

## WHAT IS OVERSEAS CITIZEN OF INDIA (OCI)?

The **Overseas Citizen of India (OCI)** is an **immigration status**, not dual citizenship, granted to foreign nationals of Indian origin. It provides a **lifelong, multi-entry visa** to live, work, and travel in India.

The OCI framework was introduced through the **Citizenship (Amendment) Act, 2005**, and is legally defined under **Section 7A of the Citizenship Act, 1955**. In 2015, the earlier **Person of Indian Origin (PIO)** scheme was merged with OCI to create a single, streamlined category of **OCI Cardholders**.

## ELIGIBILITY CRITERIA

Foreign nationals (excluding those with any connection to Pakistan or Bangladesh) are eligible if they:

- Were Indian citizens on or after **26 January 1950**, or were eligible to become citizens on that date.
- Belonged to territories that became part of India after **15 August 1947**.
- Are children, grandchildren, or great-grandchildren of such Indian citizens.

Additional eligibility:

- **Minor children** qualify if one or both parents are Indian citizens or OCI cardholders.
- A **foreign spouse** of an Indian citizen or OCI cardholder is eligible, provided the marriage is registered and has subsisted continuously for **at least two years** prior to application.

## MANDATORY DISQUALIFICATIONS

OCI status is **not available** to:

- Anyone who is, or whose ancestors were, citizens of **Pakistan or Bangladesh**.
- Serving or retired personnel of **foreign military, defence, or police forces** (with limited exceptions).
- Individuals posing **national security risks** or found guilty of fraud or material concealment.

## KEY BENEFITS OF OCI CARDHOLDERS

- **Lifelong Visa:** Multi-entry, multi-purpose visa with no stay limit.
- **FRRO Exemption:** No requirement to register with the Foreigners Regional Registration Officer, regardless of duration of stay.
- **Economic Parity:** Equality with NRIs in economic, financial, and educational matters, including ownership of **non-agricultural property**.
- **Public Facilities:** Parity with Indian citizens for domestic airfares and entry fees to monuments, museums, and national parks.

## MAJOR RESTRICTIONS

Despite its privileges, OCI status does not confer political rights:

- **No Voting Rights:** OCI cardholders cannot vote, contest elections, or hold legislative office.

- **Constitutional Bar:** Ineligible for offices such as President, Vice-President, or judges of the Supreme Court and High Courts.
- **Public Employment:** Government jobs are barred unless specifically permitted by the Centre.
- **Land Restrictions:** Cannot acquire agricultural land, plantations, or farmhouses.

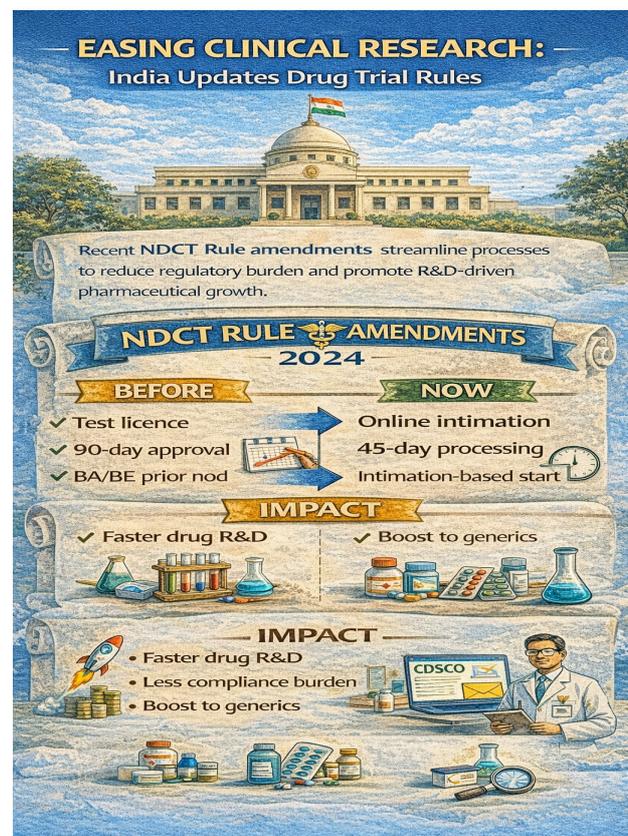
## RECENT REGULATORY UPDATES

- **Special Permissions:** Mandatory permits for activities like missionary work, journalism, research, or mountaineering.
- **Restricted Areas:** Entry into notified or protected regions requires permits similar to other foreign nationals.
- **Revocation:** OCI status may be cancelled for acts showing disaffection to the Constitution or upon conviction leading to **imprisonment of two years or more**.

## INFOGRAPHIC SNAPSHOT (ILLUSTRATIVE LAYOUT)

- **Top Panel:** "OCI at a Glance" – Lifelong visa, non-citizenship status
- **Middle Panel:** Eligibility vs Disqualifications (icons for ancestry, spouse, security bar)
- **Bottom Panel:** Benefits (economy, travel) vs Restrictions (vote, land, jobs)

## EASING CLINICAL RESEARCH: INDIA UPDATES DRUG TRIAL RULES



## CONTEXT

The **Ministry of Health and Family Welfare (MoHFW)** has notified amendments to the **New Drugs and Clinical Trials (NDCT) Rules, 2019** to reduce procedural burdens and promote research-driven pharmaceutical growth. The reforms aim to align India's regulatory regime with global best practices and enhance the country's attractiveness as a clinical research hub.

## WHAT IS CPI? (POLICY BACKGROUND)

- **Consumer Price Index (CPI)** measures short-term changes in retail prices paid by households.
- Published by the **National Statistical Office (NSO)** as **CPI-Rural, CPI-Urban, and CPI-Combined**.
- Labour Bureau releases CPI-IW, CPI-AL, CPI-RL for wage indexation.
- Uses the **Modified Laspeyres formula** with fixed base-year weights.
- CPI-Combined anchors India's **Flexible Inflation Targeting (FIT)** under the RBI Act, 1934.

(CPI context is relevant as pharmaceutical pricing and affordability intersect with inflation trends.)

## KEY AMENDMENTS TO NDCT RULES

### 1. Test Licence Waiver

- Small-quantity drug manufacturing for research no longer needs a mandatory test licence.
- Only **prior online intimation to CDSCO** is required.
- High-risk substances (cytotoxic, narcotic, psychotropic drugs) still need licences.

### 2. Reduced Timelines

- Processing time for remaining test licence categories cut from **90 days** → **45 days**.

### 3. BA/BE Reform

- **Bioavailability (BA)** and **Bioequivalence (BE)** studies for low-risk drugs can begin through intimation instead of prior approval.

## ABOUT NDCT RULES, 2019

- Replaced older provisions under the Drugs and Cosmetics Rules, 1945.
- Administered by **Central Drugs Standard Control Organisation (CDSCO)** under the Drugs Controller General of India.
- A drug is treated as "new" for **four years** after first approval.

## SIGNIFICANCE

- **Time Efficiency:** Clinical development timelines may shrink by ~90 days.

- **Reduced Workload:** CDSCO handles 30,000+ test licences and 4,000+ BA/BE applications annually; reforms ease this load.
- **Generic Sector Boost:** Faster BA/BE initiation strengthens India's global generic competitiveness.
- **Better Risk Focus:** Regulators can focus more on high-risk oversight and pharmacovigilance.
- **Global Alignment:** Moves toward risk-based regulation similar to US FDA/EU frameworks.

## MOSPI TO INTRODUCE NEW CONSUMER PRICE INDEX (CPI) SERIES



## CONTEXT

The Ministry of Statistics and Programme Implementation (MoSPI) is revising India's **Consumer Price Index (CPI) series** to better reflect evolving consumption patterns, technological shifts, and changes in household expenditure. The revision, reported by *The Economic Times*, marks a significant methodological update aimed at improving the accuracy and relevance of inflation measurement.

## KEY CHANGES IN THE NEW CPI SERIES

### 1. Revised Base Year

The CPI base year will shift from **2012 to 2024**, aligning the index with current consumption behaviour and price structures.

### 2. Rebalanced Weights

- **Food and beverages** weight declines sharply from **45.86% to ~36.75%**, reducing food dominance in headline inflation.
- **Housing, water, electricity & gas** weight rises from **16.91% to 17.66%**.
- **Transport and communication** weight increases significantly from **8.59% to 12.41%**, reflecting mobility and digital connectivity costs.

### 3. Public Distribution System (PDS) Treatment

Free food grains provided under schemes such as **PMGKAY** are assigned **zero weight**, as they do not involve out-of-pocket expenditure.

### 4. Expanded Consumption Basket

- Number of weighted items increases from **299 to 358**.
- **New inclusions:** smartphones, OTT subscriptions, international air travel.
- **Exclusions:** obsolete goods like VCRs and audio cassettes.

### 5. Digital Price Collection

For the first time, **12 "Online Markets"** in major cities will track prices directly from **e-commerce platforms**, improving coverage of digital transactions.

### 6. Improved Housing Measurement

- Rural housing rents are included for the first time.
- Employer-provided housing is excluded to avoid price distortion.

### 7. Greater Rural Representation

Rural sector weight in CPI-Combined increases from **53.52% to 55.4%**, acknowledging India's demographic structure.

### 8. Global Classification Alignment

The CPI structure shifts from **6 to 12 Divisions**, fully aligning with **UN COICOP 2018** (Classification of Individual Consumption According to Purpose).

## SIGNIFICANCE OF THE NEW CPI SERIES

- **Lower Inflation Volatility:** Reduced food weight limits sensitivity to monsoon shocks and vegetable price spikes.
- **Contemporary Basket:** Inclusion of digital services captures modern consumption trends.
- **Accurate Living Costs:** Rural rent inclusion improves housing inflation measurement.
- **Global Comparability:** COICOP alignment enhances international credibility of India's inflation data.
- **Engel's Law in Action:** Declining food share reflects rising incomes and diversification of spending.

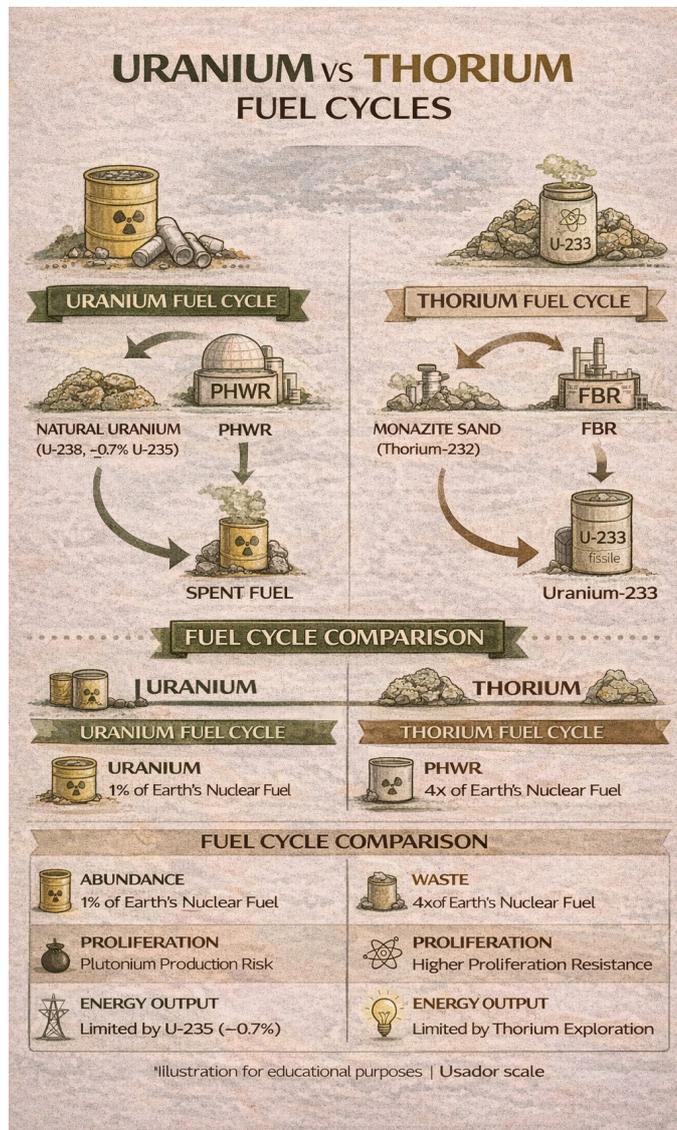
## ABOUT CONSUMER PRICE INDEX (CPI)

- CPI measures changes in **retail prices paid by households** for a representative basket.
- **NSO publishes** CPI-Rural, CPI-Urban, and CPI-Combined.
- **Labour Bureau publishes** CPI-IW, CPI-AL, and CPI-RL for wage indexation.
- Calculated using the **Modified Laspeyres formula**.
- Released **monthly**; perishables tracked weekly.
- **CPI-Combined** is India's official inflation anchor under the **RBI's Flexible Inflation Targeting (FIT) framework**.

# INTERNATIONAL RELATIONS

## GS PAPER 2

### THORIUM FUEL PATHWAY IN INDIA'S NUCLEAR PROGRAMME



### CONTEXT

NTPC is set to partner with **Clean Core Thorium Energy (CCTE), USA**, to advance thorium-based nuclear fuel for Indian reactors. This marks a new phase in India-US civil nuclear cooperation and aligns with India's long-term nuclear energy strategy focused on fuel security, clean baseload power, and strategic autonomy.

### INDIA'S THREE-STAGE NUCLEAR PROGRAMME

India's nuclear strategy, conceptualised by **Homi J. Bhabha**, is uniquely tailored to its resource profile.

#### Stage I - PHWRs:

Natural uranium is used in Pressurised Heavy Water Reactors (PHWRs). India currently operates **19 PHWRs**, which form the backbone of its nuclear capacity.

### Stage II – Fast Breeder Reactors (FBRs):

Plutonium recovered from spent fuel is used to breed more fissile material. However, technological complexity and delays have slowed large-scale deployment.

### Stage III – Thorium Cycle:

Thorium is used to breed **Uranium-233**, enabling sustained power generation. This stage is critical for India due to its abundant thorium reserves.

At present, nuclear energy contributes **around 3%** of India's total electricity generation, with a long-term target of **100 GW by 2047**.

### WHY THORIUM MATTERS FOR INDIA

- **Resource Advantage:** India holds nearly **25% of global thorium reserves** but only **1-2% of global uranium**, making thorium central to long-term fuel security.
- **Reduced Import Dependence:** Over **70% of uranium** is imported, while thorium is domestically available in monazite-rich coastal sands.
- **Long-Term Energy Security:** Thorium-based fuel cycles could power India for **hundreds of years**.
- **Cleaner Waste Profile:** Produces lower volumes of long-lived radioactive waste.
- **Proliferation Resistance:** Uranium-233 bred from thorium enhances non-proliferation safety.

### STRATEGIC SIGNIFICANCE OF THE INDIA-US PARTNERSHIP

- **Revitalised Nuclear Cooperation:** CCTE becomes only the **second US private firm in two decades** cleared for advanced nuclear collaboration with India.
- **Private Sector Enablement:** Supports the **SHANTI Act, 2025**, which allows private participation in nuclear operations.
- **Cost and Time Efficiency:** Enables thorium use in **existing PHWRs**, avoiding the need for entirely new reactor fleets.
- **Global Leadership:** Positions India as a frontrunner in **commercial thorium deployment**, where most countries remain at the experimental stage.

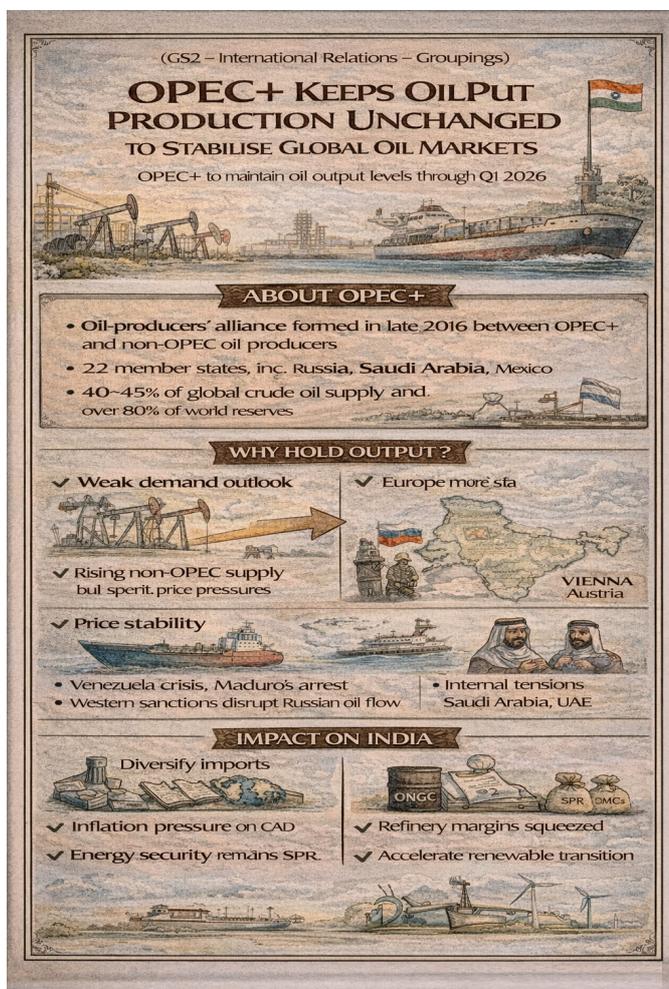
### INDIA-US NUCLEAR COOPERATION BACKGROUND

The **India-US Civil Nuclear Agreement (123 Agreement), 2008**, and the subsequent **NSG waiver** ended India's nuclear isolation, allowing global nuclear commerce despite its non-NPT status. The thorium partnership represents a maturation of this strategic trust.

### CONCLUSION

The thorium push strengthens India's energy sovereignty, accelerates clean baseload power, and elevates India-US strategic technology cooperation. If successfully scaled, thorium could become the cornerstone of India's low-carbon, secure energy future.

### OPEC+ HOLDS OUTPUT STEADY: IMPLICATIONS FOR GLOBAL AND INDIAN ENERGY SECURITY



### CONTEXT

The OPEC+ alliance has decided to **maintain oil production levels through the first quarter of 2026**, postponing earlier plans to increase output. The move aims to stabilise global oil markets amid demand uncertainty and geopolitical tensions.

### ABOUT OPEC+

- **Formation:** Created in 2016 as a coalition of **OPEC and non-OPEC oil producers**.
- **Membership:** 22 countries, including major producers such as Russia, Saudi Arabia, and Kazakhstan.



## MAJOR OUTCOMES OF THE VISIT

### 1. Defence and Security Cooperation

India and Germany signed a **Defence Industrial Cooperation Roadmap**, shifting the relationship from a buyer–seller model to **technology transfer, joint development, and co-production**.

- **Eurodrone Programme:** India's DRDO partnered with Europe's OCCAR for the MALE UAV programme.
- **Operational Engagement:** Germany committed to deploying a **Liaison Officer at IFC-IOR** and participating in **MILAN** and **Tarang Shakti** military exercises.

### 2. Trade and Economic Integration

Both leaders reiterated commitment to an **early conclusion of the India-EU Free Trade Agreement**.

- The **German-Indian CEO Forum** was strengthened to promote high-technology investments.
- Special emphasis was placed on **SMEs and startups** to build resilient global supply chains.

### 3. Technology and Industrial Collaboration

- A **Semiconductor Ecosystem Partnership** was launched covering research, design, and manufacturing.
- A **Joint Declaration of Intent on Critical Minerals** focuses on mineral processing, recycling, and overseas asset acquisition.
- New **Indo-German Centres of Excellence** will work on battery technology, green mobility, and affordable healthcare.

### 4. Clean Energy and Climate Action

India's **National Green Hydrogen Mission (NGHM)** was aligned with Germany's Hydrogen Strategy through harmonised standards.

- A **binding agreement on green ammonia supply** to Germany was signed.
- Germany committed **€10 billion in concessional climate finance by 2030**.

### 5. Mobility, Skills, and Education

- Germany announced **visa-free airport transit** for Indian passport holders.
- A **Global Skills Partnership** will facilitate the movement of Indian healthcare and renewable energy professionals.
- A **Comprehensive Higher Education Roadmap** was adopted to expand joint degrees and research collaboration.

### 6. Regional and Global Cooperation

- A **Bilateral Indo-Pacific Consultation Mechanism** was launched to uphold a rules-based regional order.
- Both sides reaffirmed support for the **India-Middle East-Europe Economic Corridor (IMEC)**.

## OVERVIEW OF BILATERAL RELATIONS

- **Strategic Partnership** since 2000; **Inter-Governmental Consultations** held biennially.
- Germany is **India's largest trading partner in the EU**.
- **Bilateral trade** reached **\$50 billion in 2024**, including **\$15 billion in Indian exports**.
- Both coordinate in the **G4 grouping** to push for **UNSC reforms**.
- Key divergences remain on **Russia-Ukraine, non-tariff barriers, and data localisation**.

## CONCLUSION

The visit marks a strategic convergence between India and Germany, combining defence cooperation, green growth, and people-centric mobility to shape a stable and sustainable global order.

## TARIFFS, TEHRAN AND INDIA'S TIGHTROPE DIPLOMACY



## CONTEXT

The United States has announced a **25% tariff on any country maintaining trade relations with Iran**, effective immediately. The move forms part of Washington's renewed "**maximum pressure**" strategy, aimed at penalising Tehran for its violent crackdown on nationwide anti-government protests. Unlike targeted sanctions, the tariff adopts a **secondary pressure mechanism**, raising costs for third countries engaging with Iran and intensifying geopolitical spillovers.

## IMPLICATIONS OF ESCALATING U.S.-IRAN TENSIONS FOR INDIA

### 1. Trade and Export Pressures

- India's exporters face the risk of **cumulative duties rising up to 75%** on Iran-linked trade routes or entities.
- Such tariffs could render Indian exports **commercially unviable**, especially in agriculture and chemicals.

### 2. Energy Security Risks

- Nearly **50% of India's crude oil imports transit through the Strait of Hormuz**.
- Any escalation in the Gulf could trigger **oil price shocks**, widening India's current account deficit and fuelling inflation.

### 3. Strategic Connectivity at Risk

- India's **10-year contract (2024)** to operate the **Shahid Beheshti terminal at Chabahar Port** faces uncertainty under tighter U.S. sanctions.
- Chabahar is critical for bypassing Pakistan and accessing **Afghanistan, Central Asia, and Eurasia** via the **International North-South Transport Corridor (INSTC)**.

### 4. Diaspora and Remittance Concerns

- Around **10 million Indians live and work in the Gulf region**.
- Regional instability could threaten **diaspora safety** and disrupt stable **remittance inflows**, a key source of foreign exchange.

### 5. Diplomatic Dilemma

- As **BRICS Chair in 2026**, India may be required to host Iran's President, while simultaneously safeguarding access to the **\$27 trillion U.S. market**.
- This underscores India's challenge of maintaining **strategic autonomy** amid intensifying bloc politics.

### 6. Shifting Regional Alignments

- Reduced engagement with Iran under U.S. pressure may push Tehran closer to **China**, reinforcing their

**25-year strategic cooperation pact** and altering West Asian power balances.

## INDIA-IRAN RELATIONS: A SNAPSHOT

### Foundations of Engagement

- Diplomatic relations established:** 1950 (75 years).
- Bilateral trade (FY 2024-25):** ~\$1.6 billion
  - Indian exports: ~\$1.2 billion.

### Trade Composition

- Indian exports:** Basmati rice, organic chemicals, fruits, nuts, pharmaceuticals.

### Strategic Projects

- Chabahar Port:** Long-term Indian operational role strengthens regional connectivity.
- INSTC:** Multimodal corridor linking India to **Russia and Europe via Iran**, reducing time and cost of trade.

### Energy Dimension

- Iran was among India's **top three crude oil suppliers** until imports ceased in **2019** due to U.S. sanctions.

### Areas of Convergence

- Afghan stability
- Counter-terrorism
- Regional connectivity
- Support for a **multipolar world order**

### Areas of Divergence

- U.S. sanctions regime
- Iran-Israel tensions
- China's expanding influence
- Regional proxy conflicts

### Multilateral Platforms

- BRICS, Shanghai Cooperation Organisation (SCO), Indian Ocean Rim Association (IORA).**

## WAY FORWARD FOR INDIA

- Diplomatic Balancing:** Maintain calibrated engagement with Iran while ensuring compliance-sensitive trade structures.
- Energy Diversification:** Expand sourcing from strategic petroleum reserves, renewables, and alternative suppliers.
- Sanctions Navigation:** Use rupee-based trade mechanisms and humanitarian exemptions where permissible.
- Strategic Autonomy:** Reinforce India's non-aligned but interest-driven foreign policy, especially within BRICS and SCO.

# INDIA-UAE PARTNERSHIP ENTERS A HIGH-TECHNOLOGY AND ENERGY PHASE



## CONTEXT

The President of the United Arab Emirates (UAE), **Sheikh Mohamed bin Zayed Al Nahyan (MBZ)**, concluded an official visit to New Delhi, reaffirming the depth and momentum of India-UAE relations. The visit reflects the growing convergence of strategic, economic, and technological interests between the two countries.

## KEY OUTCOMES OF THE VISIT

### 1. Expanding Economic Engagement

Both leaders agreed to **double bilateral trade to USD 200 billion by 2032**, signalling confidence in the long-term economic partnership. This builds upon the success of the **Comprehensive Economic Partnership Agreement (CEPA)** operational since 2022.

### 2. Energy Security and LNG Cooperation

- **HPCL and ADNOC Gas** signed a **10-year LNG supply agreement** to import **0.5 MMTPA from 2028**, strengthening India's gas-based energy transition.

- The UAE remains a critical partner in India's hydrocarbon security.

### 3. Industrial and Infrastructure Investment

The UAE committed to **large-scale investments in the Dholera Special Investment Region (SIR)** in Gujarat, supporting India's manufacturing and industrial corridor ambitions.

### 4. Advanced Computing and Digital Technology

- **C-DAC (India)** and **G42 (UAE)** will jointly establish a **supercomputing cluster in India**, enhancing capabilities in AI, climate modelling, and advanced research.

### 5. Defence and Security Cooperation

- A **Letter of Intent** was signed to establish a **Strategic Defence Partnership**, focusing on defence manufacturing, joint development, and interoperability between armed forces.

### 6. Space Collaboration

- **IN-SPACe** and the **UAE Space Agency** agreed to cooperate on **launch infrastructure and satellite facilities**, reflecting trust in high-end strategic technologies.

## OVERVIEW OF INDIA-UAE BILATERAL RELATIONS

- **Strategic Framework:** Relations were elevated to a **Comprehensive Strategic Partnership in 2017**.
- **Trade and Investment:**
  - UAE is **India's 3rd largest trading partner** and **2nd largest export destination**.
  - Bilateral trade crossed **USD 100 billion in FY 2024-25**.
  - A **Bilateral Investment Treaty** was signed in **2024**.
- **Energy Partnership:**
  - UAE is India's **4th largest crude oil supplier** and **2nd largest supplier of LNG and LPG**.
  - First foreign country to invest in India's **Strategic Petroleum Reserves (Mangalore)**.
- **Digital Connectivity:**
  - **UPI-AANI linkage** and **RuPay-JAYWAN integration** promote seamless digital payments.
- **Defence Exercises:**
  - **Desert Cyclone** (Army), **Zayed Talwar** (Navy), and **Desert Flag** (Air Force).
- **Regional & Global Initiatives:**
  - Founding partners of the **India-Middle East-Europe Economic Corridor (IMEC)**.
  - Key members of the **I2U2 grouping** (India-Israel-UAE-USA).
- **People-to-People Ties:**
  - About **3.5 million Indians** reside in the UAE, contributing nearly **20% of India's remittances**.

## CONCLUSION

The UAE President's visit underscores a shift in India-UAE ties from energy-centric cooperation to a **multi-dimensional strategic partnership** spanning defence manufacturing, advanced technology, digital infrastructure, and regional connectivity.

## A CONTINENTAL TRADE BRIDGE: INDIA-EU FREE TRADE PACT AND ITS STRATEGIC PROMISE



## CONTEXT

India and the **European Union (EU)** have announced the conclusion of negotiations on a landmark **Free Trade Agreement (FTA)**, often described as the "mother of all trade deals." The pact creates a free-trade zone covering **around 2 billion people** and nearly **25% of global GDP**. The agreement is expected to apply **provisionally by Q4 2026** and enter into full force by **early 2027**, subject to ratification. A **biennial review clause** will allow both sides to address implementation challenges and update provisions.

## KEY PROVISIONS OF THE INDIA-EU FTA

## 1. Trade in Goods

- **EU Commitments:** Elimination of tariffs on **99.5% of India's exports by value**, with **90.7%** receiving immediate zero-duty access.
- **India's Concessions:** Tariff concessions covering **97.5% of EU import value**, across **92.1% of tariff lines**.
- **Phased Liberalisation:** Customs duties on **49.6%** of European tariff lines are eliminated immediately, while the rest see phased reductions over **5, 7, and 10 years**.
- **Labour-Intensive Sectors:** Textiles, apparel, leather, footwear, gems and jewellery, and marine products gain immediate duty-free access.
- **Sensitive Exclusions:** Dairy, cereals, poultry, and sugar are excluded to protect domestic producers.
- **Automobiles:** Import duties on European cars will be reduced to **10%**, subject to an annual **quota of 250,000 units**.

## 2. Trade in Services

- **Market Access:** India gains access to **144 EU service subsectors**, while the EU gains access to **102 Indian subsectors**.
- **Mobility of Professionals:** Binding commitments to ease visa norms for **Indian IT professionals, nurses, and consultants**.
- **Commercial Presence:** European firms gain enhanced access to India's **financial, legal, and maritime services**.
- **Family Rights:** Spouses and dependents of intra-corporate transferees are granted **entry and work rights**.
- **AYUSH Recognition:** AYUSH practitioners may work under home titles in EU states where these practices are unregulated.
- **Digital Safeguards:** Prohibition on **mandatory source-code transfer**, protecting Indian IT intellectual property.

## 3. Regulatory and Safeguard Measures

- **Rules of Origin:** Product-Specific Rules with **self-certified Statements of Origin**, reducing compliance costs.
- **SPS Equivalence:** Alignment of **Sanitary and Phytosanitary (SPS)** measures to reduce rejection of Indian agri-exports.
- **CBAM Dialogue:** A technical mechanism to align carbon reporting standards under the EU's **Carbon Border Adjustment Mechanism (CBAM)**.
- **Rebalancing Rights:** India can impose **retaliatory tariffs** if EU non-tariff barriers negate trade benefits.

## STRATEGIC SIGNIFICANCE FOR INDIA

The FTA enhances **India's strategic autonomy** by diversifying trade ties beyond the US-China axis. Duty-free access improves **export competitiveness**, especially against countries like **Bangladesh and Vietnam**. Cheaper European machinery can spur **industrial modernisation**, while regulatory alignment may upgrade India's **quality and standards ecosystem**.

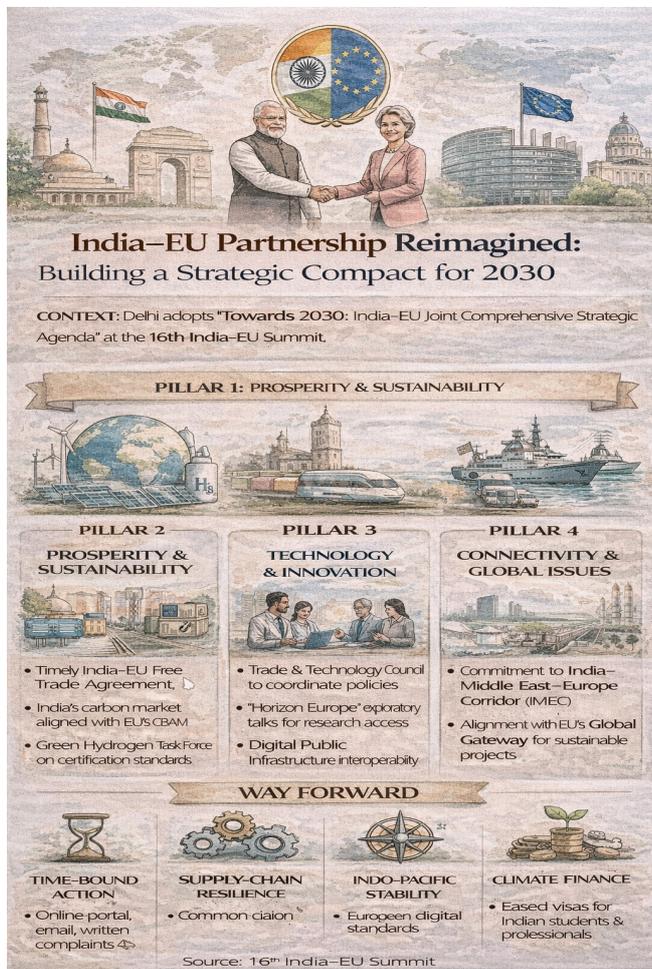
## KEY CONCERNS

Persistent **phytosanitary barriers**, CBAM-related costs for steel and aluminium, competitive pressure on **MSMEs**, the absence of EU **"data secure" status**, and historically complex **rules of origin** could limit gains if not addressed proactively.

## CONCLUSION

The India-EU FTA is a transformative step toward deep economic integration. Its success will depend on effective implementation, MSME support, and sustained regulatory dialogue.

# INDIA-EU PARTNERSHIP REIMAGINED: BUILDING A STRATEGIC COMPACT FOR 2030



## CONTEXT

India and the European Union have adopted the *India-EU Joint Comprehensive Strategic Agenda: "Towards 2030"* at the 16th India-EU Summit in New Delhi, signalling a qualitative upgrade in bilateral relations amid global economic and geopolitical churn.

The *"Towards 2030"* agenda represents a decisive shift in India-EU relations—from declaratory cooperation to a structured, outcome-oriented strategic partnership. Replacing the earlier *Roadmap to 2025*, the new framework recognises India and the EU as *trusted, predictable and like-minded partners*, committed to strengthening strategic autonomy in a multipolar world.

## A FIVE-PILLAR STRATEGIC ARCHITECTURE

### 1. Prosperity and Sustainability

Economic integration forms the backbone of the agenda. Both sides have prioritised the timely implementation of the concluded India-EU Free Trade Agreement, alongside a separate Investment Protection Agreement to enhance investor confidence. Cooperation on carbon markets seeks to align India's Carbon Credit Trading Scheme with the EU's Carbon Border Adjustment Mechanism (CBAM). In the clean-energy domain, the India-EU Green Hydrogen Task Force aims to harmonise standards, enabling exports of green hydrogen and ammonia to Europe.

### 2. Technology and Innovation

Technology cooperation is institutionalised through the Trade and Technology Council (TTC), focusing on semiconductors, artificial intelligence, and digital governance. India's Digital Public Infrastructure—Aadhaar, UPI and DigiLocker—will be aligned with European digital standards to facilitate cross-border interoperability. India has also initiated exploratory talks to associate with *Horizon Europe*, the EU's flagship research programme, expanding access to global R&D funding. The *Blue Valleys* initiative further links European capital with Indian clean-energy manufacturing clusters.

### 3. Security and Defence

The agenda operationalises the India-EU Security and Defence Partnership, expanding military-to-military engagement and defence dialogue. Both sides reaffirm commitment to a rules-based international order and freedom of navigation in the Indo-Pacific. Dedicated dialogues on cybersecurity, space security and maritime cooperation reflect convergence on emerging and non-traditional security challenges.

### 4. Connectivity and Global Issues

Connectivity cooperation gains strategic depth through renewed commitment to the India-Middle East-Europe Economic Corridor (IMEC), offering an alternative to China-led connectivity models. India's regional infrastructure projects will align with the EU's *Global Gateway* initiative, promoting sustainable financing. Joint infrastructure projects in third countries, especially Africa, underline shared development priorities.

## 5. People-to-People Enablers

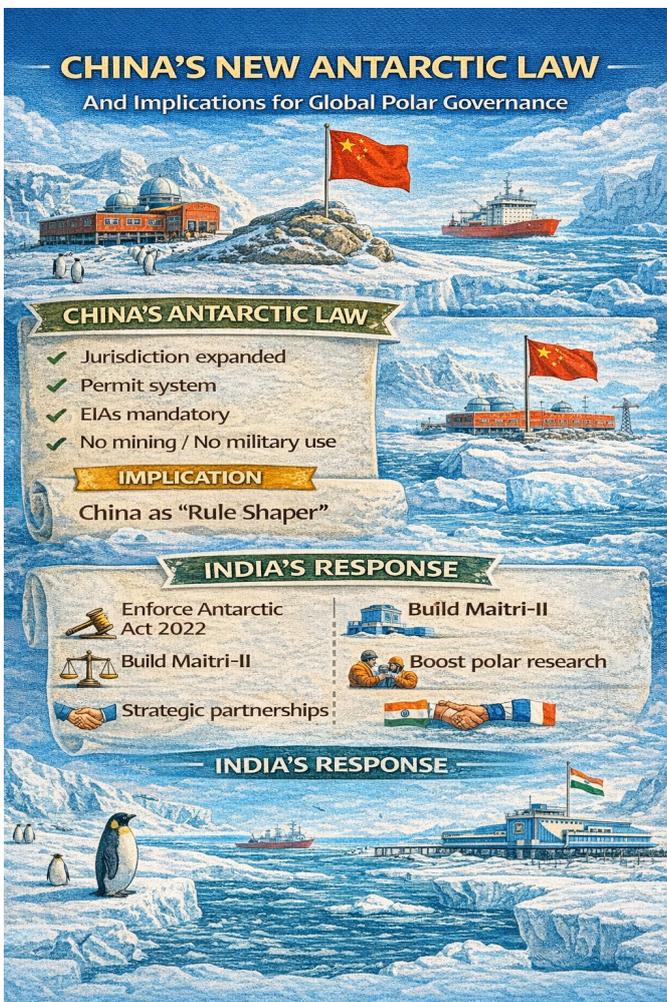
The agenda strengthens societal links through a Comprehensive Framework on Mobility, easing visa norms for Indian students and skilled professionals. The EU's move towards Schengen visa digitalisation is expected to simplify travel for Indians. Regular parliamentary exchanges and a structured Human Rights Dialogue institutionalise long-term engagement and trust.

### Strategic Significance

The *Towards 2030* agenda positions India-EU relations as a cornerstone of a diversified global order. For India, it unlocks trade, technology and climate finance while reinforcing strategic autonomy. For the EU, India emerges as a reliable partner in supply-chain resilience, Indo-Pacific stability and sustainable growth.

By embedding timelines, institutional mechanisms and sectoral convergence, the agenda transforms intent into action—marking a mature phase in India-EU strategic cooperation.

## CHINA'S NEW ANTARCTIC LAW AND IMPLICATIONS FOR GLOBAL POLAR GOVERNANCE



## CONTEXT

China has proposed the **"Antarctic Activities and Environmental Protection Law"**, aimed at regulating the conduct of Chinese citizens, entities, and expeditions in Antarctica. The move comes amid increasing geopolitical interest in the polar regions and growing commercial and scientific activity under the **Antarctic Treaty System (ATS)**.

## KEY PROVISIONS OF THE PROPOSED LAW

- **Expanded Jurisdiction:** Chinese legal authority extends to citizens, companies, and foreign expeditions organised or departing from China.
- **Mandatory Permits:** Licensing required for scientific research and commercial activities such as tourism, fishing, and shipping.
- **Environmental Safeguards:** Environmental Impact Assessments (EIAs), waste control, and marine pollution standards are compulsory.
- **Activity Restrictions:** Mineral mining is banned except for scientific purposes; military use is prohibited, consistent with ATS peaceful-use norms.

## WHY THE LAW MATTERS

- **Rule-Shaping Role:** Signals China's transition from treaty participant to regulatory influencer within the ATS framework.
- **Commercial Legitimacy:** Provides legal backing for China's growing footprint in krill fishing, polar logistics, and tourism.
- **Domestic Regulatory Closure:** Prevents unregulated private Chinese activities from breaching international obligations.

## INDIA'S RESPONSE STRATEGY

- **Strengthen Legal Enforcement:** Full operationalisation of the **Indian Antarctic Act, 2022** with robust permitting and inspections.
- **Infrastructure Modernisation:** Expedite **Maitri-II station** to maintain parity with China's upgraded facilities.
- **Scientific Credibility:** Expand funding for climate, glacial, and monsoon-linked polar research to sustain Consultative Party status.
- **Strategic Partnerships:** Deepen cooperation with countries like Australia and France within the ATS.
- **Logistics Independence:** Acquire dedicated polar research vessels to reduce dependence on charters.

## INDIA'S ANTARCTIC PRESENCE

- **First Expedition:** 1981 (Operation Gangotri).
- **Treaty Status:** Consultative Party since 1983.

- **Nodal Agency:** National Centre for Polar and Ocean Research (Goa).
- **Key Research Focus:** Antarctic–monsoon linkages and sea-level rise impacts.

## STATIONS

- **Dakshin Gangotri (1983):** Now a logistics base.
- **Maitri (1989):** Year-round research; Lake Priyadarshini supplies freshwater.
- **Bharati (2012):** Oceanographic and atmospheric sciences hub.
- **Maitri-II (Planned):** Replacement by 2032 (~₹2,000 crore).

## INDIA-EU DEEPEN PARTNERSHIP IN PEACEFUL NUCLEAR SCIENCE AND FUSION ENERGY

**INDIA-EU COOPERATION ON PEACEFUL NUCLEAR APPLICATIONS**  
(GS2 – International Relations)

At the 16<sup>th</sup> India-EU Summit, India and the EU reaffirmed cooperation in **peaceful nuclear energy applications**.

**India-Euratom Agreement 2020**  
Focused exclusively on peaceful, non-explosive nuclear energy uses.

**FUSION ENERGY & ITER**

- World's largest experimental fusion project
- Focused exclusively on peaceful, non-explosive nuclear energy uses.

**FUSION ENERGY & ITER**

- World's largest experimental fusion project
- EU, India, China, Japan, South Korea, Russia, and the U.S.
- India has built the **largest cryostat**.

**NON-POWER NUCLEAR USES**

- **Radiopharmaceuticals**
  - Cancer diagnostics and precise treatment
- **Radioactive Waste management**
  - Safer handling, storage, and disposal

**STRATEGIC SIGNIFICANCE**

- Diversifies India's nuclear & energy diplomacy beyond Russia-USA binary
- Access to advanced nuclear safety technologies & expertise

Word Count – 465 words.

## CONTEXT

At the **16th India-EU Summit**, India and the European Union reaffirmed their commitment to collaborate

on **peaceful nuclear energy applications**. The cooperation reflects a shared emphasis on clean energy, advanced medical applications, and high nuclear safety standards, while strengthening strategic trust between the two partners.

## SCOPE OF THE NUCLEAR COOPERATION

The collaboration is anchored in the **India-Euratom Agreement (2020)**, which focuses exclusively on **peaceful, non-explosive uses of nuclear energy**. It provides an institutional framework for joint research, technology exchange, and capacity building while respecting international non-proliferation norms.

A key area of convergence is **fusion energy research**, particularly enhanced coordination in the **International Thermonuclear Experimental Reactor (ITER)** project. Fusion is seen as a long-term solution for clean and virtually limitless energy, complementing renewables in the global energy transition.

## FUSION ENERGY AND ITER

ITER, currently under construction at **Saint-Paul-lès-Durance, France**, is the **world's largest experimental nuclear fusion project**. It brings together **seven partners**—the European Union, India, China, Japan, South Korea, Russia, and the United States.

The project aims to demonstrate the **scientific and technological feasibility of fusion power** by producing **500 MW of fusion energy from a 50 MW input**, achieving an energy gain of  $Q = 10$ . Unlike fission, fusion produces **no long-lived radioactive waste** and emits **no greenhouse gases**, making it a promising clean-energy option.

India plays a critical role in ITER. It has successfully built and delivered the **world's largest cryostat**, a massive stainless-steel structure that maintains the ultra-low temperatures necessary for sustaining fusion reactions. This contribution highlights India's growing capabilities in advanced nuclear engineering.

## FOCUS ON NON-POWER NUCLEAR APPLICATIONS

Beyond power generation, India-EU cooperation prioritises **non-power nuclear uses**, especially:

- **Radiopharmaceuticals** for cancer diagnosis and treatment, which can improve access to affordable and precise healthcare.
- **Radioactive waste management**, including safer handling, storage, and disposal technologies.

These applications underline the social and developmental benefits of nuclear science, aligning with public health and environmental safety goals.

**STRATEGIC SIGNIFICANCE FOR INDIA**

The renewed partnership helps India **diversify its nuclear and energy diplomacy**, reducing overdependence on traditional partners such as Russia and the United States. Access to European expertise in **nuclear safety, regulation, and advanced technologies** strengthens India's long-term clean energy and health security strategies.

For the EU, collaboration with India—one of the world's fastest-growing energy markets—enhances the global

relevance of its nuclear research and clean-energy leadership.

**CONCLUSION**

India-EU cooperation on peaceful nuclear applications represents a **forward-looking partnership** that blends clean energy innovation, medical advancement, and strategic diversification. By jointly investing in fusion research and non-power nuclear technologies, both partners contribute to a safer, low-carbon, and knowledge-driven global future.

# ECONOMY

## GS PAPER 3

### BANK FRAUDS IN INDIA: FEWER CASES, BIGGER LOSSES



#### CONTEXT

(RBI): The Reserve Bank of India in its *Report on Trend and Progress of Banking in India 2024-25* highlights a paradox: **fraud cases declined sharply, but the total amount involved surged**, pointing to concentration of risk in high-value advances.

#### KEY FINDINGS FROM THE RBI REPORT

- Overall Trend:** Fraud cases declined to **23,879** in FY25 from **36,052** in FY24, but the **value jumped to ₹34,771 crore** from **₹11,261 crore**.

- Court-Linked Reclassification:** A major spike arose from **122 cases worth ₹18,336 crore**, re-reported after compliance with the **Supreme Court's principles of natural justice** requiring borrower hearings.
- H1 FY26 Snapshot (Apr-Sep):** Cases fell to **5,092** (from 18,386), while the amount involved rose to **₹21,515 crore**.
- Digital Frauds:** **Card and internet frauds** constituted **66.8% of cases by number** in FY25, reflecting high-frequency, low-value incidents.
- Loan (Advances) Frauds:** **Advances-related frauds** accounted for about **33.1% of the total amount by value**, despite fewer cases.
- Bank-Group Pattern:** **Private banks:** 59.3% of cases
  - Public Sector Banks (PSBs):** 70.7% of the total amount involved

#### WHY THE NUMBER OF FRAUDS FELL

- Digital Transaction Controls:** AI-based monitoring, velocity checks, and risk-based authentication across core banking platforms have curtailed small-value fraud attempts.
- Stronger KYC Regime:** Mandatory re-KYC, video-based customer identification, and centralised KYC records reduced impersonation and mule accounts.
- Early Warning Systems (EWS):** Automated alerts for unusual account behaviour enabled faster freezing of suspicious transactions, aided by account-level dashboards.
- Consumer Awareness:** SMS alerts, helplines, and nationwide cyber awareness campaigns improved customer response time to fraud attempts.

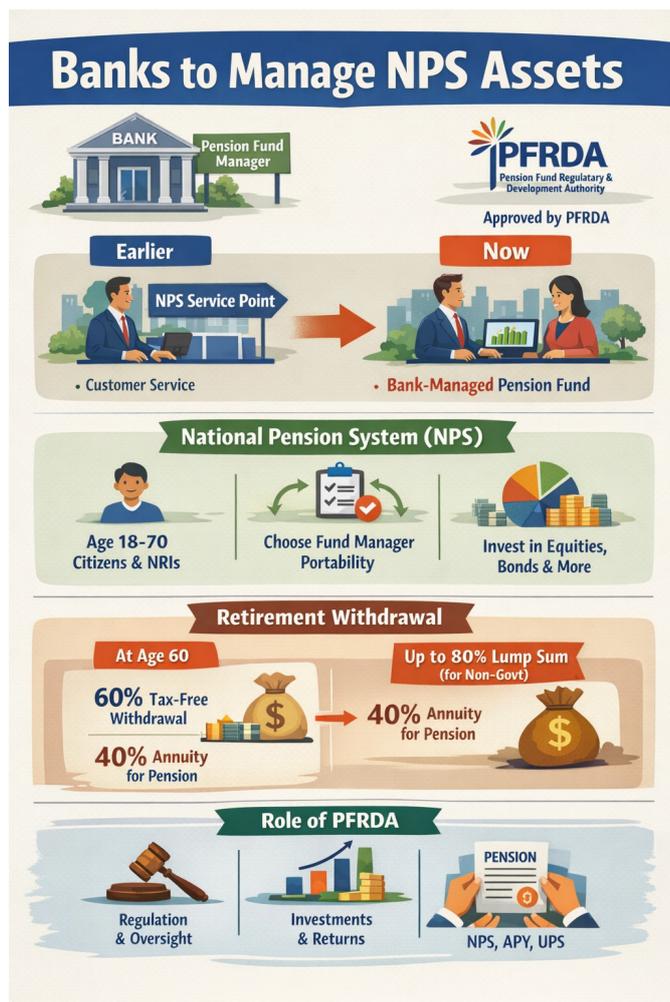
#### WHY VALUE OF FRAUDS ROSE SHARPLY

- Legacy Loan Frauds:** Large corporate and consortium loan frauds often surface after forensic audits, inflating total values in a single year.
- Reclassification Impact:** Earlier under-reported or disputed cases were re-examined and reported afresh, adding high-ticket amounts.
- Concentration in Advances:** Credit-related frauds involve **large exposure sizes**, unlike retail digital frauds that are frequent but low in value.

## WAY FORWARD

- **Risk-Based Supervision:** Intensify scrutiny of large-value advances using dynamic risk-scoring and borrower heat maps.
- **Unified Fraud Intelligence:** Integrate fraud registries across banks and non-banks for real-time red-flag sharing through interoperable platforms.
- **Digital Payment Safeguards:** Introduce cooling-off periods and beneficiary verification for first-time or high-risk transactions.
- **Board-Level Accountability:** Mandate periodic fraud-risk reviews by bank boards with fixed response timelines and governance dashboards.

## BANKS ENTER INDIA'S PENSION ASSET SPACE



## CONTEXT

In a significant reform in India's pension ecosystem, the **Pension Fund Regulatory and Development Authority (PFRDA)** has approved a framework permitting banks to sponsor pension fund entities for managing assets under the **National Pension System**

(NPS). This marks a shift from the earlier, limited role of banks as service facilitators to active participants in pension asset management.

## WHAT HAS CHANGED?

Until now, Scheduled Commercial Banks functioned mainly as *Points of Presence*—responsible for onboarding NPS subscribers, collecting contributions, and providing customer services. Under the new framework, eligible banks can now establish and sponsor a **Pension Fund Manager (PFM)**, enabling them to directly manage retirement savings invested through NPS.

Eligibility for this expanded role will be aligned with **RBI prudential norms**, including minimum net worth, market capitalisation, governance standards, and overall financial soundness. This ensures that only stable and well-capitalised banks enter the pension fund management space.

## ABOUT THE NATIONAL PENSION SYSTEM (NPS)

The **National Pension System** is a voluntary, defined-contribution retirement scheme regulated by PFRDA. It is open to all Indian citizens and Overseas Citizens of India aged 18–70.

### Key features include:

- **Subscriber Choice:** Individuals can select their Pension Fund Manager and asset allocation mix.
- **Portability:** A Permanent Retirement Account Number (PRAN) remains valid across jobs and locations.
- **Investment Structure:** Contributions are professionally invested across equities, government securities, corporate bonds, and select alternative assets, generating market-linked returns.

## WITHDRAWAL AND ANNUITY PROVISIONS

### At the normal retirement age of 60:

- Government subscribers may withdraw up to **60% of the accumulated corpus tax-free**.
- At least **40% must be invested in an annuity** purchased from PFRDA-empanelled providers, providing a taxable monthly pension.
- For non-government subscribers, recent reforms permit **lump-sum withdrawal of up to 80%**, offering greater flexibility.

## ROLE OF PFRDA

The **Pension Fund Regulatory and Development Authority** functions as the statutory pension regulator under the Ministry of Finance. Established as an interim body in 2003 and granted statutory status through the PFRDA Act, 2013, it aims to promote old-age income security.

PFRDA regulates pension funds, sets investment and governance norms, benchmarks performance, and administers key schemes such as **NPS, Atal Pension Yojana (APY), Unified Pension Scheme (UPS), and NPS Vatsalya.**

### WHY THIS MATTERS

Allowing banks to manage pension assets can deepen competition, improve fund management expertise, and enhance long-term returns for subscribers. At the same time, RBI-aligned eligibility norms help safeguard retirement savings by ensuring prudential oversight and financial stability.

## BREAKING GROUND: WHY LAND ACQUISITION SLOWS INDIA'S INFRASTRUCTURE PUSH

**Breaking Ground: Why Land Acquisition Slows India's Infrastructure Push**

Land acquisition identified as the major bottleneck slowing down India's infrastructure projects, accounting for 35% of delays.

- Land Acquisition: 35%
- Environmental issues or Right-of-Way: 38%

Land acquisition alone causes 35% of India's infrastructure project delays.

**What is Land Acquisition?**  
Land acquisition involves the government's power to acquire private land for public uses like roads, railways, ports, urban infrastructure, and tnbā.

**PRAGATI** (Pro-Active Governance and Timely Implementation)  
LARRACT, 2013

- Land acquisition alone causes 35% of India's infrastructure project delays

**INDIA'S EXPANDING INFRASTRUCTURE LANDSCAPE**

<p><b>Capital Investment</b> ₹ 11.21 lakh crore 3.1x up, by 10% DF</p>	<p><b>Roads</b> 2nd-largest network 1,46,145 km of National Highways</p>	<p><b>Ports &amp; Shipping</b> Sagarmala 2.0, cargo handling reached 1,630 MT, improving shipment rank from 44th (2014) – 22nd (2025)</p>
<p><b>Road</b></p>	<p><b>Aviation</b> 99.2% of Broad Gauge network</p>	<p><b>Rural Water</b> Jal Jeevan Mission</p>
<p><b>Urban Transport</b> 3rd-largest metro network 1,013 km across 23 cities</p>	<p><b>Key Bottlenecks</b></p> <ul style="list-style-type: none"> <li>Digitise Land Records</li> <li>Time-Bound Assessments</li> <li>Negotiated Settlements</li> </ul>	<p><b>Rural Water</b></p> <ul style="list-style-type: none"> <li>Time-bound assessments</li> <li>Federal Complexity</li> <li>Stronger Rehabilitation</li> </ul>

### CONTEXT

Land acquisition has emerged as the single largest bottleneck in India's infrastructure projects reviewed under PRAGATI (Pro-Active Governance and Timely Implementation). Government data show that land

acquisition alone accounts for **35% of project delays**, while environmental clearances and right-of-way (RoW) issues together contribute to **73% of delays nationwide**. This underscores a persistent governance challenge at a time when India is scaling up capital expenditure to fuel economic growth.

### WHAT IS LAND ACQUISITION?

Land acquisition refers to the government's power to acquire private land for public purposes such as roads, railways, defence, industrial corridors, urban infrastructure, and social projects. In India, this process is governed by the **Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (LARR) Act, 2013.**

Key safeguards under the Act include:

- **Social Impact Assessment (SIA):** Mandatory assessment of impacts on livelihoods, infrastructure, and local communities before acquisition.
- **Consent Norms:** Prior consent of **80% of affected families** for private projects and **70%** for Public-Private Partnership (PPP) projects.
- **Compensation Framework:**
  - **4× market value** in rural areas
  - **2× market value** in urban areas
- **Solatium:** An additional **100% of compensation** to account for the involuntary nature of acquisition.

While these provisions strengthen fairness and transparency, they also lengthen timelines and increase project costs.

### WHY DOES LAND ACQUISITION CAUSE DELAYS?

Several structural and administrative factors contribute to delays:

- **Lengthy Procedures:** SIA studies, public hearings, and consent processes are time-consuming.
- **Litigation Risks:** Disputes over valuation, consent, and rehabilitation often lead to prolonged court cases.
- **Federal Complexity:** Land is a State subject, leading to uneven implementation across states.
- **Social Resistance:** Inadequate trust, fear of livelihood loss, and displacement concerns fuel opposition.

### INDIA'S EXPANDING INFRASTRUCTURE LANDSCAPE

Despite these hurdles, India's infrastructure push is unprecedented:

- **Capital Investment:** The Union Budget 2025–26 allocated ₹11.21 lakh crore (3.1% of GDP) for capital expenditure.
- **Roads:** Second-largest road network globally; **1,46,145 km** of National Highways (2024).

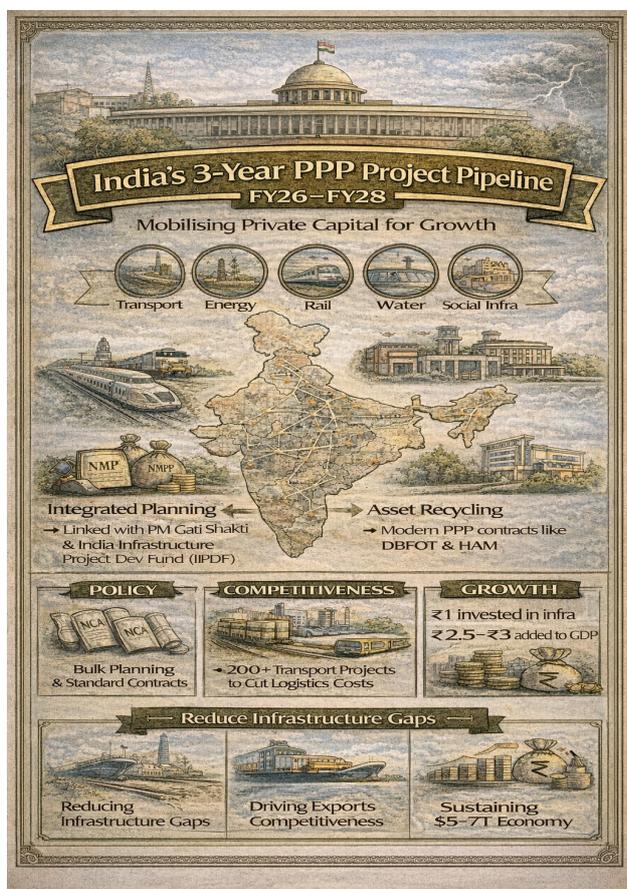
- **Railways: 99.2%** electrification of the Broad Gauge network by 2025.
- **Aviation:** Third-largest domestic aviation market after the US and China.
- **Ports & Shipping:** Under **Sagarmala 2.0**, cargo handling reached **1,630 MT**, improving India's global shipment ranking from **44th to 22nd**.
- **Urban Transport:** Third-largest metro network globally, spanning **1,013 km** across 23 cities.
- **Rural Water: Jal Jeevan Mission** achieved **80%** rural tap water coverage by early 2025.

## WAY FORWARD

To reconcile rapid infrastructure growth with social justice:

- **Digitise Land Records:** Reduce disputes through clear titling.
- **Time-bound SIAs:** Standardise and streamline assessment timelines.
- **Negotiated Settlements:** Promote land pooling and consent-based models.
- **Stronger Rehabilitation:** Ensure livelihood security to build trust.

## INDIA'S 3-YEAR PPP INFRASTRUCTURE PIPELINE: MOBILISING PRIVATE CAPITAL FOR GROWTH



## CONTEXT

The Ministry of Finance has unveiled a three-year Public-Private Partnership (PPP) project pipeline for FY2026–FY2028, marking a structural shift in India's infrastructure financing strategy. Prepared by the Department of Economic Affairs (DEA), the pipeline lists **852 infrastructure projects** across the Centre and States, aligned with the Union Budget 2025-26 vision of sustaining high capital formation while managing fiscal constraints.

## WHAT IS THE PPP PROJECT PIPELINE?

The pipeline is a forward-looking roadmap that provides investors early visibility into upcoming infrastructure projects across sectors such as **transport, energy, railways, water, sanitation, and social infrastructure**. It integrates project data with the **PM Gati Shakti** platform for coordinated planning and allows states to access project preparation support through the **India Infrastructure Project Development Fund (IIPDF)**. Unlike earlier fragmented PPP announcements, this consolidated pipeline improves project bankability by standardising documentation, timelines, and financing structures.

## ECONOMIC RATIONALE & POLICY CONTEXT

India's infrastructure investment needs are estimated at over **₹100 lakh crore by 2030** to sustain rapid urbanisation and industrialisation. However, fiscal consolidation pressures limit the scope for continuous public funding. The PPP pipeline therefore seeks to crowd-in private capital while leveraging public resources more efficiently.

The initiative complements existing frameworks such as the **National Monetisation Pipeline (NMP)**, which recycles revenues from brownfield public assets into new greenfield PPP projects. It also promotes modern risk-sharing PPP models like **Hybrid Annuity Model (HAM)** and **Design-Build-Finance-Operate-Transfer (DBFOT)**, balancing construction and revenue risks between government and private partners.

## SIGNIFICANCE FOR GROWTH AND COMPETITIVENESS

First, the pipeline strengthens India's long-term growth trajectory. According to RBI estimates, every **₹1** invested in infrastructure generates **₹2.5–₹3 in GDP**, indicating strong multiplier effects. By mobilising private investment, the pipeline supports India's transition toward a **\$5–7 trillion economy**.

Second, early project visibility enhances investor confidence. Institutional investors such as pension funds and sovereign wealth funds prefer predictable project pipelines with clear regulatory frameworks. Standardised Model Concession Agreements (MCAs) further reduce disputes and transaction costs.

Third, the pipeline advances logistics and export competitiveness. Over **200 transport projects** aim to reduce freight costs, improve connectivity, and integrate

supply chains—key to boosting manufacturing under initiatives like Make in India and Gati Shakti.

Fourth, coordinated Centre-State participation deepens cooperative federalism. State-level PPP projects in urban services and social infrastructure expand private participation beyond traditional highways and energy sectors.

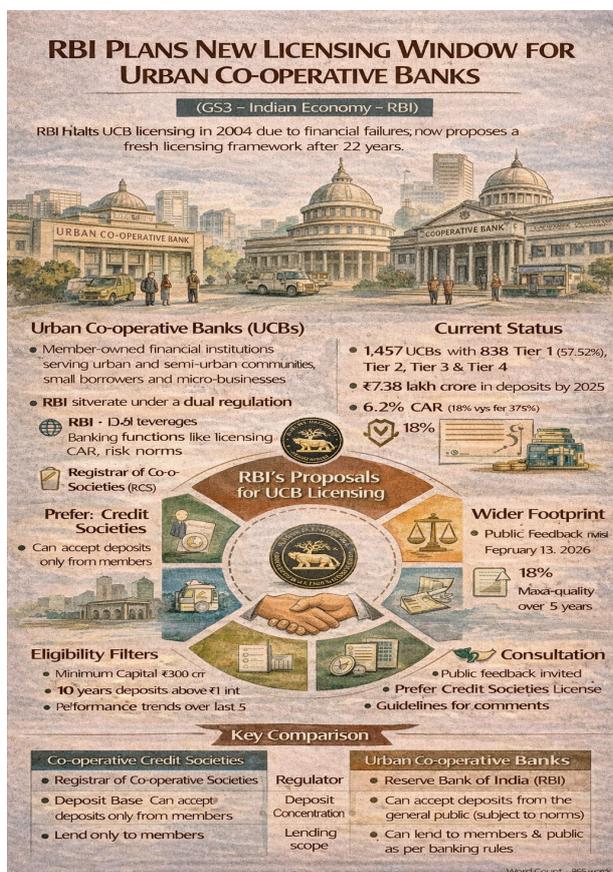
## CHALLENGES AND WAY FORWARD

PPP projects in India historically faced issues such as demand risk misallocation, contract renegotiations, and financing stress. Ensuring credible risk allocation, transparent bidding, and stable regulatory regimes remains essential. Strengthening project preparation through IIPDF and continuous monitoring via Gati Shakti will be critical to sustaining investor trust.

## CONCLUSION

The three-year PPP project pipeline represents a strategic shift from ad-hoc PPP approvals to programmatic infrastructure planning. By integrating project visibility, risk-balanced models, and asset recycling, it positions private capital as a central pillar of India's infrastructure expansion and long-term economic growth.

# REOPENING THE CO-OPERATIVE BANKING GATE: RBI'S CALIBRATED PUSH FOR STRONGER UCBS



## CONTEXT

After a hiatus of more than **22 years**, the **Reserve Bank of India (RBI)** has proposed reopening the licensing window for **Urban Co-operative Banks (UCBs)**. Licensing was halted in **2004** after several newly licensed UCBs became financially weak, prompting the **R. Gandhi Committee** to recommend that licences be granted only to financially sound and well-governed co-operative credit societies.

## UNDERSTANDING URBAN CO-OPERATIVE BANKS (UCBS)

UCBs are **member-owned financial institutions** that primarily serve **urban and semi-urban areas**, catering to small borrowers, traders, and micro-enterprises.

## LEGAL AND REGULATORY FRAMEWORK

- Registration:** Under the State Co-operative Societies Act or the Multi-State Co-operative Societies Act.
- Dual Regulation:**
  - RBI:** Banking functions such as licensing, capital adequacy, asset quality, and risk norms.
  - Registrar of Co-operative Societies (RCS):** Registration, governance, audits, and liquidation.

This dual control has historically posed supervisory challenges, making prudential strength a key concern.

## CURRENT STATUS OF THE UCB SECTOR

India has **1,457 UCBs**, classified into four tiers based on deposit size:

- Tier 1:** 838 banks (57.52%)
- Tier 2:** 535 banks
- Tier 3:** 78 banks
- Tier 4:** 6 banks

The sector shows **high concentration**:

- 7% of UCBs** (with deposits above ₹1,000 crore) hold **62.5% of total deposits**.
- 52% of UCBs**, with deposits below ₹100 crore, account for only **5.6% of deposits**.

Despite consolidation, balance sheets have strengthened:

- Assets:** ₹7.38 lakh crore (2025), up from ₹4.35 lakh crore (2015).
- Deposits:** ₹5.84 lakh crore (2025), up from ₹3.55 lakh crore (2015).
- Capital Adequacy Ratio (CAR):** Average **18%**, with **92% of UCBs above 12% CAR**.
- Asset Quality (FY25):** GNPA **6.2%**, NNPA **0.7%**, and **Provision Coverage Ratio (PCR) 90.1%**.

## KEY PROPOSALS BY THE RBI

- Restart of Licensing:** A fresh licensing window is proposed, but with **stringent entry norms**, reflecting lessons from past failures.
- Preference to Strong Credit Societies:** Licences will primarily be granted to **large co-operative credit societies** with long operating histories, robust governance, and financial maturity.
- Wider Geographic Footprint:** New UCBs must demonstrate the ability to compete with **Small Finance Banks (SFBs)**, commercial banks, and **NBFCs**, implying scale and diversification.
- Multi-State Bias:** Preference will be given to **multi-state co-operative societies**, though select single-state societies may qualify if they meet footprint criteria.
- Consultative Approach:** Public feedback has been invited until **13 February 2026**, after which detailed draft licensing guidelines may be issued.

## ELIGIBILITY FILTERS FOR NEW LICENCES

- **Minimum Capital:** ₹300 crore as on 31 March of the previous financial year.
- **Track Record:** At least **10 years of operations** and **5 years of sound financial performance**.
- **Performance Trend:** Positive and progressive financial and operational indicators over the last 5 years.
- **Capital Adequacy:** Minimum **12% CAR** at the time of licence grant.
- **Asset Quality:** **NNPA not exceeding 3%**.

## CREDIT SOCIETIES VS URBAN CO-OPERATIVE BANKS

Aspect	Co-operative Credit Societies	Urban Co-operative Banks
Regulator	Registrar of Co-operative Societies	Reserve Bank of India
Deposits	From members only	From general public (as per norms)
Lending	To members only	To members and public

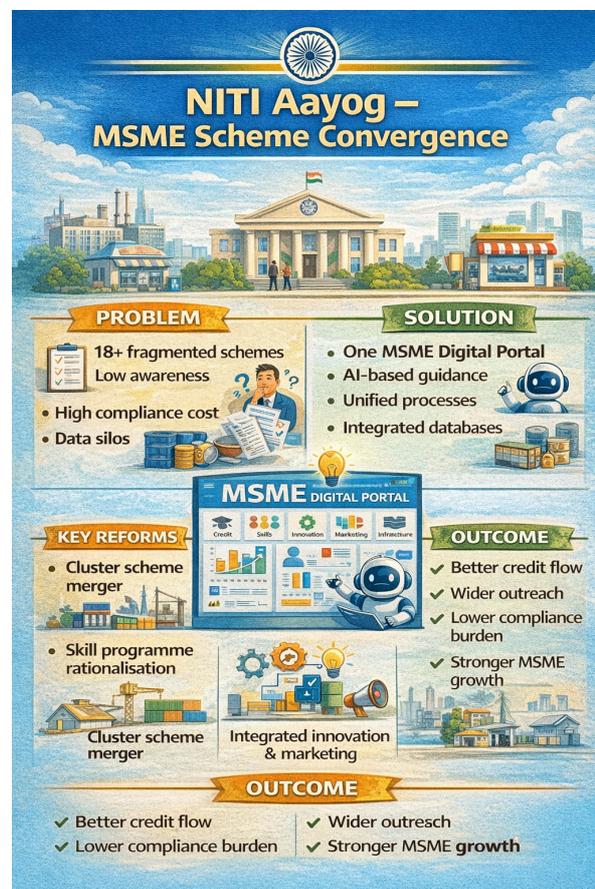
## SIGNIFICANCE OF THE MOVE

The proposal seeks to balance **financial inclusion** with **systemic stability**. Stronger UCBs can deepen last-mile credit delivery while avoiding the governance and solvency issues that plagued earlier entrants. By favouring scale, capital strength, and track record, RBI aims to ensure that new UCBs are **resilient, competitive, and well-supervised**.

## CONCLUSION

Reopening UCB licensing marks a cautious yet forward-looking shift in RBI's approach. If implemented with strict oversight and governance reforms, the move can revitalise the co-operative banking space without repeating past mistakes.

## STREAMLINING MSME SUPPORT: NITI AAYOG'S PUSH FOR SCHEME CONVERGENCE



## CONTEXT

The **NITI Aayog** has released a roadmap to **converge MSME-related schemes** across the Centre and States with the objective of reducing duplication, improving outreach, and strengthening the delivery of **credit, innovation, skills, marketing, and infrastructure support**. The initiative responds to long-standing concerns that fragmented scheme architecture weakens the effectiveness of public spending for India's vast MSME sector.

## CONVERGENCE FRAMEWORK PROPOSED BY NITI AAYOG

- Information Convergence**
  - Integration of **government-generated MSME data** across Centre and States.

- Enables better **targeting, governance, monitoring, and outcome tracking**.
- Reduces data silos and beneficiary duplication.

## 2. Process Convergence

- Alignment of scheme **design and implementation** across ministries.
- Merging of overlapping components and harmonisation of guidelines.
- Simplifies compliance and reduces administrative redundancies.

## WHY SCHEME CONVERGENCE IS NECESSARY

- **Scheme Fragmentation:** The Ministry of MSME alone runs **18 schemes** across credit, skill, marketing, innovation, and infrastructure, while similar schemes exist in other ministries, leading to overlaps.
- **Low Awareness Reach:** Multiple schemes with different entry points reduce discoverability, leaving many eligible MSMEs unsupported.
- **High Compliance Load:** Separate documentation, verification, and reporting requirements increase transaction costs for small firms.
- **Weak Monitoring:** Absence of shared beneficiary databases results in fragmented oversight, leakages, and mis-targeting.

## KEY RECOMMENDATIONS BY NITI AAYOG

### 1. Centralised MSME Digital Portal

- **Unified Window:** An AI-enabled portal integrating all MSME schemes.
- **Smart Support:** AI chatbots, dashboards, and mobile access for real-time guidance and tracking.

### 2. Cluster Scheme Integration

- **SFURTI-MSE-CDP Merger:** Combines traditional industry regeneration with cluster development for scale efficiency.
- **Traditional Industries Sub-Window:** Dedicated support with earmarked funding.

### 3. Skill Programme Rationalisation

- **Three-Tier Model:**
  1. Entrepreneurship & business skills
  2. MSME technical skills
  3. Rural and women artisan training
- Removes overlap while preserving targeted inclusion.

### 4. Marketing Assistance Rationalisation

- **Domestic Wing:** Exhibitions and structured market linkage platforms.
- **Global Wing:** Curated international buyer linkages to promote exports.

### 5. Innovation Scheme Integration

- **ASPIRE Integration:** Subsumed under MSME Innovative as a special agro-rural category.
- **Budget Ring-Fencing:** Existing ASPIRE funds protected; future innovation budgets earmarked.

## SAFEGUARDS BUILT INTO THE FRAMEWORK

- **Targeted Schemes Protected:** National SC/ST Hub and MSME promotion in the North Eastern Region remain intact.
- **Flagship Schemes Standalone:** PMEGP and PM Vishwakarma retained independently due to scale and strategic importance.

## WHY IT MATTERS: MSMES IN THE INDIAN ECONOMY

- **~30% of Gross Value Added (GVA).**
- **~45.7% of India's exports** (FY 2023-24).
- **Employment to 11 crore+ people**, the largest non-farm job creator.
- **~6.3 crore MSMEs**, forming the backbone of decentralised production.

## INDIA'S RISING FISCAL CAPACITY: WHAT A 19.6% TAX-GDP RATIO SIGNALS



## CONTEXT

A recent assessment estimates India's **overall tax-to-GDP ratio at 19.6% in FY2024**, covering both Centre and States. This marks steady improvement in domestic resource mobilisation, reflecting expanding formalisation, improved compliance, and stronger direct tax collections.

## KEY TRENDS

- **Central Gross Tax Revenue:** ~11.2% of GDP in FY24; projected **11.7%** in FY25.
- **Direct Taxes:** Ratio reached a **15-year high of 6.64%** in FY24; likely to rise to **6.7%** in FY25.
- **Tax Buoyancy:** Long-term buoyancy at **1.1**, meaning tax revenues grow slightly faster than nominal GDP.
- **Global Position:** India's ratio is above many emerging economies (e.g., Malaysia, Indonesia) but below the **OECD average (~34%)**.

## UNDERSTANDING THE TAX-TO-GDP RATIO

- **Definition:** Share of total tax revenue in a country's nominal GDP.
- **Formula:** Total Annual Tax Revenue ÷ Nominal GDP.
- **Fiscal Capacity Indicator:** Shows the state's ability to mobilise domestic resources.
- **Economic Signal:** Higher ratios imply a broader tax base and formal economy.
- **Global Benchmark:** The World Bank suggests **15%** as a tipping point for sustainable development.

## POSITIVE IMPLICATIONS

- **Fiscal Stability:** Reduces dependence on borrowing; supports fiscal consolidation.
- **Public Investment:** Enables higher capital expenditure on infrastructure and welfare.
- **Redistributive Role:** Rising direct taxes strengthen progressive redistribution.

## POTENTIAL RISKS

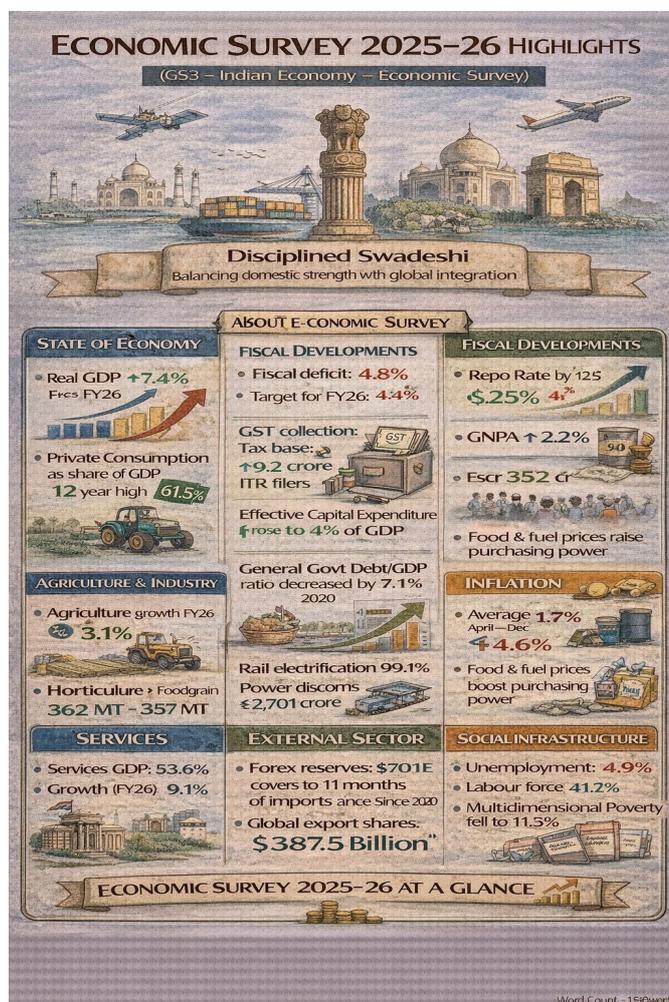
- **Consumption Drag:** Excessive taxation may reduce disposable incomes.
- **Inflationary Effects:** High indirect taxes (GST, excise) can raise prices.
- **Investment Concerns:** Over-taxation could deter investment or trigger capital relocation.

## TAX BUOYANCY EXPLAINED

- **Meaning:** Responsiveness of tax revenue growth to changes in nominal GDP.
- **Formula:** % Change in Tax Revenue ÷ % Change in Nominal GDP.

- **Buoyancy > 1:** Revenue grows faster than the economy due to better compliance or base expansion.
- **Buoyancy < 1:** Collections lag, indicating evasion, exemptions, or informality.
- Sustained buoyancy above 1 gradually raises the tax-to-GDP ratio.

## ECONOMIC SURVEY 2025–26: MAPPING INDIA'S GROWTH WITH DISCIPLINED SWADESHI



## CONTEXT

The **Economic Survey 2025–26** was tabled in Parliament by the Union Finance Minister ahead of the Union Budget 2026. The Survey introduces the core idea of **"Disciplined Swadeshi"**—a calibrated development strategy that rejects inward-looking protectionism while firmly integrating India into global supply chains with domestic strength and competitiveness.

## ABOUT THE ECONOMIC SURVEY

The **Economic Survey of India** is the Ministry of Finance's annual flagship publication that reviews macroeconomic performance over the previous year and presents policy-oriented insights.

- **Prepared by:** Economic Division, Department of Economic Affairs (DEA) under the Chief Economic Advisor
- **Presented since:** 1950–51 (separately from the Budget since 1964)
- **Legal Status:** Non-statutory and non-binding
- **Contents:** Macroeconomic trends, sectoral performance, thematic chapters, and statistical annexures

## KEY HIGHLIGHTS OF ECONOMIC SURVEY 2025–26

### 1. State of the Economy

India remains the **fastest-growing major economy**:

- **Real GDP growth (FY26): 7.4%**
- **FY27 outlook: 6.8–7.2%**
- **Medium-term potential growth** revised upward to **7%**

Growth is increasingly **consumption-driven**:

- **Private Final Consumption Expenditure (PFCE)** rose to a **12-year high of 61.5% of GDP**
- Rural demand improved due to strong agriculture, while urban demand was supported by stable employment

Investment momentum continued:

- **Gross Fixed Capital Formation (GFCF)** grew **7.6%**, sustaining around **30% of GDP**

### 2. Fiscal Developments

Fiscal consolidation progressed alongside growth:

- **Fiscal deficit: 4.8% (FY25); 4.4% target for FY26**
- **Revenue receipts** increased to **9.2% of GDP**, reflecting higher tax buoyancy
- **Direct tax base** expanded to **9.2 crore ITR filers**
- **GST collections** rose **6.7% YoY** to ₹17.4 lakh crore (Apr–Dec 2025)

Quality of expenditure improved:

- **Effective Capital Expenditure** increased to **4.0% of GDP**
- **General Government debt-to-GDP** declined by **7.1 percentage points** since 2020

### 3. Monetary Management and Financial Inclusion

- **RBI policy stance:** Neutral
- **Repo rate** cut by **125 bps** since Feb 2025 to **5.25%**
- **Banking health** improved: **GNPA at a multi-decadal low of 2.2%**

Financial inclusion deepened:

- **PM Jan Dhan Yojana: 55.02 crore accounts**, majority in rural/semi-urban areas
- **Capital market participation** crossed **12 crore investors**, with **women ~25%**

### 4. Inflation and Prices

- **Retail inflation** averaged a historic low of **1.7%** (Apr–Dec 2025), driven by food deflation
- **Core inflation** remained elevated at **4.62%**, largely due to global precious metal prices
- Lower food and fuel inflation boosted **household purchasing power**

### 5. Agriculture and Allied Sectors

- **Agriculture growth (FY26): 3.1%**
- **Horticulture output** (362.08 MT) exceeded foodgrains (357.7 MT) for the second year
- **Fish production** surged **142% in a decade**, reaching **188.7 lakh tonnes**

### 6. Industry and Infrastructure

- **Industrial GVA growth** projected at **6.2%**, led by manufacturing
- **Rail electrification** reached **99.1%** of broad-gauge routes
- India became the **3rd largest domestic aviation market**, with **164 operational airports**
- **DISCOMs** recorded a **positive PAT of ₹2,701 crore** for the first time
- **High-speed highway corridors** expanded to **5,364 km**

### 7. Services Sector

- **Share in GDP: 53.6% (H1 FY26)**
- **Growth (FY26): 9.1%**
- Attracted **over 80% of FDI inflows** (FY23–FY25)
- **Services exports** reached **\$387.5 billion**, ranking **7th globally**

### 8. External Sector

- **Forex reserves: \$701.4 billion**, covering **11 months of imports**
- India's share in global exports: **1.8% (merchandise)** and **4.3% (services)**
- **Remittances: \$135.4 billion** (3.5% of GDP)
- **External debt: \$746 billion**; sovereign external debt **< 5%** of total government debt

### 9. Social Infrastructure and Employment

- **Unemployment rate** declined to **4.9%** (Q3 FY26)
- **Female LFPR** rose to **41.7%**
- **Multidimensional Poverty** reduced to **11.28%**
- **Social sector spending** increased to **7.9% of GDP**
- **e-Shram portal** registered **31+ crore unorganised workers**

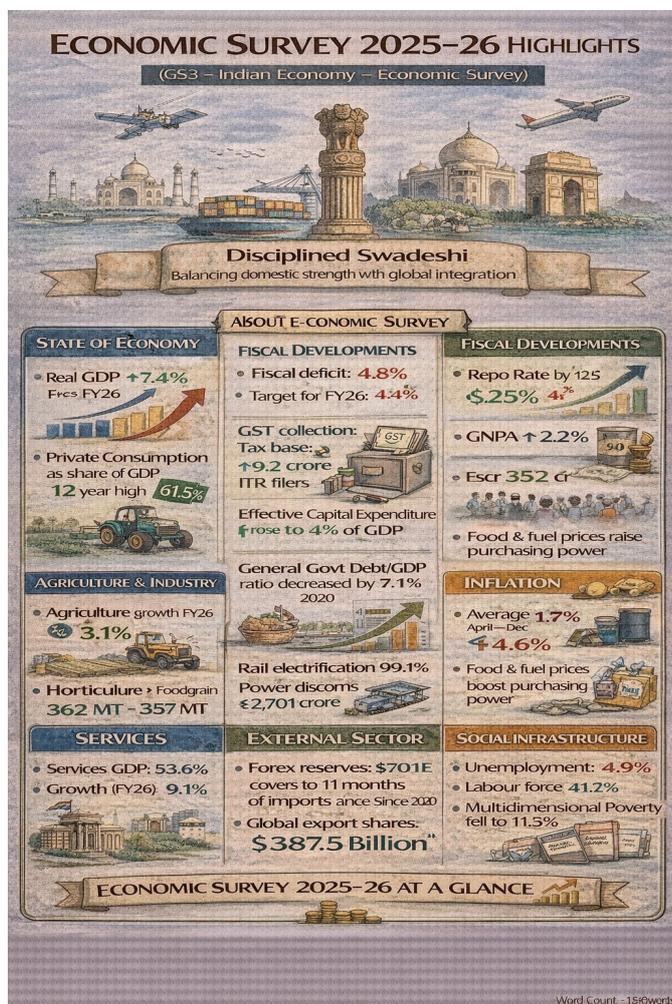
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# SCIENCE & TECHNOLOGY | SPACE | INNOVATION

## GS PAPER 3

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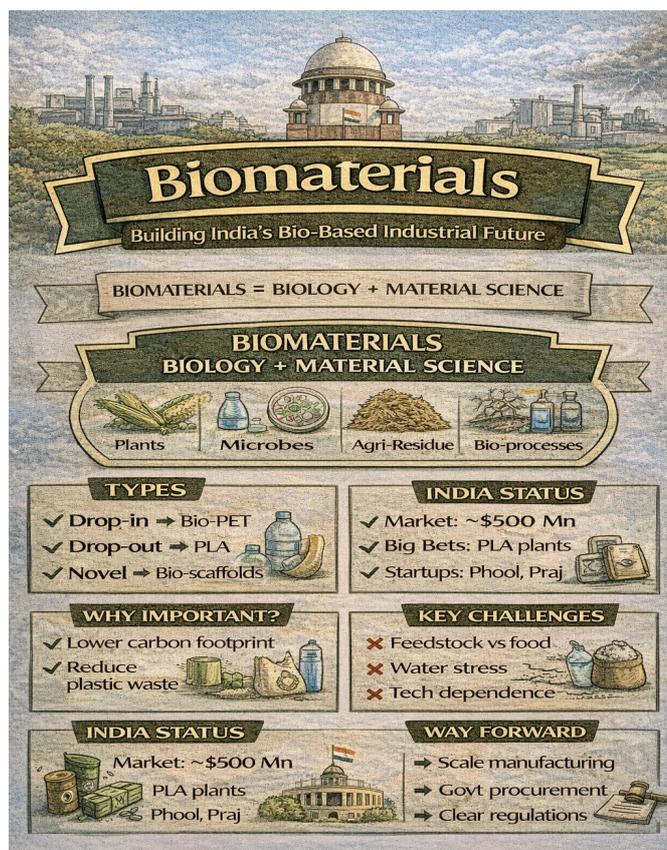
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## BIOMATERIALS: BUILDING INDIA'S BIO-BASED INDUSTRIAL FUTURE



## CONTEXT

As highlighted by *The Hindu*, the global transition towards **low-carbon and circular production systems** has brought **biomaterials** to the forefront as viable alternatives to fossil-based plastics, textiles, and industrial materials. For India, biomaterials represent a convergence of **climate action, industrial competitiveness, and rural income diversification**.

## WHAT ARE BIOMATERIALS?

**Biomaterials** are materials **derived wholly or partly from biological sources** (plants, microbes, agricultural waste) or produced using **biological processes**. They

are designed to **replace or interact with conventional materials** across sectors such as packaging, textiles, construction, agriculture, and healthcare.

## TYPES OF BIOMATERIALS

### 1. Drop-in Biomaterials

- Chemically identical to petroleum-based materials
- Compatible with existing manufacturing and recycling systems
- *Example: Bio-PET*

### 2. Drop-out Biomaterials

- Chemically different; require new processing or disposal systems
- *Example: PLA (Polylactic Acid)*

### 3. Novel Biomaterials

- Offer new functionalities such as **self-healing, bio-activity, or tissue regeneration**
- *Example: Biomedical scaffolds*

## INDIA'S CURRENT STATUS

- **Market Size:** India's bioplastics market is valued at **~USD 500 million (2024)** and is expected to grow rapidly.
- **Major Investments:** **Balrampur Chini Mills' PLA plant in Uttar Pradesh** marks one of India's largest biomaterials projects.
- **Startup Ecosystem:**
  - **Phool.co** – biomaterials from temple waste
  - **Praj Industries** – bioplastics and fermentation demo plants

## WHY BIOMATERIALS MATTER FOR INDIA

- **Environmental Sustainability**
  - Plastics contribute **~3.4% of global GHG emissions**
  - India generates **~4.1 million tonnes of plastic waste annually**
- **Industrial Competitiveness**
  - Global bioplastics market projected at **USD 39–45 billion by 2030**
  - Essential for compliance with **low-carbon trade norms**
- **Farmer Income Diversification**
  - Can valorise **~350 million tonnes of agri-residue annually**, reducing stubble burning
- **Import Substitution**
  - India imports **~85% of petrochemical feedstocks**, exposing industry to global price shocks

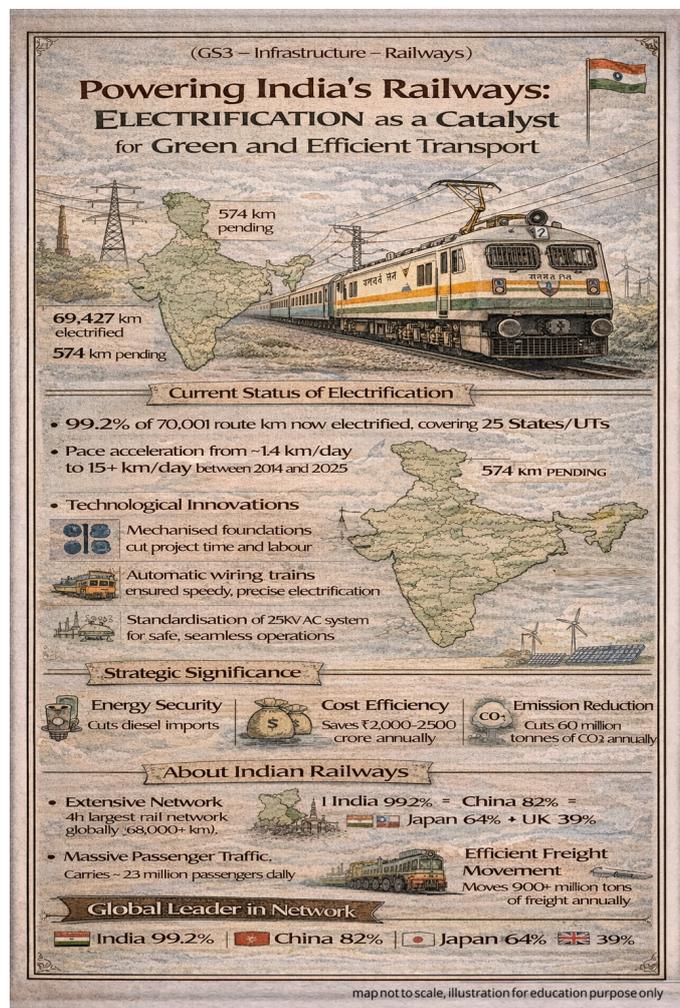
## KEY CHALLENGES

- **Feedstock Competition:** Sugarcane and maize already consume **~70% of freshwater use**
- **Environmental Stress:** Agriculture accounts for **~80% of freshwater withdrawals**
- **Waste-Management Gaps:** Only **~30% of plastic waste is effectively recycled**
- **Technology Dependence:** Over **60% of advanced biopolymer technologies** are imported

## WAY FORWARD

- **Manufacturing Scale-Up:** Expand domestic fermentation and polymerisation capacity
- **Procurement Push:** Use government procurement to create assured demand
- **Regulatory Clarity:** Uniform definitions, labelling, and end-of-life standards

## POWERING INDIA'S RAILWAYS: ELECTRIFICATION AS A CATALYST FOR GREEN AND EFFICIENT TRANSPORT



## CONTEXT

Indian Railways has achieved a historic milestone by electrifying nearly **99.2% of its Broad Gauge network**, emerging as one of the world's largest electrified railway systems. This mission-mode transformation reflects India's commitment to energy security, sustainability, and operational efficiency.

## CURRENT STATUS OF ELECTRIFICATION

With about **69,427 route-km electrified out of 70,001 km**, only around **574 route-km remains pending** across five States, while 25 States and Union Territories have achieved full electrification. The pace of electrification witnessed a sharp rise—from nearly **1.4 km/day (2004–14)** to over **15 km/day between 2019 and 2025**. Nearly **46,900 route-km** was electrified after 2014, accounting for more than two-thirds of the total electrified network today.

## TECHNOLOGICAL INNOVATIONS DRIVING THE MISSION

The transformation has been supported by advanced technologies. **Mechanised cylindrical auger-based foundations** replaced manual excavation, significantly reducing project timelines and labour intensity. **Automatic wiring trains** enabled precise and simultaneous installation of catenary and contact wires, accelerating execution. Standardisation of **25 kV AC electrification systems** across the network has ensured safety, interoperability, and seamless locomotive movement across regions.

## STRATEGIC SIGNIFICANCE

Railway electrification holds deep strategic importance. First, it strengthens **energy security** by reducing dependence on imported diesel, with electric traction costing nearly **70% less per kilometre**. Annual savings of **₹2,000–2,500 crore** in fuel expenditure improve the operating ratio and financial sustainability of Indian Railways.

Second, electrification contributes to **climate goals**, with estimates suggesting a reduction of around **60 million tonnes of CO<sub>2</sub> emissions annually**. The shift also aligns with India's **Net-Zero target by 2070**.

Third, the growing integration of renewable energy has enhanced sustainability. Installed solar capacity reached **898 MW by 2025**, with around **70% directly supporting traction energy requirements**.

Fourth, electrification boosts **operational efficiency**, as electric locomotives offer higher hauling capacity, better acceleration, and faster freight turnaround. This improves line capacity and strengthens India's logistics competitiveness.

Globally, India's electrification level surpasses several major economies, reinforcing its leadership in sustainable railway infrastructure.

## BROADER ROLE OF INDIAN RAILWAYS

Indian Railways remains a backbone of national connectivity. It is among the world's largest railway systems, carrying nearly **23 million passengers daily**. Freight movement has also strengthened, with volumes crossing **900 million tonnes** in FY25. Safety improvements have reduced consequential accidents significantly, though continued focus on human factors and technology remains essential.

## WAY FORWARD

Completing the remaining electrification, expanding renewable power sourcing, and upgrading grid resilience are key priorities. Greater adoption of **hydrogen and battery-based traction**, alongside modern signalling and automation, will further enhance sustainability.

In the long term, electrification will transform Indian Railways into a **low-carbon, cost-efficient, and globally competitive transport system**, supporting inclusive and green economic growth.

## DATA PRIVACY IN THE DIGITAL REPUBLIC: INDIA'S GOVERNANCE CHALLENGE

**International Data Privacy Day & India's Data Protection Imperative**  
GS3 – Cybersecurity

**2026 Theme: "Take Control of Your Data"**

**Why Data Privacy Matters:**

- Fundamental Right**
  - Article 21 – Puttaswamy Case (2017)
- Trust in Digital Governance**
  - OCI are control over personal data

**Global Context**

- Convention 108**
  - World's first data protection treaty.
- 28 January**

**Risks:**

- Data Breaches & Cyberattacks
- AI Misuse & Deepfakes

**India's Digital Scale & Risks**

- ~1 Billion Internet Users** (~70% penetration)
- Ultra-Low Data Cost** Generates Massive Data
- Aadhaar**
  - DPI Aadhaar
  - UPI DigiLocker
- ₹782 crore** allocated for Cybersecurity (2025–26)

**India's Data Protection Framework:**

- IT Act, 2000**
  - Cybercrime & blocking
- IT Rules, 2021**
  - Intermediaries
- DPDP Act, 2023**
  - Personal data law based on SARAL

**India's Data Protection Framework:**

- Privacy by Design**
- Informed Consent**
- Strong Enforcement + Digital Trust**

**Prioritizing robust safeguards to protect citizen data in India's growing digital economy**

–450 words

## CONTEXT

*International Data Privacy Day* (28 January) commemorates the 2006 signing of **Convention 108**, the world's first binding international treaty on data protection. The 2026 theme—“**Take Control of Your Data**”—underscores individual agency and informed consent in an increasingly data-driven economy.

## WHAT IS DATA PRIVACY?

Data privacy refers to an individual's right to control how personal information is collected, processed, stored, and shared. In the digital age, it is a cornerstone of democratic governance, market trust, and national security. In **K.S. Puttaswamy v. Union of India (2017)**, the Supreme Court recognised the **Right to Privacy** as a fundamental right under **Article 21**, placing constitutional limits on state and private data use.

## INDIA'S DIGITAL SCALE AND THE PRIVACY IMPERATIVE

India is the **third-largest digital economy**, with nearly **one billion internet users** and about **70% penetration**. Population-scale Digital Public Infrastructure (DPI)—**Aadhaar, UPI, DigiLocker**—has transformed service delivery but also amplified privacy risks. Ultra-low data costs ( $\approx$  **\$0.10/GB**) have accelerated adoption, generating vast datasets that can be misused for profiling, AI-driven manipulation, and deepfakes.

State digitisation further heightens exposure. Platforms such as **eSanjeevani** (over **44 crore** telemedicine consultations) and **MyGov** (over **6 crore** users) handle sensitive personal data, making robust safeguards indispensable. Recognising these risks, the Union Budget **2025–26** earmarked **₹782 crore** for cybersecurity, signalling the growing salience of data protection in public policy.

Beyond citizen trust, privacy has economic value. Strong data governance improves **investment confidence**, enables cross-border digital trade, and positions Indian firms as credible global partners.

## INDIA'S DATA PROTECTION ARCHITECTURE

India's framework has evolved from sectoral rules to a comprehensive statute:

- **Information Technology Act, 2000:** The parent law for cyber offences and electronic governance; **Section 69A** empowers content blocking for national security.
- **CERT-In:** National nodal agency for cyber incident response and breach advisories.
- **IT Rules, 2021:** Due diligence and grievance redressal obligations for intermediaries to ensure platform accountability.
- **Digital Personal Data Protection (DPDP) Act, 2023:** India's first comprehensive personal data law, built on the **SARAL** principle—*Simple, Accessible, Rational, Actionable*. It emphasises lawful purpose, consent, data minimisation, and accountability.
- **DPDP Rules, 2025:** Operationalise enforcement, timelines, and compliance processes.
- **Data Protection Board of India (DPBI):** A digital-first regulator for complaint filing and adjudication; appeals lie with **TDSAT**.

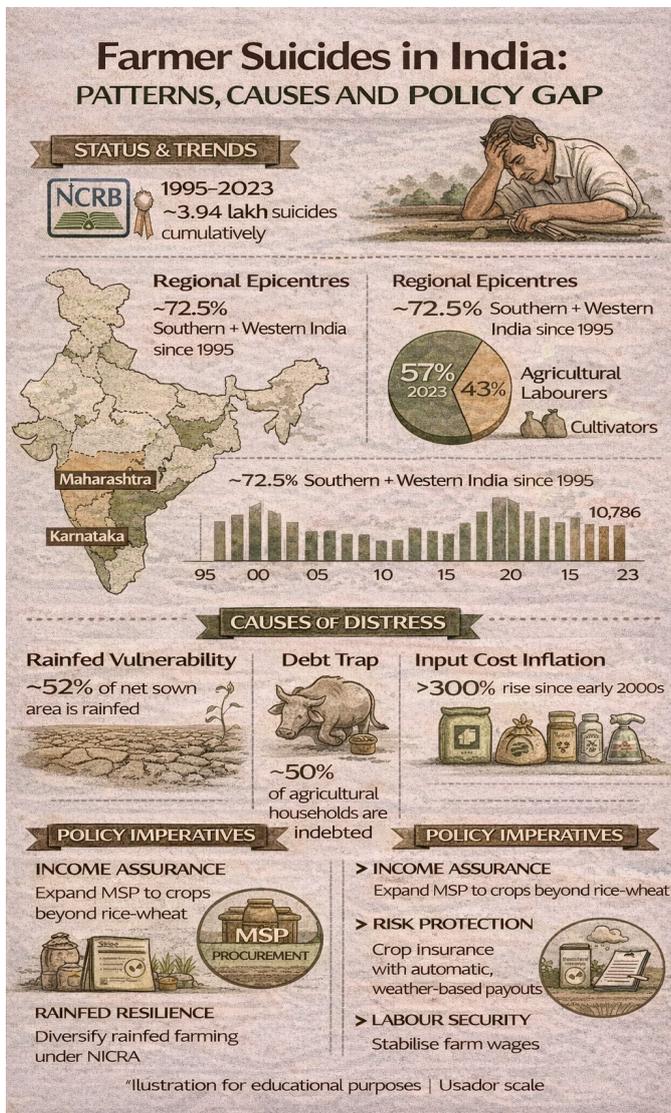
## THE ROAD AHEAD

As India's digital footprint expands, data protection must move from compliance to culture. Empowering users with meaningful consent, strengthening institutional capacity, and aligning innovation with privacy-by-design will be critical. International Data Privacy Day is a reminder that safeguarding personal data is not merely a legal obligation—it is central to sustaining India's digital transformation with trust and constitutional fidelity.

# ENVIRONMENT & ECOLOGY

## GS PAPER 3

### FARMER SUICIDES IN INDIA: PATTERNS, CAUSES AND POLICY GAP



#### CONTEXT

A 28-year analysis of NCRB data (1995–2023) reveals that farmer suicides in India remain a **persistent, regionally concentrated crisis**, with a **sharp resurgence in 2023** after nearly a decade of decline. The pattern underscores deep structural vulnerabilities in Indian agriculture that welfare measures have only partially mitigated.

#### SCALE AND LONG-TERM TRENDS

Between 1995 and 2023, **about 3.94 lakh farmers and agricultural labourers** died by suicide—an average of **~13,600 deaths annually**. The crisis peaked during **2000–2009**, accounting for nearly **1.54 lakh deaths**, with **2002** recording the highest single-year toll (17,971). After 2010, suicides declined steadily, coinciding with expanded rural wage employment. However, **2023 marked a reversal**, with **10,786 suicides**, a **~75% jump over 2022**. Notably, the profile has shifted: **agricultural labourers (6,096)** now outnumber **cultivators (4,690)**, signalling distress beyond landholding farmers.

#### REGIONAL CONCENTRATION

The crisis is geographically skewed. **Maharashtra (4,151)** and **Karnataka (2,423)** together accounted for the largest share in 2023. Over the long term, **southern and western India contribute ~72.5%** of total farmer suicides. **Andhra Pradesh and Telangana** together have recorded **~1.7 lakh deaths** over 28 years, reflecting chronic vulnerability in rainfed, cash-crop-dependent regions.

#### ROLE OF WELFARE INTERVENTIONS

Post-2010 declines align with welfare expansion, especially **MGNREGA**, which provided alternative income during agrarian stress. Some states demonstrated sharp turnarounds: **Kerala** reduced suicides from **1,118 (2005)** to **105 (2014)**, and **West Bengal** reported zero cases by 2012—highlighting the importance of **income smoothing and social protection**.

#### STRUCTURAL DRIVERS OF DISTRESS

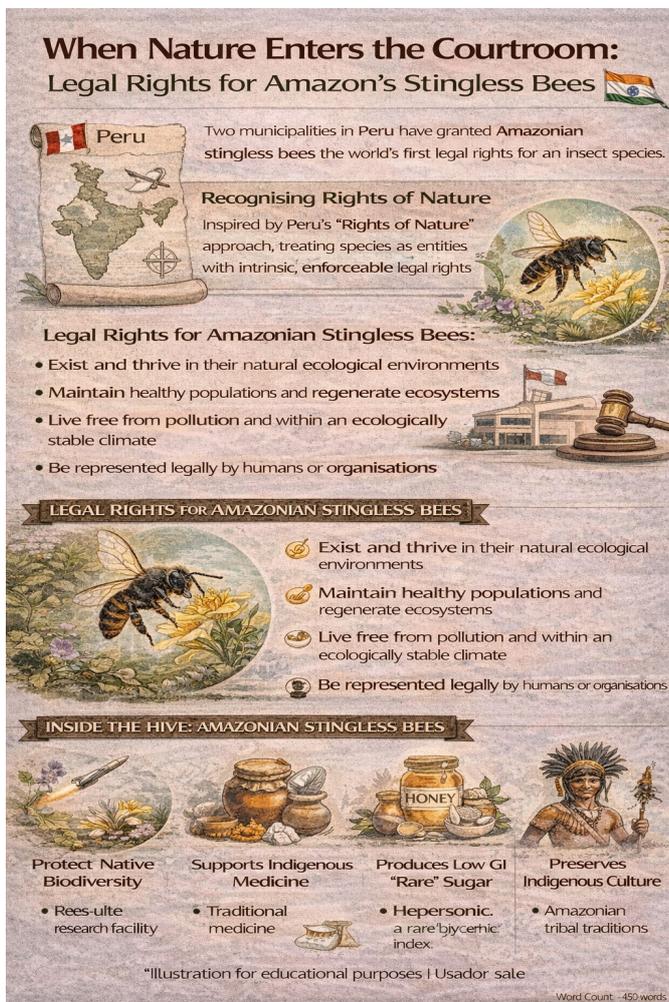
- **Rainfed Vulnerability:** ~52% of India's net sown area is rainfed, disproportionately linked to suicides.
- **Debt Trap:** ~50% of agricultural households are indebted; average debt exceeds ₹74,000.
- **Trade Exposure:** Post-1990s liberalisation reduced income support amid rising import competition.
- **Input Cost Inflation:** Fertiliser, seed, and pesticide costs rose >300% since the early 2000s, while real farm incomes stagnated.

#### WAY FORWARD

- **Income Assurance:** Expand MSP procurement beyond rice-wheat; pilot **price-deficiency payments**.

- **Risk Protection:** Reform **PM Fasal Bima Yojana** with automatic, weather-triggered payouts.
- **Rainfed Resilience:** Scale **integrated farming systems** (millets–pulses–livestock) under **NICRA** in cotton belts.
- **Labour Security:** Stabilise wages for agricultural labourers; replicate **Kerala’s Ayyankali Employment Guarantee** during lean seasons.

## WHEN NATURE ENTERS THE COURTROOM: LEGAL RIGHTS FOR AMAZON’S STINGLESS BEES



### CONTEXT

In a landmark step for environmental jurisprudence, **Peru** has become the first country where **insects have been granted explicit legal rights**. Two municipalities in the Amazon region passed ordinances recognising **Amazonian stingless bees** as rights-bearing entities, marking a new chapter in the global **Rights of Nature** movement. This builds on Peru’s 2024 national law that recognised stingless bees as a **native species of national interest**.

### RIGHTS OF NATURE: A NEW LEGAL LENS

The Rights of Nature framework treats ecosystems and species as **living entities with intrinsic rights**, rather than as property. Similar approaches exist for rivers and forests in countries like Ecuador and New Zealand, but **Peru’s ordinance is the first globally to extend legal personhood-like protections to an insect species**.

### RIGHTS GRANTED TO AMAZONIAN STINGLESS BEES

The municipal ordinances guarantee that stingless bees have the right to:

- **Exist and thrive** in their natural ecological environments
  - **Maintain healthy populations** and regenerate ecological cycles
  - **Live in pollution-free habitats** under a stable climate
  - **Legal representation**, allowing individuals or organisations to approach courts on their behalf
- This shifts conservation from discretionary protection to **legally enforceable duty**.

### ABOUT AMAZONIAN STINGLESS BEES

Amazonian stingless bees belong to the ancient bee tribe **Meliponini**, one of the oldest pollinator lineages.

- **Keystone pollinators:** They pollinate **over 80% of Amazon rainforest flora**.
- **Defence without a sting:** Their stinger is vestigial; they defend using bites, sticky resins, or caustic secretions.
- **Distinct nesting:** Brood cells are arranged in spirals, layers, or clusters, unlike uniform honeycomb structures.
- **Pot honey:** Stored in resin pots, this honey has a **sweet-sour taste**, higher water content, and **antibacterial, antiviral, and anti-inflammatory** properties.
- **Global distribution:** Found across tropical regions, with the **Neotropics** being the richest; **Peru alone hosts ~175 of the world’s 500 species**.
- **Eusocial life:** Colonies have a single queen and a strict division of labour.
- **Threats:** Deforestation, pesticides, forest fires, overgrazing, and climate change.

### WHY THESE BEES MATTER

- **Agriculture:** Efficient pollinators of coffee, cacao, avocado, and açai.
- **Traditional medicine:** Indigenous communities use pot honey for respiratory ailments, wound healing, and eye disorders.

- **Nutritional innovation:** Some species produce **trehalulose-rich honey**, a rare sugar with a low glycaemic index.
- **Cultural value:** Central to Amazonian indigenous myths and spiritual traditions.

**SIGNIFICANCE**

Granting legal rights to stingless bees reframes conservation as **justice for nature**, strengthens accountability against ecological harm, and may inspire similar protections for pollinators worldwide—critical at a time of accelerating biodiversity loss.

**FROM WASTE TO WEALTH:  
INDIA'S SHIFT TOWARDS A  
CIRCULAR ECONOMY**



**CONTEXT**

India's rapid urbanisation and consumption-led growth have stretched its linear "take-make-dispose" waste management model to the brink. Transitioning to a **circular waste management model**, where waste is minimised, reused, recycled, and converted into resources, is now essential for environmental sustainability, resource security, and green growth.

**INDIA'S WASTE MANAGEMENT LANDSCAPE**

India generates nearly **1.70 lakh tonnes of municipal solid waste daily**, projected to touch **165 million tonnes annually by 2030**. However, only **55–70%** of collected waste is scientifically processed, leaving over **16 crore tonnes of legacy waste** across **2,450 active dumpsites**.

The challenge is magnified by sectoral waste streams. India ranks **third globally in e-waste generation**, with volumes rising **15–20% annually**. Around **150 million tonnes of construction and demolition (C&D) waste** are generated each year, often dumped illegally. Plastic waste, estimated at **9 million tonnes annually**, is dominated by single-use plastics, creating persistent ecological risks.

**LEGAL AND POLICY FRAMEWORK**

The Constitution empowers urban local bodies under **Article 243W** to manage sanitation and solid waste, while **Article 51A(g)** places a fundamental duty on citizens to protect the environment.

The **Environment (Protection) Act, 1986** acts as the umbrella law for waste governance. Key rules include:

- **Solid Waste Management Rules, 2016:** mandate source segregation into wet, dry, and hazardous waste.
- **Construction and Demolition Waste Management Rules, 2025:** introduce Extended Producer Responsibility (EPR) and recycling targets.
- **Plastic Waste Management Amendment Rules, 2025:** mandate QR-based digital tracking and minimum recycled-plastic content.

**WHY A CIRCULAR MODEL MATTERS**

A circular economy can unlock **₹3.5 trillion annually by 2030** and generate **10 million green jobs by 2050**. Material recovery from e-waste, batteries, and end-of-life vehicles reduces dependence on imported raw materials and critical minerals.

Processing **50% of wet waste through bio-methanation** can generate **₹2,460 crore annually** while cutting over **10 million tonnes of CO<sub>2</sub>-equivalent emissions**. Scientific remediation of dumpsites can free **10,000+ hectares of urban land**, while **Refuse-Derived Fuel (RDF)** can replace **10–30% of fossil fuels** in industries. Recycling C&D waste conserves virgin minerals and lowers infrastructure costs.

**KEY CHALLENGES**

Despite its promise, the circular transition faces hurdles. **NITI Aayog** estimates an investment need of **USD 50–80 billion** over the next decade, beyond the capacity of most municipalities. Policy fragmentation across ministries weakens enforcement, while low user charges and volatile recycled-material prices undermine financial viability.

Further, nearly **90% of waste handling** is done by informal workers without legal protection, and rising consumerism erodes traditional repair-and-reuse practices.

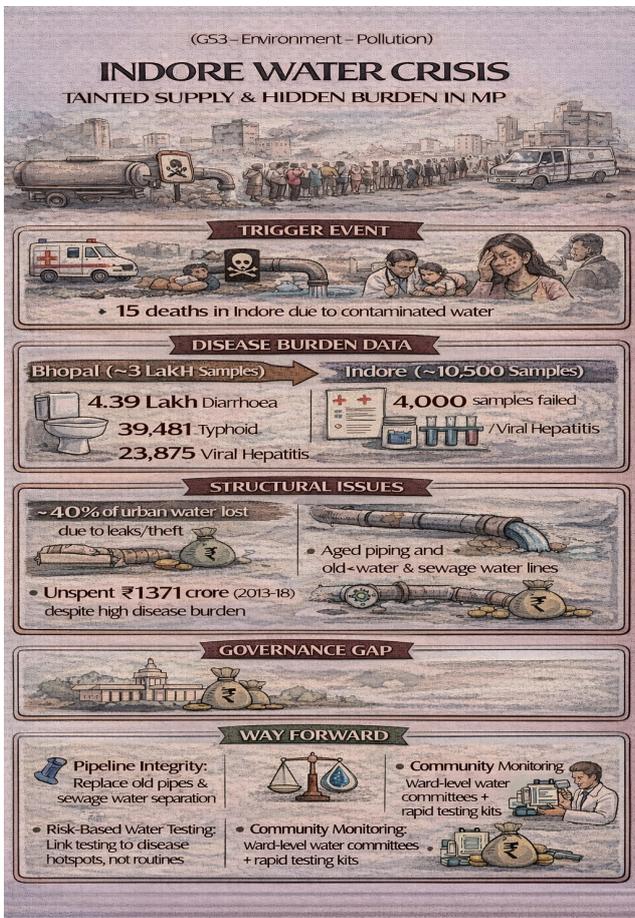
**GOVERNMENT INITIATIVES**

- **Swachh Bharat Mission (Urban) 2.0:** remediation of **2,400+ dumpsites** by October 2026.
- **Cities Coalition for Circularity (C-3):** city-level collaboration platform.
- **GOBAR-dhan Scheme:** converts biodegradable waste into CBG and manure.
- **Extended Producer Responsibility (EPR):** shifts recycling costs to producers.
- **Mission LiFE:** promotes sustainable lifestyles.
- **Waste to Wealth Mission:** deploys technologies for resource recovery.

**CONCLUSION**

A circular waste economy is not merely an environmental imperative but a strategic pathway for India's urban resilience, climate action, and economic transformation.

**INDORE WATER CRISIS:  
CONTAMINATED SUPPLY  
AND THE HIDDEN BURDEN IN  
MADHYA PRADESH**



**CONTEXT**

Recent reports of **15 deaths in Indore due to contaminated water** have triggered public outrage and renewed focus on urban water governance. However, audit findings reveal that **Bhopal has suffered a far deeper and long-running burden of waterborne diseases**, reflecting systemic weaknesses in drinking water quality management in Madhya Pradesh.

**WATERBORNE DISEASE BURDEN IN MADHYA PRADESH**

According to audit observations, between **2013–2018**, Indore and Bhopal together reported over **5.45 lakh cases of waterborne diseases**. Alarming, **Bhopal alone accounted for nearly 4 lakh severe diarrhoea cases**, highlighting a chronic public health crisis.

**Bhopal's disease profile (CAG, 2019):**

- **4.39 lakh diarrhoea cases**
- **39,481 typhoid cases**
- **23,875 viral hepatitis cases**

These numbers far exceed Indore's reported burden, indicating that water contamination is not an isolated event but a persistent urban governance failure.

**NATIONAL BURDEN OF WATERBORNE DISEASES**

India faces a massive annual disease load due to unsafe water:

- Around **37.7 million Indians** are affected by waterborne diseases every year.
- Historically, about **1.17 lakh children under five** died annually from diarrhoea linked to poor sanitation and unsafe drinking water.
- The economic burden is severe, causing nearly **73 million lost workdays annually** and losses estimated at **\$600 million per year**.

Thus, urban water safety is not only a health issue but also an economic productivity challenge.

**WHY MADHYA PRADESH IS FACING A WATER CRISIS**

**1. Testing–Disease Contradiction**

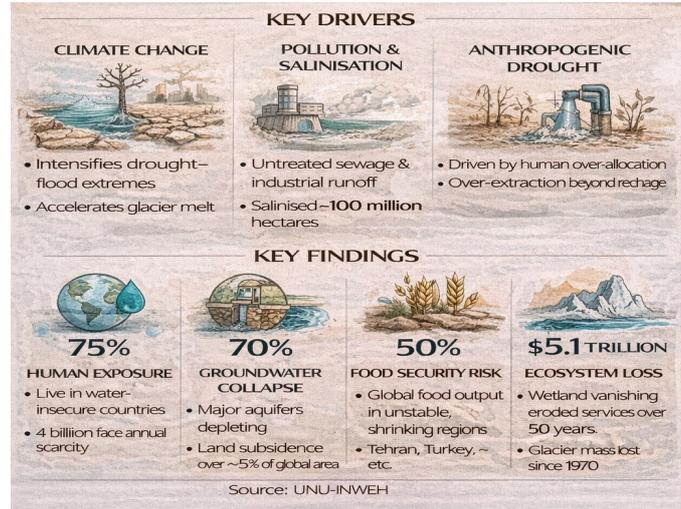
A major contradiction emerges between water testing records and disease burden:

- **Bhopal tested around 3 lakh water samples (2013–18)** with relatively fewer failures, yet recorded far higher disease incidence.
- In contrast, **Indore tested only ~10,500 samples**, but nearly **4,000 failed quality standards**, showing a high failure rate.

Further, joint samples tested by the **State Research Laboratory (2018)** reportedly detected **faecal coliform counts of 30–60**, while the **BIS drinking water norm is zero**. Both municipal corporations allegedly denied these findings, reflecting weak transparency.

**2. Structural and Governance Failures**

- **Ageing pipelines** and overlap between sewage and drinking water lines increase faecal contamination risks.
- Urban India loses nearly **40% of water as Non-Revenue Water**, often due to leakage and theft.
- An accountability gap is visible as **₹1,371 crore remained unspent** by Indore and Bhopal municipal bodies (2013–18), despite high disease prevalence.



**WAY FORWARD**

- **Pipeline Integrity:** Replace old pipelines and ensure sewage-water separation.
- **Risk-Based Surveillance:** Link testing to disease hotspots instead of routine sampling.
- **Community Monitoring:** Ward-level water committees and rapid test kits can improve accountability.

**CONCLUSION**

The Indore tragedy is a warning sign of deeper systemic issues in urban water governance. Madhya Pradesh requires urgent reforms in infrastructure, surveillance, and transparency to prevent recurring waterborne disease outbreaks.

**WHEN WATER DEBT TURNS INSOLVENT: UNDERSTANDING GLOBAL WATER BANKRUPTCY**

**When Water Debt Turns Insolvent: Understanding Global Water Bankruptcy**

**CONTEXT:** UNU-INWEH report warns that unsustainable water use has pushed the world into “global water bankruptcy.”

**GLOBAL WATER BANKRUPTCY**

- Chronic condition where water use & pollution exceed renewable inflows
- Irreversible hydrological damage prevents rivers, aquifers, lakes & glaciers from recovering
- Unlike temporary stress, implies long-term, systemic collapse

**CONTEXT**

A recent report by the **United Nations University – Institute for Water, Environment and Health (UNU-INWEH)** warns that the world has entered a phase of **“global water bankruptcy”**, where long-term water use and contamination exceed nature’s capacity to replenish freshwater systems.

**WHAT IS GLOBAL WATER BANKRUPTCY?**

- A chronic condition where **water withdrawals and pollution surpass renewable inflows**, preventing rivers, aquifers, lakes, and glaciers from recovering to historical baselines.
- Unlike temporary water stress, water bankruptcy implies **irreversible hydrological damage** without structural reforms.

**KEY DRIVERS OF GLOBAL WATER BANKRUPTCY**

- 1. Climate Change**
  - Intensifies **drought–flood extremes**, disrupting recharge cycles of rivers, aquifers, and glaciers.
  - Accelerated glacier melt reduces long-term freshwater storage.
- 2. Pollution and Salinisation**
  - Untreated sewage, industrial effluents, and agricultural runoff contaminate surface and groundwater.
  - Over-irrigation and sea-level rise have salinised **~100 million hectares** globally.
- 3. Anthropogenic Drought**
  - Scarcity driven by **human over-allocation and mismanagement**, not natural rainfall deficiency.
  - Over-extraction of groundwater beyond sustainable recharge limits.

## KEY FINDINGS OF THE UNU-INWEH REPORT

- **Human Exposure:** Nearly **75% of the global population** lives in water-insecure countries; **4 billion people** face water scarcity for at least one month annually.
- **Groundwater Collapse:** Around **70% of major aquifers** are depleting, causing land subsidence over **~5% of global land area**.
- **Food Security Risk:** Over **50% of global food production** occurs in regions with unstable or declining water storage.
- **Ecosystem Loss:** About **410 million hectares of wetlands** have disappeared in 50 years, eroding ecosystem services worth **\$5.1 trillion**.
- **Glacial Decline:** Global glaciers have lost **over 30% of their mass since 1970**.
- **Urban “Day Zero” Threats:** Cities such as **Tehran** and parts of **Turkey** face abrupt municipal water failures.
- **Regional Hotspots:** Highest irreversible risks lie in **MENA, Central-South Asia, South-West US-Northern Mexico, Southern Africa, and Australia**.
- **India’s Status:** India is among the most critically affected nations, transitioning from episodic stress to **persistent hydrological deficit**.

## KEY RECOMMENDATIONS

**New Water Governance Agenda:** Shift from short-term crisis responses (e.g., deeper borewells) to restructuring water rights and claims.

**Agricultural Reform:** Move away from water-intensive crops in arid regions and promote **100% wastewater reuse** within a circular water economy.

**Natural Infrastructure Protection:** Treat forests, wetlands, and floodplains as **critical water infrastructure**, not expendable land.

**Global Hydrological Monitoring:** Establish an international framework to track **“hydrological debt”** and prevent systemic collapse.

## CONCLUSION

Global water bankruptcy signals that humanity has crossed a hydrological tipping point. Without structural reforms in water governance, agriculture, and ecosystem protection, freshwater scarcity may become **economically, socially, and ecologically irreversible**.

## HEALTH IMPACTS OF PLASTICS: A GROWING GLOBAL PUBLIC HEALTH CHALLENGE



## CONTEXT

A global lifecycle assessment published in *The Lancet Planetary Health* has issued a strong warning that **plastic-related emissions are emerging as a major public health threat**. By quantifying health impacts across the entire plastics lifecycle—extraction, production, use, disposal, and open burning—the study highlights the scale and urgency of plastic pollution beyond environmental damage.

## KEY FINDINGS OF THE STUDY

- **Doubling of Health Burden:** Under business-as-usual trends, plastic-related emissions are projected to cause **more than a twofold increase in Disability-Adjusted Life Years (DALYs) by 2040**, indicating severe population-level health impacts.
- **Delayed Production Peak:** Global plastic production is **unlikely to peak before 2100**, prolonging exposure to toxic emissions and increasing cumulative health risks.

- **First Global Lifecycle Estimate:** The study provides the **first comprehensive global quantification** of health impacts across the entire plastics lifecycle using DALYs as a common metric.
- **Chemical Opacity:** Lack of transparency and non-disclosure of plastic chemical compositions limits accurate health risk assessment and weakens evidence-based policymaking.

### DALYS EXPLAINED

Disability-Adjusted Life Years (DALYs) combine **years of life lost due to premature death** and **years lived with illness or disability**, capturing the total health burden on society.

### MAJOR HEALTH IMPACTS IDENTIFIED

- **Air Pollution Exposure:** Plastic production and open burning release fine particulate matter (PM<sub>2.5</sub>), increasing risks of **asthma, chronic respiratory diseases, cardiovascular disorders, and premature mortality.**
- **Toxicity-Induced Illnesses:** Hazardous chemicals such as additives, stabilisers, and by-products released throughout the plastics lifecycle are linked to **cancers, endocrine disruption, and long-term non-communicable diseases.**

### KEY RECOMMENDATIONS BY THE LANCET STUDY

- **Reduce Virgin Plastic Production:** Advocates deep cuts in **primary (new) plastic manufacturing**, especially for non-essential and single-use products.
- **Adopt Full Lifecycle Policies:** Urges governments to regulate plastics **from fossil fuel extraction to disposal and environmental leakage.**
- **Ensure Chemical Transparency:** Calls for **mandatory disclosure of chemical compositions** to strengthen health risk assessments and regulatory frameworks.
- **Global Coordinated Action:** Emphasises fast-tracking a **legally binding Global Plastics Treaty** to address pollution and associated health impacts worldwide.

### SIGNIFICANCE

The findings reposition plastic pollution as a **public health emergency**, not merely an environmental concern. By linking plastics to rising disease burdens, the study strengthens the case for **preventive regulation, international cooperation, and sustainable material transitions**, aligning environmental protection with human health outcomes.

## SOLID WASTE MANAGEMENT RULES, 2026: STRENGTHENING INDIA'S WASTE GOVERNANCE FRAMEWORK



### CONTEXT

The Ministry of Environment, Forest and Climate Change (MoEFCC) has notified the **Solid Waste Management (SWM) Rules, 2026**, replacing the SWM Rules, 2016. Notified under the **Environment (Protection) Act, 1986**, the rules will come into full effect from **1 April 2026**. They aim to address persistent challenges of poor segregation, landfill overuse, legacy waste, and weak enforcement in urban waste management.

### KEY PROVISIONS OF SWM RULES, 2026

#### 1. Waste Management Measures

- **Four-stream source segregation** made mandatory: *wet, dry, sanitary, and special care (domestic hazardous) waste.*
- **Landfill restrictions:** Only non-recyclable, non-energy-recoverable waste and inert material permitted.
- **Landfill disincentives:** Higher tipping fees for unsegregated waste compared to segregated waste processing.
- **Legacy waste management:** Mandatory mapping of all dumpsites with **time-bound biomining and bioremediation**, supported by **quarterly progress reports.**
- **Extended Bulk Waste Generator Responsibility (EBWGR):** Bulk generators must process wet waste on-site or possess certified off-site processing arrangements.
  - **Bulk Waste Generator definition:**
    - ◆ Built-up area > **20,000 sq. m**, or
    - ◆ Water use > **40,000 litres/day**, or

- ◆ Waste generation > **100 kg/day**.
  - **Material Recovery Facilities (MRFs)** formally recognised for sorting recyclables and handling special waste streams, including e-waste.
  - **Refuse-Derived Fuel (RDF) mandate:** Industrial units using solid fuel must substitute part of it with RDF.
    - **Target:** Increase RDF use from **5% to 15% within six years**.
  - **Hotels and restaurants** in ecologically sensitive areas must adopt **decentralised wet waste processing**.
- 2. Monitoring and Enforcement**
- **Polluter Pays Principle** operationalised through **Environmental Compensation (EC)** for violations such as false reporting and unregistered operations.
  - **Digital governance:** A centralised online portal for waste tracking, facility registration, and audit reporting.
  - **Scientific land-use planning:** Graded land allocation and buffer zones for waste facilities.
    - **CPCB** to issue buffer-zone guidelines for plants exceeding **5 tonnes/day capacity**.

- **Annual landfill audits** by SPCBs under the oversight of **District Collectors**.
- **State-level Committee**, chaired by the **Chief Secretary**, to supervise implementation.
- **Tourist user fees** permitted in hilly and island regions to manage waste pressure.
- **Carbon credits:** Urban local bodies encouraged to generate credits through efficient waste management.

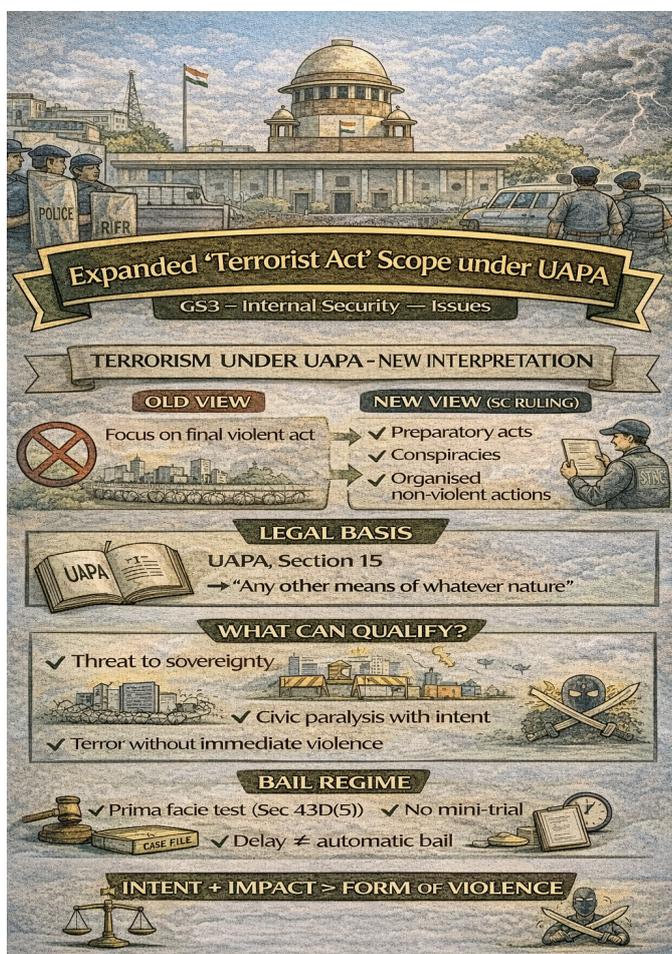
## SIGNIFICANCE

The SWM Rules, 2026 mark a shift from disposal-centric practices to **resource efficiency and circular economy principles**. Mandatory segregation and RDF utilisation reduce landfill dependency and fossil fuel use. Stronger enforcement through environmental compensation enhances **institutional accountability**, while decentralised processing lowers the burden on Urban Local Bodies. Digital monitoring improves transparency, making the waste lifecycle more traceable and outcomes-oriented.

# SECURITY & DISASTER MANAGEMENT

## GS PAPER 3

### BROADENED SCOPE OF 'TERRORIST ACT' UNDER UAPA



#### CONTEXT

As reported by *The Hindu*, the **Supreme Court of India** has recently expanded the interpretation of a "terrorist act" under the **Unlawful Activities (Prevention) Act, 1967 (UAPA)**. The Court clarified that terrorism is not limited to the final act of violence alone but also includes **preparatory, conspiratorial, and organised non-violent actions** that are deliberately designed to threaten national security or create widespread terror.

#### UNLAWFUL ACTIVITIES (PREVENTION) ACT, 1967 (UAPA): KEY FEATURES

- **Primary Anti-Terror Law:** UAPA is India's principal legislation to counter threats to sovereignty, integrity, and security.

- **Investigating Agency:** The **National Investigation Agency (NIA)** has nationwide jurisdiction over UAPA offences.
- **Search & Seizure Powers:** Post-2019 amendment, investigating officers need sanction only from the **Director General, NIA**, not State DGPs.
- **Terrorist Designation:** The Central Government can designate **both organisations and individuals** as terrorists.
- **Stringent Bail Regime:** Under **Section 43D(5)**, bail is denied if accusations appear *prima facie* true.
- **Extended Detention:** Detention without charge-sheet can extend up to **180 days**, unlike the 60-90 days under CrPC.

#### WHAT CONSTITUTES A TERRORIST ACT?

##### Under UAPA (Section 15)

A terrorist act is one committed with intent to:

- **Threaten India's unity, integrity, security, or sovereignty**, or
- **Strike terror among people** in India or abroad.

The act may be executed using weapons, hazardous substances, or "any other means of whatever nature".

##### Under Bharatiya Nyaya Sanhita (BNS), 2023

- **Section 113** codifies terrorism as a distinct offence.
- Covers acts intended to **intimidate the public**, disrupt public order, or damage **critical infrastructure and economic security**.
- **Police Discretion:** An SP-level officer may choose whether to invoke **BNS or UAPA**, depending on the case.

#### SUPREME COURT'S JURISPRUDENCE ON TERRORISM

- **Motive Test (Hitendra Vishnu Thakur):** Terrorism is distinguished from ordinary crime by the intent to overawe the State or terrorise society.
- **Beyond Law and Order:** Acts must threaten national unity or sovereignty, not merely disturb public order.
- **Membership Rule (Arup Bhuyan - Review, 2023):** Mere membership of a banned organisation can attract liability, even without overt violence.

#### BROADENING THE SCOPE: RECENT RULING

- In the **Gulfisha Fatima case**, the Court held that **organised preparatory actions** can constitute a terrorist act.

- **Non-Violent Terror:** Planned acts like coordinated road blockades or civic paralysis may qualify as terrorism if part of a conspiracy to disrupt State functions.
- The phrase **“any other means”** allows inclusion of non-violent but strategically coercive actions.

### BAIL AND LEGAL CONSEQUENCES

- **Hierarchy of Participation:** Courts must assess the *individual role*—peripheral actors may be considered for bail more readily than masterminds.
- **Delay Not Automatic Bail:** Mere passage of time does not justify bail.
- **Article 21 Safeguard:** Bail on grounds of delay is allowed only when detention becomes **constitutionally impermissible** (K.A. Najeeb, 2021).
- **No Mini-Trial Rule:** At the bail stage, courts cannot evaluate evidence or defence merits.

## INDIA'S BHAIRAV BATTALIONS: INSTITUTIONALISING NEXT-GENERATION LAND WARFARE

**Bhairav Battalions**  
India's Next-Gen Combat Units

**ROLE & STRUCTURE**

- HIGH-SPEED OFFENSIVE UNITS**  
Built from global conflicts & Indian border experience
- SPECIAL OPS CAPABILITY**  
Execute hybrid-warfare tasks in all environments
- BRIDGE FORCE**  
• Bridging gap between Para-SF and regular infantry

**DRONE-CENTRIC DOCTRINE**

- 1+ LAKH DRONE OPERATORS**  
Trained to deploy drones in real combat
- Sensor-shooter integration for precision targeting

**STRATEGIC PURPOSE**

- HYBRID WARFARE READINESS**  
Cyber, drones, proxies, state & non-state
- FORCE MULTIPLIER**  
Expands Special Ops beyond elite units
- DETERRENCE SIGNAL**  
Parade debut signals institutionalising new doctrines
- OPERATIONAL FLEXIBILITY**  
Deserts, plains, & semi-urban areas

**FORCE EXPANSION**

Currently 15 **BHAIRAV BATTALIONS** Raised → ~25 **BATTALIONS** Planned

Source: Indian Army

### CONTEXT

The Indian Army's newly raised **Bhairav Battalions**, also known as *Desert Falcons*, will make their ceremonial debut at the **Army Day Parade on January 15, 2026, in Jaipur**. Their public unveiling signals a doctrinal shift towards agile, technology-driven and hybrid warfare capabilities.

### WHAT ARE BHAIRAV BATTALIONS?

Bhairav Battalions are **high-mobility offensive infantry units** designed to operate across conventional, sub-conventional and grey-zone conflict environments. They are conceptualised from lessons drawn from recent global conflicts, including Ukraine, West Asia, and India's own operational experience along the western and northern borders.

Unlike traditional infantry formations, these battalions are structured to execute **Special Forces-like missions** while remaining embedded within the regular Army framework. This positions them as a **bridge force** between the elite Para (Special Forces) units and standard infantry battalions, enabling wider dissemination of advanced combat capabilities.

### KEY OPERATIONAL FEATURES

A defining feature of the Bhairav Battalions is their **drone-centric doctrine**. The Indian Army is developing a cadre of over **one lakh drone-trained personnel**, enabling real-time surveillance, target acquisition, loitering munitions deployment, and battlefield situational awareness. This reflects a shift from manpower-intensive operations to **sensor-shooter integration**.

The battalions are optimised for **rapid deployment**, high-speed manoeuvre, and decentralised command structures—essential for modern battlefields characterised by information dominance and precision strikes.

### STRATEGIC SIGNIFICANCE

- **Hybrid Warfare Readiness:** Enhances India's ability to counter state and non-state threats involving cyber, drones, proxies, and conventional forces simultaneously.
- **Force Multiplier:** Expands special-operations capability beyond limited elite units.
- **Deterrence Signalling:** Their Army Day parade debut conveys India's intent to institutionalise future warfare doctrines.
- **Operational Flexibility:** Suitable for deserts, plains, and semi-urban theatres, particularly along the western front.

**FORCE EXPANSION**

Currently, **15 Bhairav Battalions** have been raised, with plans to expand to around **25 battalions**. This reflects a long-term restructuring of India's land forces to ensure adaptability against evolving threats.

**CONCLUSION**

The Bhairav Battalions mark a **paradigm shift in Indian Army doctrine**—from platform-heavy, linear warfare to agile, technology-enabled combat units. Their induction strengthens India's preparedness for future conflicts where speed, precision, and information dominance will define battlefield success.

**BALANCING SECURITY AND LIVELIHOODS: PUNJAB BORDER FENCE REALIGNMENT**

**BORDER FENCE REALIGNMENT – PUNJAB**  
Balancing Security and Farmland Access

Zero Line

REPUBLIC OF INDIA

PAKISTAN

**PROBLEM**

- Fence 2–3 km inside India
- 21,300 acres beyond fence
- Restricted farming

**FARMING RULES**

- Timed entry
- BSF escorts
- Crop height limits
- Machinery approval

**GOVERNANCE**

- MHA nodal
- BSF guarding
- Smart fencing (CIBMS)

**GOAL**

Security + Farmer Access

**CONTEXT**

Punjab has proposed shifting the **border security fence closer to the International Border (IB) with Pakistan**, a move that has reportedly received tentative approval from the Union government. The realignment aims to restore access to nearly **21,300 acres of fertile farmland** currently located between the fence and the Zero Line, where farmers face severe operational restrictions.

**WHY REALIGNMENT MATTERS**

In many stretches of Punjab, the security fence lies **2–3 km inside Indian territory**, rather than the norm of about **150 metres from the Zero Line**. This has created a narrow belt of agricultural land beyond the fence where cultivation continues under strict security controls, affecting productivity and farmer livelihoods.

**REGULATED FARMING INSIDE THE FENCE**

Farmers cultivating land beyond the fence operate under a controlled regime:

- **Timed Access:** Entry allowed only during fixed hours with identity cards.
- **Security Supervision:** BSF “Kisan Guards” monitor all movement.
- **Crop Restrictions:** Tall crops such as sugarcane and maize (above 3–4 feet) are restricted for visibility.
- **Machinery Approval:** Heavy equipment must be pre-registered.
- **Tractor Quotas:** Limited tractors allowed on designated days.
- **Mandatory Escort:** Each tractor must be accompanied by two BSF personnel.

These measures aim to prevent infiltration and smuggling but often disrupt normal farming cycles.

**GOVERNANCE FRAMEWORK OF BORDER FENCING**

- **Nodal Ministry:** Ministry of Home Affairs (Department of Border Management).
- **Executing Agencies:** CPWD, NBCC, and BRO depending on terrain.
- **Guarding Forces:**
  - BSF (Pakistan, Bangladesh)
  - ITBP (China)
  - SSB (Nepal, Bhutan)
  - Assam Rifles (Myanmar)
- **Legal Basis:** Border Security Force Act, 1968 and executive powers under the Passport Act, 1920.

- **Land Acquisition:** Governed by the RFCTLARR Act, 2013.
- **Policy Shift:** Movement toward **Smart Border Management** using **CIBMS** (sensors, cameras, surveillance grids).

### NATIONAL STATUS OF BORDER FENCING

Border	Length	Fencing Status
Pakistan IB	~2,290 km	~93% fenced; LoC has AIOS
Bangladesh	4,096 km	~79% fenced; river stretches use BOLD-QIT tech
Myanmar	1,643 km	<2% fenced; fencing expanded after FMR rollback
China (LAC)	—	No continuous fence; focus on roads, tunnels, logistics

### SIGNIFICANCE

The proposed shift reflects a **human-security approach** to border management—balancing national security with agricultural livelihoods. It may reduce farmer hardship while maintaining surveillance through **technology-led smart fencing** rather than deep in-country physical barriers.