Daily News Juice

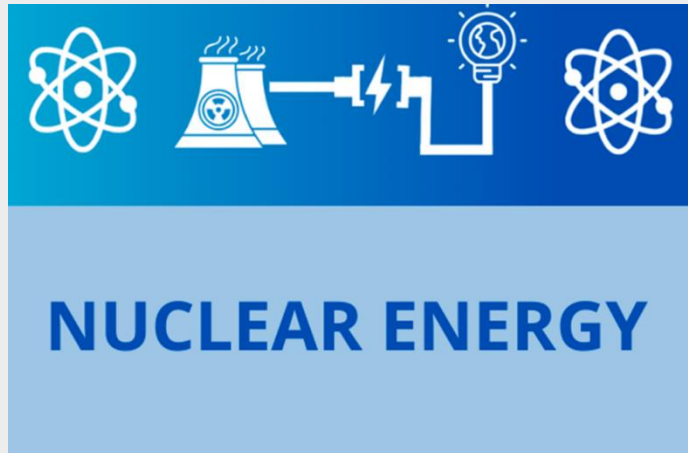## 1. India Plans Major Reforms in Civil Nuclear Sector

Introduction
India is preparing to amend two key laws to open up its civil nuclear sector— a move aimed at attracting foreign investment, easing vendor concerns, and aligning with global nuclear liability norms.

Two Key Laws Under Review
1. Civil Liability for Nuclear Damage Act, 2010 (CLNDA)
2. Atomic Energy Act, 1962
The Union Government has committed to passing both laws, including an assurance made in the 2025 Union Budget.

1. Changes Proposed to Civil Liability for Nuclear Damage Act (CLNDA)

Why CLNDA Is Seen as a Barrier
• Foreign vendors like Westinghouse and Framatome have avoided India due to Section 17(b).
• It gives nuclear plant operators (e.g., NPCIL) the right of recourse against suppliers for any future nuclear accident.
• This clause creates uncertainty and fear of unlimited liability.

Key Amendments Proposed
• Dilute Section 17(b) to match global standards and reduce supplier liability concerns.
• Clarify definition of "supplier" to avoid including small sub-contractors and vendors unintentionally.
• Cap supplier liability: Limit monetary exposure and duration of liability post-project.
Impact
• Aligns CLNDA with the Convention on Supplementary Compensation (CSC), which India signed in 2010 and ratified in 2016.
• Could unlock foreign and domestic investments in nuclear projects.

2. Opening Up the Atomic Energy Act, 1962

Objective
• Allow private companies—Indian and potentially foreign—to operate nuclear power plants, currently limited to PSUs like NPCIL and NTPC.

Expected Benefits
• Encourages private sector participation in nuclear power generation.
• Complements Indo-US Civil Nuclear Deal, signed nearly two decades ago.

International Context: US Clears Key Hurdle
In March 2025, the US Department of Energy granted regulatory clearance to Holtec International under its strict 10CFR810 rule. This allows:
• Transfer of Small Modular Reactor (SMR) technology to India
• Partnerships with Holtec Asia, Tata Consulting Engineers, and L&T

This was a major breakthrough because previous US rules barred nuclear design or manufacturing in India.

With the regulatory hurdle removed, the onus is now on India to pass its domestic legal reforms.

Conclusion: A Strategic, Economic, and Political Push
• The amendments are crucial for India's energy goals, as nuclear power is a clean, base-load energy source.
• They are also vital to strengthening India-US strategic ties, especially under the broader trade and investment negotiations.
• However, the biggest challenge will be building political consensus to pass both amendments in Parliament.
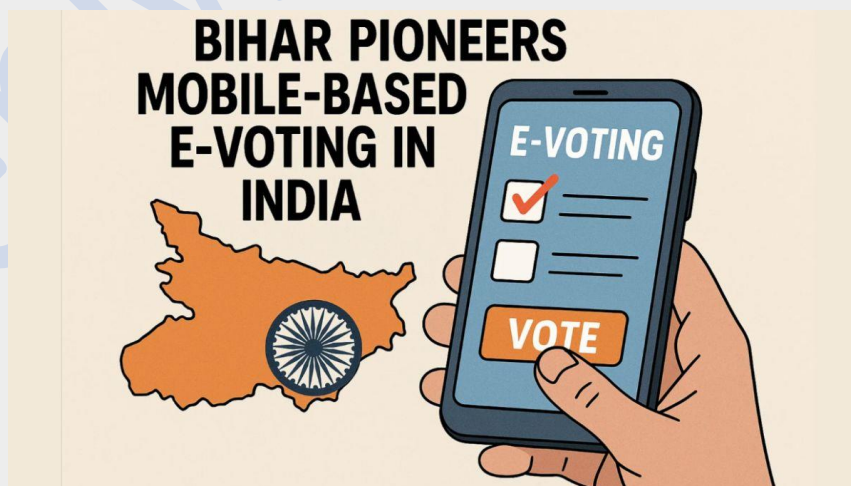
2. Bihar Launches India's First Mobile E-Voting System

Aimed at Marginalised Voters
Bihar has become the first state in India to allow mobile app-based voting during municipal elections. The system is designed to help:
• Senior citizens
• Persons with disabilities
• Pregnant women
• Migrant workers
• Seriously ill voters
These groups often face difficulty reaching polling booths.

Pilot Rollout in Municipal Elections
The pilot e-voting took place on June 28, 2025.
Stats:
• 10,000 voters registered for mobile e-voting
• Up to 50,000 could potentially vote through the app

How the E-Voting System Works
The system uses advanced technologies to ensure safety, transparency, and accuracy:
• Blockchain for secure and tamper-proof vote storage
• Face recognition for voter identity verification
• OCR (Optical Character Recognition) for accurate vote counting
• Audit trails like VVPAT for vote tracking
• Digital locks on strongrooms for added ballot security

Fraud Prevention Measures:
• Only two voters can log in per mobile number
• Each vote is cross-verified with voter ID details

How to Register for Mobile Voting in Bihar
Eligible voters can register using the e-SECBHR app (Android only):
1. Download the e-SECBHR app
2. Link your mobile number (must match electoral roll)
3. Verify your identity
4. Vote on polling day via:
    o The State Election Commission website, or
    o The e-SECBHR app
Officials have assured that the app is user-friendly, even for first-time digital voters.

Relevance: GS Prelims & Mains Paper II; Governance
Source: The Hindu

3. GPS Interference Threatens Aircraft and Ships

Recent Incidents Linked to GPS Disruption
• Delhi-Jammu flight turned back mid-air
• Tanker collision at Strait of Hormuz
• Container ship ran aground near Jeddah
All these were caused by GPS interference, which is now a growing threat to global transport systems.

What Is GPS Interference?
Two Main Types:
1. Jamming – Blocks or overpowers GPS signals using strong radio frequencies.
2. Spoofing – Sends fake GPS signals to mislead devices into showing incorrect positions.

Impact:
• Affects planes, ships, and even road transport.
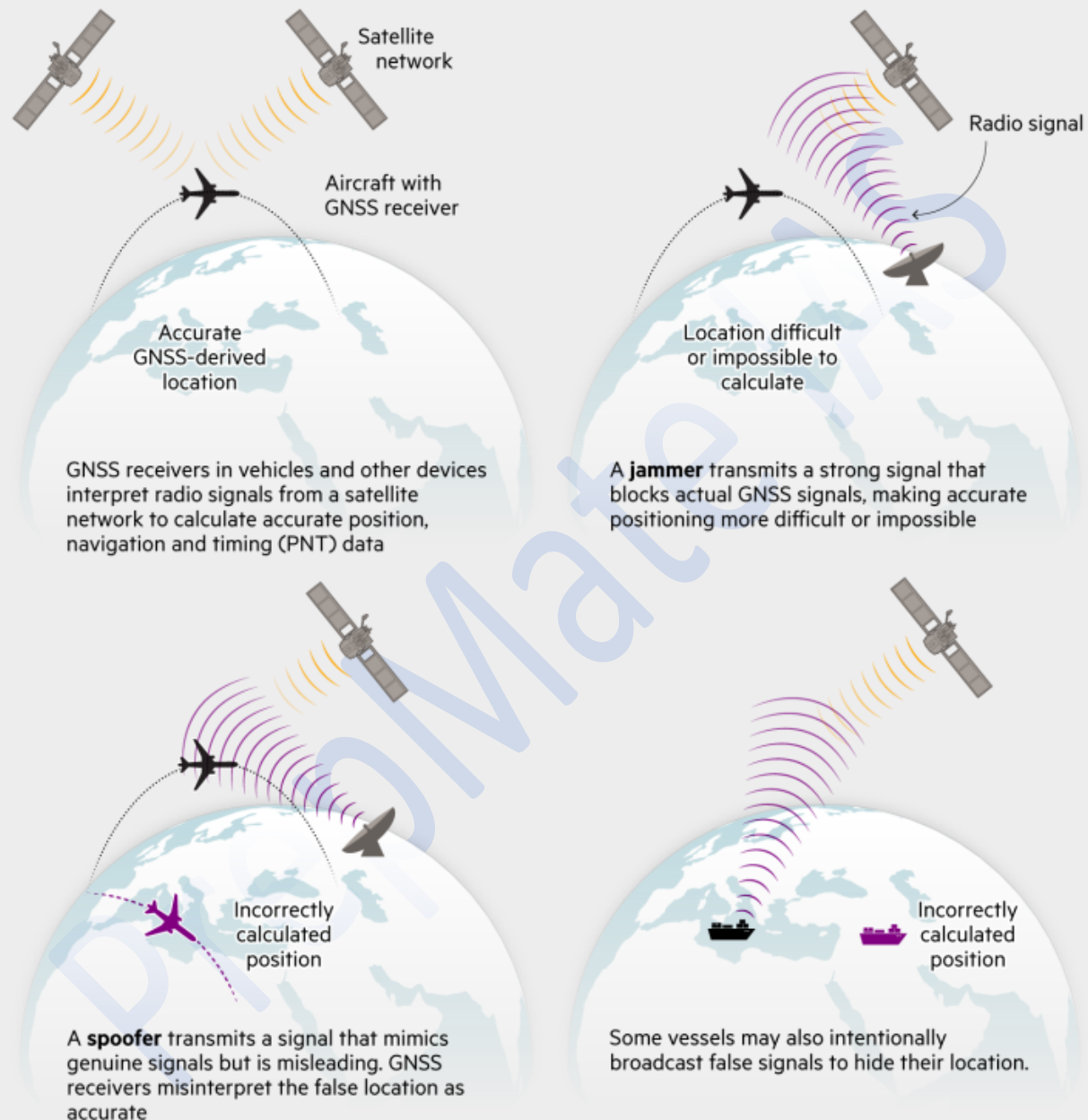• Can lead to accidents, delays, and loss of navigation control.

Why Is It Dangerous?
• Pilots may misjudge position, risking collisions or crashes.
• Ships may run aground or collide due to loss of situational awareness.

• In 2024, there were up to 700 GPS spoofing incidents per day worldwide.

How GNSS interference works

Global navigation satellite systems (GNSS) include the US-owned GPS, the EU's Galileo and Russia's Glonass

Satellite network

Aircraft with GNSS receiver

Radio signal

Accurate GNSS-derived location

Location difficult or impossible to calculate

GNSS receivers in vehicles and other devices interpret radio signals from a satellite network to calculate accurate position, navigation and timing (PNT) data

A **jammer** transmits a strong signal that blocks actual GNSS signals, making accurate positioning more difficult or impossible

Incorrectly calculated position

Incorrectly calculated position

A **spoofer** transmits a signal that mimics genuine signals but is misleading. GNSS receivers misinterpret the false location as accurate

Some vessels may also intentionally broadcast false signals to hide their location.

Source: FT research
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Where Is It Happening Most?
• Conflict zones and regions with advanced electronic warfare.
• Major hotspots:
  o Red Sea – 350% rise in spoofing (Q1 2025 vs 2024)
  o Eastern Europe – Linked to Russia-Ukraine conflict
  o Persian Gulf – Near-strategic shipping routes

India's GPS Spoofing Case

• 2017, Russia: 20 ships near Novorossiysk showed GPS errors, all appearing inland at an airport — confirmed spoofing.

• June 2025: Air India Express flight to Jammu returned to Delhi due to suspected GPS spoofing.

How Are Aircraft and Ships Handling the Threat?

India's Own Navigation System: NavIC

• Developed by ISRO after denial of US GPS during key events like:
   o Kargil War (1999)
   o BrahMos missile tests (2009, 2012)

• NavIC provides secure, reliable navigation across India and nearby regions.

• Successfully used during Operation Sindhoor.

Conclusion: A Growing Cyber Threat

GPS spoofing and jamming are now powerful tools in electronic warfare and cyber disruption.

To stay safe, both civilian and military sectors must:

• Invest in alternative navigation systems

• Develop homegrown tech like NavIC

• Enhance global cooperation on navigation security

Relevance: GS Prelims & Mains Paper III; Science & Technology
Source: Indian Express