

Prelims Exam Topics

INTERNATIONAL LAW CONCERNS IN IRAN WAR

Context

- During the ongoing U.S.–Iran conflict, U.S. President **Donald Trump threatened strikes on Iran’s civilian infrastructure** which raised concerns **about possible violations of international humanitarian law**.

What Trump Is Threatening to Attack

- **Power Plants:** Trump warned of destroying **all Iranian electricity-generating plants**(nationwide grid supporting **80+ million civilians**).
- **Transport Infrastructure:** Threats included destroying **bridges and rail networks**, which are vital for **civilian mobility and emergency services**.
- **Oil Facilities:** Targets include **Kharg Island and oil wells**—critical to Iran’s petroleum exports (**Kharg Island handles ~90% of Iran’s oil exports**).
- **Desalination and Water Infrastructure:** Trump suggested attacks on **desalination plants** that produce drinking water (essential for urban areas with limited freshwater supply).

How It Could Violate International Law

- **Violation of the Principle of Distinction:** International humanitarian law requires separating **military targets from civilian objects**;
- **Proportionality Requirement:** Even if infrastructure has military relevance, attacks are illegal if **civilian harm is excessive compared to military advantage** (e.g., power cuts affecting hospitals and water treatment).
- **Protection of Civilian Infrastructure:** Facilities essential to civilian survival—**electricity, water, and sanitation systems**—are generally protected under **Geneva Conventions and Additional Protocol I**.
- **War Crimes Under the Rome Statute:** Intentional attacks against **objects indispensable to civilian survival** can constitute **war crimes under the International Criminal Court statute**.
- **Restrictions under the United Nations Charter:** Use of force against another state is lawful only if **authorised by the United Nations Security Council or in self-defence (Article 51)**.
- **Excessive Civilian Harm Risk:** Destroying national electricity infrastructure could indirectly cause **mass civilian casualties (hospital shutdowns, water contamination, food supply disruption)**.

NEED OF PROTOTYPE FAST BREEDER REACTOR (PFBR)

Context

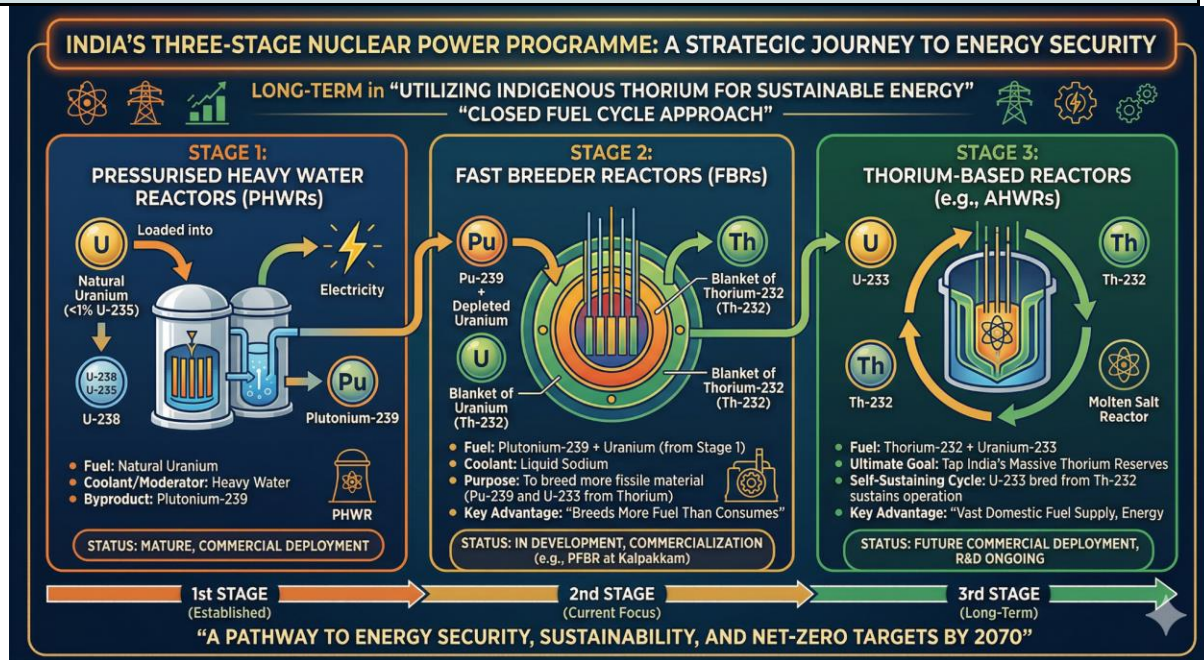
- India’s **500 MWe Prototype Fast Breeder Reactor (PFBR) at Kalpakkam attained first criticality** marking entry into the **second stage of India’s three-stage nuclear programme** aimed at utilising **India’s vast thorium reserves for long-term energy security**

What is Criticality

- **Self-Sustaining Chain Reaction:** A reactor becomes **critical when each nuclear fission releases enough neutrons to trigger another fission**, creating a stable chain reaction (first step before

commercial power generation).

- **Operational Testing Phase:** After criticality, reactors operate at **low power for months for safety validation and system calibration** before reaching full output.



Difference Between PHWR and Fast Breeder Reactor (FBR)

Feature	PHWR (Pressurised Heavy Water Reactor)	Fast Breeder Reactor (FBR)
Fuel Type	Natural uranium (U-235 ~0.7%)	Plutonium-based mixed oxide fuel (MOX: Pu-239 + U-238)
Neutron Type	Uses slow (thermal) neutrons for fission	Uses fast neutrons (no moderator)
Moderator	Heavy water (D ₂ O) slows neutrons	No moderator used
Coolant	Heavy water coolant	Liquid sodium coolant (high heat transfer)
Fuel Utilisation	Low (~1% uranium energy extracted before spent fuel)	Much higher (~10%+ fuel utilisation)
Fuel Production	Produces some plutonium as by-product	Breeds more fissile fuel than it consumes (U-238 → Pu-239)
Role in Nuclear Program	Stage-1 of India's three-stage programme	Stage-2 of India's three-stage programme
Purpose	Electricity generation + plutonium production	Multiply fissile fuel and prepare for thorium stage
Examples in India	Kakrapar, Rajasthan, Narora reactors	Prototype Fast Breeder Reactor (PFBR), Kalpakkam

Why Fast Breeder Reactors (FBRs) Are Challenging

- **Sodium Coolant Risks:** FBRs use **liquid sodium coolant**, which improves heat transfer but **reacts violently with air and water**, requiring sealed systems and leak detection.
- **Technological Complexity:** Designing reactors that **produce more fuel than they consume** requires advanced neutron physics and fuel-cycle engineering.
 - Once commissioned, India will be the second country after Russia to have a commercial operating FBR
- **Economic Viability Issues:** Breeder reactors have faced **high costs and operational issues globally** (France's **Superphénix** shutdown; Japan's **Monju sodium leak accident**).
- **Closed Fuel Cycle Requirement:** FBRs require **reprocessing facilities to recycle plutonium fuel**, increasing infrastructure and regulatory complexity.

Second Stage Plans

- **Deployment of Fast Breeder Reactors:** Stage-2 focuses on **plutonium-fuelled FBRs to multiply fissile material** for future reactors.
- **PFBR as Demonstration Reactor:** India's **500 MWe PFBR at Kalpakkam** is the first large breeder reactor.
- **Future Expansion:** Plans include **six additional 600 MWe breeder reactors** to expand fissile material production.
- **Fuel Infrastructure:** A **Fast Reactor Fuel Cycle Facility (FRFCF)** is being built to enable **reprocessing and recycling of breeder reactor fuel**.

Why It Is Key for the Third Stage

- **Thorium Conversion:** FBRs convert **Thorium-232 into Uranium-233**, the fuel for third-stage reactors.
- **Fuel Multiplication:** Breeder reactors increase fissile inventory by converting **U-238 into Plutonium-239**, expanding nuclear fuel supply.
- **Energy Independence:** India has **large thorium reserves (~25% of global deposits)** but limited uranium, making breeder reactors crucial for long-term energy security.

Current Nuclear Power Landscape in India

- **Installed Capacity:** India's nuclear capacity **≈8.78 GW**; generation **56,681 million units in 2024–25**.
- **Electricity Share:** Nuclear contributes **~3% of India's electricity (3.1% in 2024–25)**.
- **Expansion Plans:** Capacity projected to reach **≈22.38 GW by 2031–32** (fleet deployment of **700 MW PHWRs + ~1000 MW reactors via international cooperation**).
- **International Cooperation:** India has **civil nuclear cooperation agreements with 18 countries**, supporting fuel supply and reactor technology partnerships.

Long-Term Mission

- **100 GW Target:** India aims for **≈100 GW nuclear capacity by 2047** under the **Nuclear Energy Mission (Budget 2025–26)**, supporting **net-zero emissions by 2070**.
- **Financial Support:** **Nuclear Energy Mission** allocates **₹20,000 crore** for **Small Modular Reactor**

(SMR) design and deployment.

- **SMR Deployment:** Target of ≥ 5 indigenous SMRs operational by 2033.
- **BARC Innovations:** Development of next-generation reactors (BSMR-200(with 200 MWe capacity), SMR-55, high-temperature gas-cooled reactor ~5 MWth for hydrogen production).
- **SHANTI Act 2025:** New legal framework enabling regulated private participation and investment in the nuclear sector.

REGULATORY ISSUES IN INDIA'S NUCLEAR PROGRAMME

Context

- The **Prototype Fast Breeder Reactor (PFBR)** at Kalpakkam achieved first criticality, but the milestone has also revived debate over **India's nuclear regulatory framework**.

Regulatory Issues in India's Nuclear Programme

- **Institutional Conflict:** Atomic Energy Regulatory Board (AERB) and Department of Atomic Energy (DAE) both report to Atomic Energy Commission, creating promoter–regulator overlap.
- **Project Delays & Cost Overruns:** Prototype Fast Breeder Reactor (PFBR) faced long delays (~16 years) and cost escalation (sanctioned ₹3,500 crore but final cost is ~₹8,181 crore), indicating weak regulatory and project monitoring.
- **Limited Transparency:** India's nuclear programme operates with **high institutional insulation**, reducing external scrutiny of **timelines, safety practices, and cost management**.
- **Weak Independent Safety Oversight:** Unlike global best practices, India lacks a **fully independent statutory nuclear safety regulator** comparable to the U.S. Nuclear Regulatory Commission.
- **Complex Fuel Cycle Regulation:** Breeder reactors require reprocessing, plutonium handling, and closed fuel-cycle management, which demand more sophisticated regulatory frameworks.
- **Emerging Technological Challenges:** New developments (**Small Modular Reactors, private participation, advanced reactors**) increase regulatory complexity.

Way Forward

- **Establish an Independent Nuclear Regulator:** Create a **statutory independent nuclear safety authority** (similar to the proposed **Nuclear Safety Regulatory Authority**) separate from the DAE.
- **Strengthen Transparency and Accountability:** Introduce **parliamentary oversight, public reporting of safety audits, and independent technical reviews**.
- **Improve Project Governance:** Adopt **better procurement practices, project management systems, and cost monitoring** to prevent delays.
- **Modernise Regulatory Framework:** Update regulations to cover **breeder reactors, advanced reactors, SMRs, and private sector participation** under the **SHANTI Act (2025)**.
- **Strengthen Safety Culture:** Enhance **independent safety audits, leak detection protocols, and emergency preparedness** for complex reactors such as FBRs.
- **Align Nuclear Strategy with Energy Economics:** Ensure nuclear investments remain **cost-effective compared to renewable energy options**, while supporting **energy security and net-zero goals (2070)**.

LIMITS OF AMERICAN POWER IN IRAN

Context

After **40 days of the U.S.–Israel war on Iran (Feb–Apr 2026)**, Washington accepted a **two-week ceasefire based on Iran’s negotiation framework**, signalling the limits of U.S. coercive power despite extensive military strikes.

Limits of American Power in Iran

- **Failure to Achieve War Objectives:** The U.S. aimed to **destroy Iran’s missile industry, naval capability, regional proxies, nuclear ambitions and trigger regime change**, yet none of these goals were fully achieved after weeks of bombing.
- **Regionalisation of the Conflict:** Iran expanded the war by **attacking U.S. bases across the Persian Gulf**, turning the conflict into a **regional battlefield**.
- **Costly Military Escalation for the U.S.:** Loss of **advanced aircraft (e.g., F-15E operations)** and continued Iranian counter-strikes showed that deeper escalation could lead to a **costly ground war**.
 - Iran’s **missiles, drones, and proxy networks** imposed high operational costs on technologically superior U.S. forces.
- **Limited Coercive Leverage:** Repeated **U.S. ultimatums and threats of infrastructure destruction** failed to compel Iranian surrender or policy reversal.
- **Diplomacy as Exit Strategy:** Washington ultimately **shifted from coercion to negotiation**, accepting talks mediated by Pakistan based on **Iran’s proposal rather than U.S. demands**.
- **Enhanced Iranian Strategic Position:** Despite heavy damage, the war **reinforced Iran’s standing as a major regional power in the Persian Gulf**, increasing its bargaining leverage in negotiations.
- **Fracturing Western Unity:** Several **NATO and European Union states avoided direct military involvement**, exposing limits of coalition support.
- **Weak European Military Support:** European allies provided **diplomatic backing but limited military assistance**, reflecting reluctance to escalate a major regional war.
- **Inability to Secure Gulf Allies:** Despite U.S. military presence, **Iranian strikes and maritime disruption exposed vulnerabilities of Gulf partners’ infrastructure and energy routes**.
- **Energy Market Pressure:** Conflict disrupted oil shipping and raised prices, increasing **global economic costs and pressure on Washington to de-escalate**.

NEW METHOD TO MEASURE DEEP-SPACE DISTANCES

Context

- Indian astronomers have proposed a **new technique to estimate distances in deep space using pulsars**, combining **dispersion and scattering effects in radio signals**, improving accuracy in regions with complex interstellar plasma

Earlier Method: Dispersion Measure (DM)

- **Concept:** Distance estimated from **Dispersion Measure (DM)** — delay between arrival of **low-frequency and high-frequency radio waves** caused by free electrons in the interstellar medium.
- **Working Principle:** More distant pulsars pass through **more ionised plasma**, increasing electron count along the line of sight thus it has **larger signal delay**.

- **Limitation:** DM depends on **models of electron distribution in the Milky Way**, which are often uncertain in **complex plasma regions (e.g., Gum Nebula)**.

New Method: Combined Dispersion and Scattering

- The new method combines **Dispersion Measure (DM)** with **scatter broadening** of pulsar signals.
 - **Scattering Effect:** Irregular plasma turbulence causes **radio waves to travel through multiple paths**, producing **signal smearing and brightness variation (scintillation)**.
- **Joint Modelling:** Scientists iteratively adjusted models until **both dispersion delay and scatter broadening matched observations**, giving a more accurate pulsar distance.
- **Observational Study:** Applied to **10 pulsars near the Gum Nebula**, revealing that the **Vela pulsar lies behind the nebula's front shell**.

Applications

- **Improved Distance Measurements:** Provides **more accurate distance estimates in plasma-rich regions of the Milky Way**.
- **Mapping Interstellar Medium:** Helps identify **turbulent plasma layers and electron density distribution in the galaxy**.
- **No strict distance limit:** Unlike parallax techniques, the method **has no strict distance limit**, potentially enabling measurements for **objects beyond the Milky Way (e.g., fast radio bursts)**.
- **Pulsar Timing Experiments:** Improves **precision in pulsar timing arrays used for gravitational wave detection**.

About Pulsars

- **Definition:** Pulsars are **dense, rapidly rotating neutron stars—the collapsed cores of massive stars after supernova explosions**.
- **Lighthouse Effect:** They emit **beams of radio waves that sweep across space**, appearing as periodic pulses when aligned with Earth.
- **Extremely Stable Rotation:** Pulsars have **highly regular spin rates**, making their signals precise cosmic clocks.
- **Millisecond Pulsars:** Some pulsars rotate **hundreds of times per second**, enabling extremely precise timing experiments.
- **Scientific Uses:** Used for **distance measurement, gravitational wave detection, and mapping interstellar plasma structures**.
- **Examples:** Well-known pulsars include the **Vela Pulsar and Crab Pulsar**, among the brightest radio pulsars observed.



About the k-Factor

- **Definition:** A **scattering parameter representing the strength of radio signal distortion by interstellar plasma at a given frequency**.
- **Purpose:** Simplifies complex scattering physics into a **single measurable coefficient**.

- **Calibration Method:** Calculated using **nearby pulsars with known distances**, allowing estimation of scattering properties along a line of sight.
- **Role in Distance Estimation:** When **modelled scatter broadening (using the k-factor) matches observed signal distortion**, the corresponding distance is taken as the **pulsar's distance**

US-IRAN CEASEFIRE DEAL

Context

- After **40 days of US-Israel strikes on Iran**, a **two-week ceasefire brokered by Pakistan** was announced to pause hostilities and enable negotiations while restoring shipping through the **Strait of Hormuz**.

Terms of the Deal

Aspect	Key Terms of the Ceasefire Deal
Ceasefire Duration	US-Iran agree to halt military attacks for 2 weeks to create space for negotiations.
Strait of Hormuz	Iran agrees to reopen shipping lanes and ensure controlled passage with Iranian armed forces coordination (~20% global oil flow).
Non-Aggression Commitment	Proposal includes US commitment to non-aggression toward Iran during negotiations.
Iran Nuclear Programme	US reportedly accepts continuation of Iran's civilian nuclear enrichment , though future limits remain under negotiation.
Sanctions Relief	Iran demands removal of primary and secondary US sanctions and release of frozen Iranian assets abroad .
UN and IAEA Resolutions	Proposal calls for ending UN Security Council and IAEA resolutions targeting Iran's nuclear programme .
US Military Presence	Iran seeks withdrawal of US combat forces from regional bases in the Gulf.
Compensation Mechanism	Proposal includes financial compensation to Iran for war damage , partly via transit fees on ships passing through Hormuz .
Regional Proxy De-escalation	Iran-aligned militias in Iraq announced temporary halt to attacks on US bases during ceasefire period.
Future Negotiations	Formal talks scheduled in Islamabad to convert the temporary ceasefire into a longer political settlement.

RECENT EXCAVATIONS AT ELEPHANTA ISLAND

Context

Recent archaeological investigations conducted by the Archaeological Survey of India (ASI) on Elephanta Island (Gharapuri, off Mumbai coast) have revealed a significant 6th-century settlement.

Key findings

- **The Stepped Reservoir Architecture:** A sophisticated T-shaped hydraulic structure measuring approximately 14.7 meters in length. Current excavations have exposed 20 steps built with precise stone masonry.
- Analytical evidence suggests that the stone blocks were not indigenous to the island but were transported from the mainland, indicating complex logistical planning and resource mobilization.

- **Ceramic Assemblages and Trade Indicators:** The recovery of approximately 3,000 sherds of **Amphorae** signifies direct or indirect trade links with the Mediterranean/Byzantine world. These vessels were primarily used for transporting wine and oil.
 - The presence of **Torpedo Jars** indicates maritime exchange with Mesopotamia and the Persian Gulf.
- **Material Culture and Industrial Activity:** Excavations yielded a brick structure identified as a **dyeing vat**, suggesting local textile processing for maritime export.
 - Associated finds include carnelian and quartz beads, glass bangles, terracotta figurines, and stone anchors, characterizing the site as a prosperous port-town.
- **Numismatic Markers:** Sixty coins in copper, lead, and silver were retrieved. A significant portion is attributed to **Krishnaraja (c. 550–575 CE)** of the **Kalachuri dynasty**.
 - The coins feature a seated bull (Nandi) on the obverse and a temple symbol with the legend *Sri Krishnaraja* on the reverse.

Significance of the Discovery

- **Advanced Hydraulic Engineering:** Marks a shift from basic rock-cut cisterns to sophisticated masonry reservoirs, essential for capturing monsoon run-off on the island's non-porous basaltic terrain.
- **Commercial Hub (Entrepôt):** The vast quantity of Mediterranean and West Asian ceramics (*Amphorae* and *Torpedo jars*) proves the island was a major 6th-century maritime trade center, not just a religious site.
- **Dynastic Wealth & Patronage:** Numismatic evidence links this commercial peak to the **Kalachuri dynasty**. It suggests that the funding for the famous Elephanta cave temples likely originated from this flourishing global trade.

1. Early Kalachuris of Mahishmati (6th–7th Century CE)

- This lineage ruled parts of **Gujarat, Malwa, and Maharashtra**.
- **Capital:** Their primary seat of power was **Mahishmati** (modern-day Maheshwar, Madhya Pradesh).
- **Key Ruler: Krishnaraja** is the most prominent king, known for issuing silver coins with a seated bull (Nandi) motif, which circulated widely in the Deccan.
- **Religious Patronage:** They were staunch devotees of **Shaivism** (specifically the Pashupata sect).
- **Cave Architecture:** Recent archaeological evidence suggests they likely patronized the early rock-cut architecture at **Elephanta** and the earliest caves at **Ellora**.
- **Decline:** They were eventually eclipsed by the rising power of the **Western Chalukyas** under Pulakeshin I and Mangalesha.

2. Kalachuris of Tripuri (Chedi) (9th–12th Century CE)

- A later, more powerful branch that dominated Central India (the Chedi region).
- **Capital:** Located at **Tripuri** (near Jabalpur, Madhya Pradesh).
- **Founder: Kokalla I** is credited with establishing the dynasty's prestige, forming alliances with the Rashtrakutas.
- **Peak Power under Lakshmi-Karna:** Known as the "**Indian Napoleon**" of his time, King Lakshmi-Karna (c. 1041–1073 CE) expanded the empire from the Ganges to the Mahanadi, briefly

dominating the Pratiharas and Palas.

- **Cultural Legacy:**

- **Architecture:** Built the magnificent **Chausath Yogini Temple** at Bhedaghat.
- **Literature:** The famous Sanskrit poet **Rajasekhara** (author of *Karpuramanjari*) was a court poet under the Kalachuris before moving to the Pratihara court.

11 YEARS OF PM MUDRA YOJANA (PMMY)

Context

The Prime Minister of India marked the **11th anniversary of the PM Mudra Yojana (PMMY)**, highlighting its role in redefining credit access and fostering entrepreneurship among the youth and women.

Background

- **Launched in:** 2015.

Aim

- To Fund the Unfunded by bringing small enterprises into the formal financial system.
- To encourage entrepreneurship among the youth (Yuva Shakti) and women (Nari Shakti).
- To generate large-scale employment opportunities at the local level.

Key Features

- **Three Loan Categories:** The loans are tailored to the stage of growth of the business:
- **Shishu:** Loans up to ₹50,000 (for start-ups/early stages).
- **Kishore:** Loans from ₹50,000 to ₹5 lakh (for established businesses seeking expansion).
- **Tarun:** Loans from ₹5 lakh up to ₹10 lakh (for diversification or larger scaling).
- **Tarun Plus:** covers loans above ₹10 lakh and up to ₹20 lakh.
- **Collateral-Free:** No security or collateral is required from the borrower, lowering the barrier to entry for the poor.
- **MUDRA Card:** Borrowers receive a RuPay debit card for the loan amount, allowing for flexible withdrawals and management of working capital.
- **Processing Charges:** Generally, there are no processing fees for Shishu loans, making them highly accessible for micro-entrepreneurs.
- **Target Group:** Focuses specifically on small manufacturing units, service sector units, shopkeepers, fruit/vegetable vendors, and truck operators.

TRADE RECEIVABLES DISCOUNTING SYSTEM

Context

Recently, the Reserve Bank of India proposed to drop the due diligence requirement for MSMEs to onboard TReDS platforms to promote ease of doing business for micro, small and medium enterprises.

About Trade Receivables Discounting System

- It is an electronic platform for facilitating the financing/discounting of trade receivables of Micro, Small, and Medium Enterprises (MSMEs) through multiple financiers.

- These receivables can be due from corporates and other buyers, including Government Departments and Public Sector Undertakings (PSUs).
- **Purpose:** To allow MSME sellers to discount invoices raised against major corporations, which helps them manage their working capital demands. The platform enables MSMEs to receive payments more quickly.
- **Participants**
 - Sellers, buyers, and financiers are the participants on a TReDS platform.
 - Only MSMEs can participate as sellers in TReDS.
 - Corporates, Government Departments, PSUs, and any other entity can participate as buyers in TReDS.
 - Banks, NBFC – Factors, and other financial institutions, as permitted by the RBI, can participate as financiers in TReDS.
- RBI has not made it compulsory for any buyer, seller, or financier to participate in TReDS.
- The Government has made it compulsory for certain segments of companies to mandatorily register as buyers on the TReDS platform(s).

NO ENVIRONMENTAL CLEARANCE FOR HFC PROJECTS FROM 2028

Context

Starting January 1, 2028, India will stop issuing environmental clearances (EC) for new projects or the expansion of existing facilities producing Hydrofluorocarbons (HFCs).

Key Provisions of the Notification

- Notified under the **Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2024**
- No new environmental clearances or "Consent to Establish" will be granted for HFC production projects after the 2027 calendar year.
- Also mandates that no person shall import any HFC without a valid license from the government, further tightening the supply chain.
- **Exceptions:** Clearances may still be granted for HFC production intended solely as **feedstock** (raw material) for the manufacture of other chemicals, provided they are not released into the atmosphere.

Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2024

- **International Alignment:** The 2024 amendment is designed to implement the Kigali Amendment to the Montreal Protocol, which India ratified in 2021.
- **Primary Objective:** To regulate the production, consumption, and trade of Hydrofluorocarbons (HFCs), which were previously used to replace Ozone Depleting Substances (ODS) but are now recognized as potent greenhouse gases.

Kigali Amendment

- **Adopted:** 2016, in Kigali, Rwanda.
- **Legally Binding:** Unlike the Paris Agreement, which relies on voluntary pledges (NDCs), the Kigali Amendment has mandatory, specific targets for all signatory nations.
- **Goal:** To reduce HFC consumption by more than **80% over the next 30 years**. Success could

prevent up to **0.5°C** of global warming by the end of the century.

- The agreement recognizes that different countries have different economic capacities. It divides nations into three groups with varying timelines:

Group	Countries Included	Baseline Years	Freeze Year
Group 1	Developed countries (USA, EU, etc.)	2011–2013	2019
Group 2	Most developing countries (China, Brazil, etc.)	2020–2022	2024
Group 3	Hot-climate developing countries (India , Pakistan, Gulf states)	2024–2026	2028

Hydrofluorocarbons (HFCs)

- These are synthetic organic compounds composed of hydrogen, fluorine, and carbon.
- **Synthetic Origin:** HFCs do not exist naturally; they are entirely man-made.
- **Stability:** They are generally non-flammable, chemically stable, and non-reactive, making them safe for use in pressurized systems like air conditioners.
- **Ozone Depletion Potential (ODP):** HFCs have an **ODP of zero**. Because they lack chlorine (unlike CFCs), they do not break down ozone molecules in the stratosphere.
- **Global Warming Potential (GWP):** While they don't harm the ozone layer, they are incredibly efficient at trapping heat. Their GWP can be **hundreds to thousands of times higher** than carbon dioxide
- **Atmospheric Lifetime:** HFCs are considered "short-lived climate pollutants." They stay in the atmosphere for an average of **15 to 29 years**

News in Short

<p>Soil Sakhis</p>	<ul style="list-style-type: none"> ● Trained under the ‘Mahila Kisan Sashaktikaran Pariyojana,’ women in drought-prone Marathwada act as "Soil Sakhis," ● Provide doorstep soil health testing using portable kits to identify nutrient deficiencies and pH levels. ● By issuing Soil Health Cards, they help farmers move away from the indiscriminate use of fertilizers, ensuring precision application that reduces input costs and prevents further soil degradation.
<p>Hydroelectric projects in Arunachal Pradesh approved</p>	<p>Kamala Hydro-Electric Project</p> <ul style="list-style-type: none"> ● River/Basin: Located on the Kamala River (a major tributary of the Subansiri River, which in turn is a key tributary of the Brahmaputra). ● Location: Spans across the Kamle, Kra Daadi, and Kurung Kumey districts. <p>Kalai-II Hydro-Electric Project</p> <ul style="list-style-type: none"> ● River/Basin: Situated along the Lohit River basin. The Lohit is a significant Himalayan tributary of the Brahmaputra, known for its turbulent waters and rocky course. ● Location: Located in the Anjaw district, which is a strategic border district in eastern Arunachal Pradesh.

Mains Exam Topics

ODISHA LAW COMMISSION REPORT ON HATE SPEECH

Context

The Odisha State Law Commission has recommended a new law to address rising instances of hate speech and hate crimes, particularly in digital and public spaces.

Key terms

- **Definition of hate speech:** Hate speech is defined as any spoken, written, or online expression intended to create hatred, hostility, or disharmony against individuals or groups, helping authorities identify and act against such behaviour.
- **Definition of hate crime:** Hate crimes include acts that promote or spread hate speech, especially when they incite violence or social tension, thus linking speech with real-world consequences.

Key recommendations of Odisha law commission report on hate speech

- **Proposal for a new law:** A draft law titled Hate Speech and Hate Crime (Prevention) Act, 2026 has been suggested to create a clear legal framework to prevent and punish such offences.
- **Punishment provisions:** The draft aims to deter repeated violations:
 - 1 to 5 years imprisonment with a monetary fine for first-time offenders
 - 2 to 7 years imprisonment with higher fines for repeat offenders.
- **Compensation for victims:** Provision for financial compensation to victims has been suggested to support those affected and ensure justice beyond punishment.
- **Preventive powers to authorities:** Police and Magistrates can take early action if there is a likelihood of hate crimes, enabling timely intervention to avoid escalation.
- **Use of existing legal framework:** Authorities may invoke provisions under the Bharatiya Nagarik Suraksha Sanhita, 2023 to maintain public order and prevent offences.

Hate Speech

- **Meaning and Scope:** As per the 267th Report of the Law Commission of India (2017), hate speech refers to expressions spoken, written, or visual—that aim to create hostility or hatred against groups based on identity factors such as religion, caste, gender, or ethnicity. It may also provoke fear or violence.
- **Constitutional Safeguards and Limits:** The Article 19(1)(a) of the Constitution of India guarantees freedom of speech. However, Article 19(2) of the Constitution of India allows the State to impose reasonable restrictions to protect public order, dignity, and national integrity, and to prevent incitement to offences.

Legal provisions in India

- Bharatiya Nyaya Sanhita, 2023 penalises acts that promote enmity between communities.
- Representation of the People Act, 1951 disqualifies candidates convicted of promoting communal disharmony.
- Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989 punishes insults or discrimination against SC/ST communities.
- Protection of Civil Rights Act, 1955 addresses practices related to untouchability.

Important Judicial pronouncements

- In **Shaheen Abdulla v. Union of India**, the Court directed police to act on their own against hate speech.
- In **Tehseen S. Poonawalla v. Union of India**, guidelines were issued to prevent mob violence linked to hate speech.
- In **Shreya Singhal v. Union of India**, vague restrictions on online speech were struck down.
- In **Pravasi Bhalai Sangathan v. Union of India**, the need for clearer laws on hate speech was highlighted.

Hate Crime

- **Meaning:** A hate crime refers to a criminal act driven by prejudice against a person's identity, such as religion, caste, gender, or sexual orientation. It involves physical or verbal harm motivated by bias.
- **Legal position in India:** India does not have a single, clearly defined law for hate crimes. However, various provisions under the Bharatiya Nyaya Sanhita, 2023 and the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989 address such offences, including mob violence, caste-based attacks, and assaults on minorities.

Challenges in addressing hate speech and hate crime

- **Legal Ambiguity:** The absence of a clear and separate law for hate crimes makes prosecution difficult. Terms like "insult" or "disharmony" are open to interpretation, leading to inconsistent application.
- **Difficulty in Proving Intent:** Establishing that a crime was motivated by bias is challenging, as it requires proof of the accused's mindset.
- **Weak Enforcement:** Despite court directions, police action is often delayed or inconsistent. Many cases result in acquittal due to weak evidence or external pressures.
- **Digital Spread of Hate:** Social media platforms amplify provocative content for engagement. Anonymity and cross-border hosting of content make regulation and enforcement difficult.
- **Social and Political Factors:** Deep-rooted social divisions and the use of divisive narratives in politics contribute to the persistence of hate speech and related crimes.
- **Lack of Reliable Data:** Limited data collection on hate crimes makes it difficult to assess the scale of the issue and design effective policies.

Measures to address the issue

- **Clear legal definitions:** Enacting a dedicated law defining hate speech and hate crime can improve clarity and enforcement.
- **Accountability of public officials:** Holding officials responsible for failing to act against hate speech can strengthen enforcement.
- **Strict implementation of court directions:** Ensuring timely registration of cases by police can improve response to such offences.
- **Faster justice delivery:** Special courts can help in quicker disposal of cases, increasing deterrence.
- **Regulation of online content:** Timely removal of harmful digital content can prevent escalation of tensions.
- **Public awareness and education:** Promoting critical thinking and social harmony through education can reduce the spread of hateful narratives.

- **Community-Based Interventions:** Local peace committees can help resolve tensions at an early stage and prevent violence.

Conclusion

A balanced approach combining clear laws, effective enforcement, and social awareness is essential to address hate speech and hate crimes. Strengthening both legal mechanisms and community engagement can help uphold equality and harmony in society.

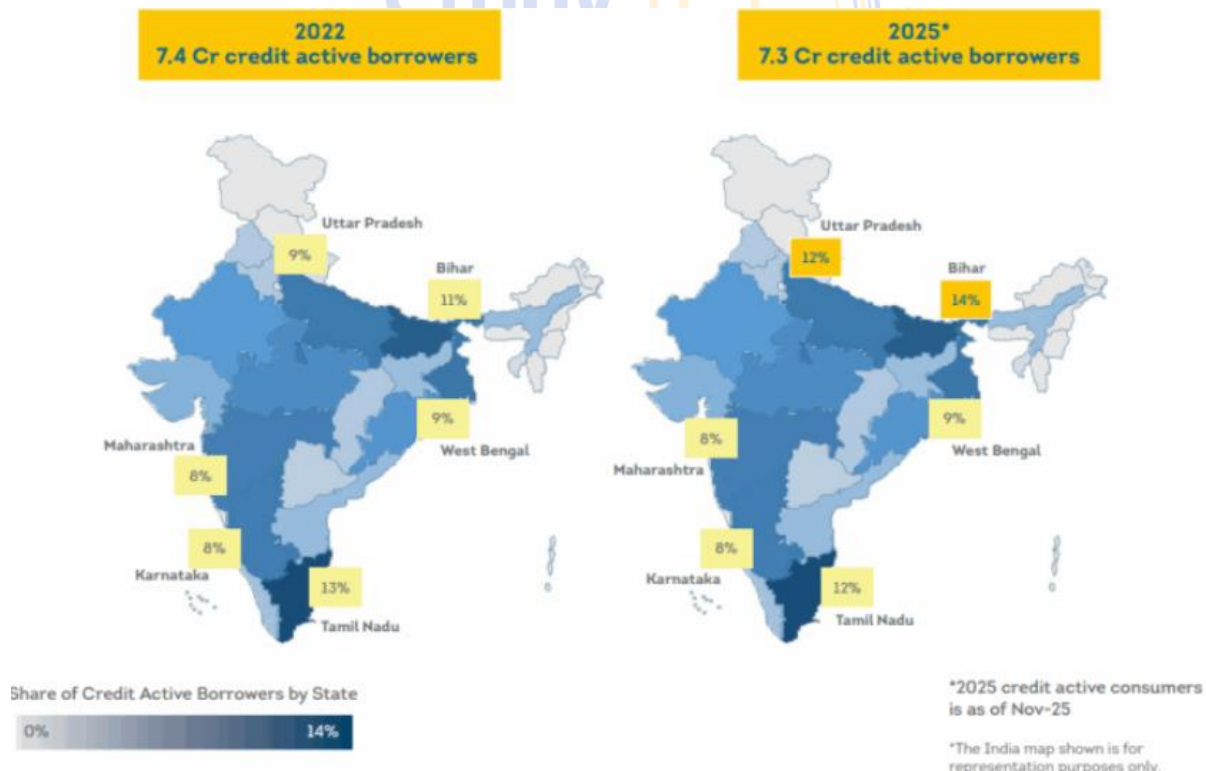
THE REPORT ON FROM BORROWERS TO BUILDERS: WOMEN AND INDIA'S EVOLVING CREDIT MARKET

Context

NITI Aayog released the second edition of the joint report From Borrowers to Builders, highlighting that women now hold a **₹76 lakh crore credit portfolio, accounting for 26% of India's total system credit.**

Factsheet

- **Massive Portfolio Growth:** Women's outstanding credit grew **4.8x from ₹16 lakh crore in 2017 to ₹76 lakh crore in 2025.**
- **Rising Penetration:** Credit penetration among women nearly doubled, rising from **19% in 2017 to 36% in 2025.**
- **Commercial Credit Surge:** Business-purpose loans for women grew at a **31% CAGR over the last three years, significantly outperforming the overall commercial credit growth of 17%.**
- **Efficiency Gains:** Same-day loan approvals for women in consumption categories increased from **34% in 2022 to 45% in 2025, driven by digital onboarding.**



Current Status of Credit for Women

- **Shift to Secured Assets:** Women are increasingly participating in long-term asset ownership, with their share in housing loan originations rising to 69% in 2025.
- **Microfinance Graduation:** Approximately 19% of active microfinance borrowers have successfully graduated to individual retail or commercial loans.
- **Geographic Expansion:** While southern states like Tamil Nadu lead in volume, northern states like Bihar (59% CAGR) and Uttar Pradesh (42% CAGR) are seeing the fastest growth in women business borrowers.
- **Younger Cohort Participation:** Women under 35 are accelerating credit uptake across gold, consumption, and vehicle loans, with 1 in 3 young housing loan borrowers being a woman.
- **Responsible Borrowing:** Women maintain resilient credit profiles, with a default rate 0.7x lower than overall credit originations as of 2024.

Challenges Associated with Women's Credit

- **Untapped Potential:** Nearly two-thirds of credit-eligible women (approx. 29 crore) remain unserved by formal financial systems.
- **Decision-Making Gaps:** Many rural women nano-entrepreneurs (RWNEs) lack full autonomy over credit and investment decisions, limiting the strategic use of borrowed funds.
- **Digital Translation Gap:** While smartphone use is high, many women struggle to understand how AI or advanced digital tools can directly improve their business marketing or planning.
- **Time Poverty:** Overlapping household responsibilities and unpaid care work (cited by 38% in Kerala) limit women's ability to engage consistently with digital credit platforms.
- **Structural Barriers:** Nano-enterprises often lack formal collateral, making them reliant on entry-level products and vulnerable to credit supply contractions.

Initiatives Taken by the Government

- **Digital Public Infrastructure (DPI):** Aadhaar e-KYC, UPI, and DigiLocker have lowered entry barriers for first-time women borrowers in rural areas.
- **Women Entrepreneurship Platform (WEP):** A NITI Aayog initiative that aligns financial institutions and CSOs to support women in moving from initial access to sustained growth.
- **Financing Women Collaborative (FWC):** Launched in 2023 to bridge sex-disaggregated data gaps and coordinate the financing ecosystem for women entrepreneurs.
- **Project Seher:** A TransUnion CIBIL credit education program aimed at strengthening credit literacy and awareness among women.
- **Government Incentives:** Interventions like specific stamp duty benefits have actively encouraged women to take up housing loans.

Way Ahead

- **Flow-Based Underwriting:** Integrate digital footprints (UPI trails, merchant activity) as productive economic assets to assess creditworthiness for collateral-free nano-enterprises.
- **Lifecycle-Based Products:** Develop gender-intelligent bundles that integrate savings, credit, and insurance specifically for younger women under 35.
- **From Access to Progression:** Shift policy focus from just disbursement volumes to tracking graduation rates and multi-product holdings to ensure enterprise maturity.

- **Trust-Based Capability Building:** Leverage social networks and collectives (SHGs/Federations) to provide peer-endorsed digital training that builds long-term confidence.
- **Inclusive Design:** Financial tools must be vernacular-first and voice-enabled to accommodate diverse literacy levels and contextual constraints.

