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DAILY CURRENT AFFAIRS DATED 09.04.2026

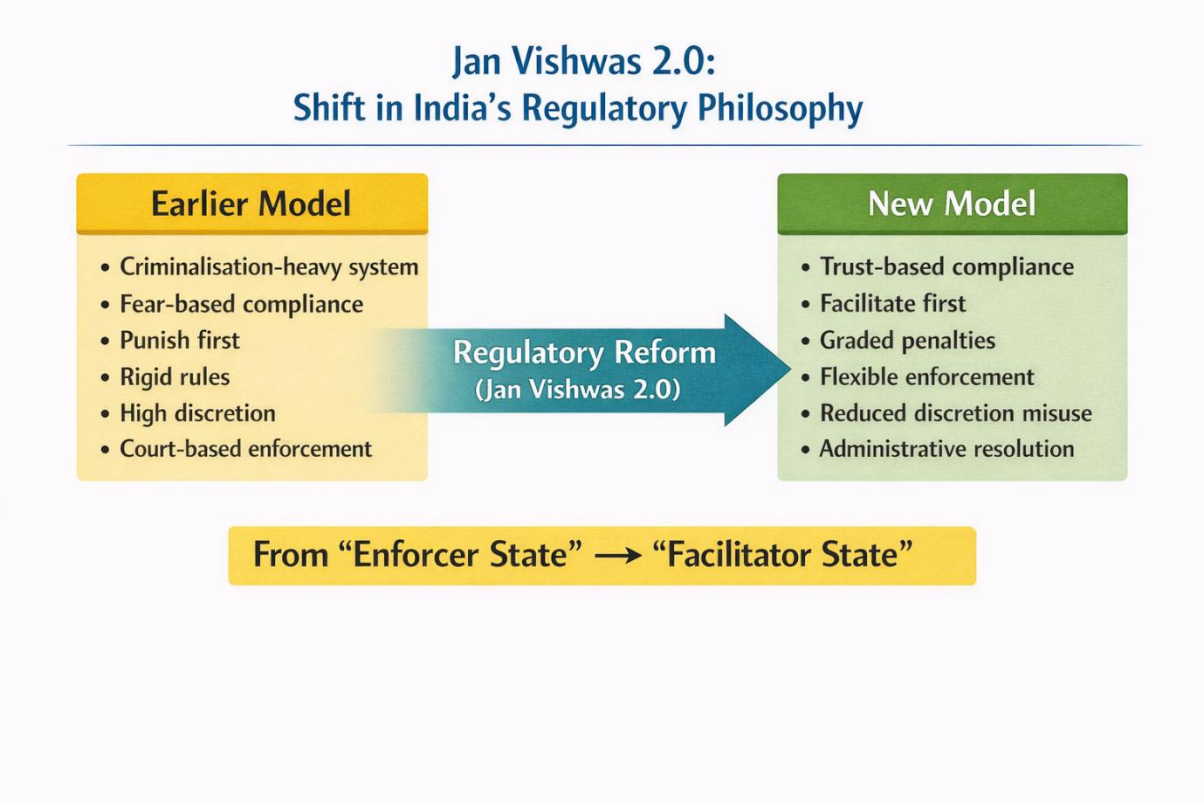
GS Paper II: Current Affairs

1. Jan Vishwas 2.0 and Trust-Based Compliance: A Shift in India's Regulatory Philosophy

a. Introduction

Modern governance increasingly recognises that excessive criminalisation does not always lead to better compliance. In this context, the Jan Vishwas (Amendment of Provisions) Bill, 2026, commonly referred to as Jan Vishwas 2.0, represents a significant attempt to reform India's regulatory framework. It seeks to replace a fear-driven compliance culture with a more rational, proportionate, and trust-oriented approach.

At its core, the reform reflects a simple but powerful idea: minor procedural mistakes should not be treated as crimes, but as issues that can be corrected through guidance and proportionate penalties.



b. Conceptual Foundation: From Criminalisation to Compliance

Understanding the Earlier Approach

- India's regulatory system traditionally relied heavily on criminal provisions, even for minor technical lapses such as delays in filing returns or documentation errors.
- The underlying assumption was that strict punishment would automatically ensure compliance.
- However, in practice, this led to unintended consequences:
    - unnecessary fear among businesses,
    - increased compliance burden,
    - misuse of discretionary powers,
    - and congestion in criminal courts.

The New Approach under Jan Vishwas 2.0

- Introduces a graded and proportionate enforcement model.
- Minor violations are addressed through:
    - warnings,
    - monetary penalties,
    - administrative measures.
- Compliance is encouraged through guidance and opportunity for correction.
- Criminal punishment is reserved for serious or intentional wrongdoing.

Thus, the system transitions from a punitive State to a facilitative regulatory framework.

c. Meaning of Trust-Based Compliance

Core Idea

- Based on the assumption that most individuals and businesses intend to comply with the law.
- Non-compliance often arises due to complexity, lack of awareness, or procedural errors rather than intent to violate.

Role of the State

- Provide clear and simplified rules.
- Allow opportunities for voluntary correction.
- Impose proportionate penalties where necessary.
- Use strict punishment only for deliberate violations.

Thus, the philosophy shifts from "punish first" to "facilitate first, punish when required."

d. Evolution of Reform: From 2023 to 2026

Jan Vishwas Act, 2023

- Initiated the process of decriminalising minor offences across several central laws.
- Marked the beginning of a shift away from excessive penal provisions.

Jan Vishwas 2.0 (2026)

- Expands the approach across a wider set of laws and sectors.
- Indicates an intent to institutionalise trust-based regulation across governance.

This progression reflects a system-wide movement towards regulatory rationalisation.

e. Key Features of Jan Vishwas 2.0

Structural Features

- Decriminalisation of minor offences, especially procedural and technical lapses.
- Shift to civil and administrative penalties instead of criminal prosecution.
- Graded enforcement mechanisms, including warnings and lower penalties for first-time violations.
- Wide sectoral coverage, including exports, environment, and transport.
- Retention of strict punishment for offences affecting public safety, environment, or national interest.

This ensures flexibility without compromising accountability in critical areas.

f. Why Such a Reform Was Necessary

- Compliance anxiety, especially among small businesses.
- High burden on MSMEs, which lack legal and administrative capacity.
- Overloaded judiciary, with criminal cases involving minor violations.
- Scope for discretionary misuse, due to excessive criminal provisions.
- Weak investment climate, as unpredictability discouraged enterprise.

These challenges highlighted the need for a more balanced and rational regulatory approach.

g. Significance for Governance and Economy

Strengthening Ease of Doing Business

- A predictable and proportionate regulatory system encourages entrepreneurship.
- Reduces fear of arbitrary criminal action.

Supporting MSMEs and Formalisation

- Reduced compliance burden helps smaller enterprises.
- Encourages movement from informal to formal economy.

Reducing Judicial Burden

- Removal of minor offences from criminal courts.
- Enables judiciary to focus on serious crimes.

Promoting Better Governance

- Reflects a shift from rule enforcement to institutional trust-building.
- Improves legitimacy of the State.

Encouraging Voluntary Compliance

- Fair and reasonable rules increase willingness to comply.
- Reduces enforcement costs.

Enhancing Investor Confidence

- Transparent and predictable regulations attract investment.
- Reduces regulatory risk for businesses.

h. Broader Governance Transformation

The reform reflects a shift in the very philosophy of governance:

Earlier Model	Emerging Model
Command-and-control regulation	Facilitative governance
Excessive criminal provisions	Proportionate enforcement
Rigid compliance system	Flexible and graded compliance
Fear-based approach	Trust-based approach

Thus, the State evolves from an enforcer to a partner in development.

i. Concerns and Implementation Challenges

Risk of Weak Enforcement

- Lenient penalties may reduce deterrence.
- Some actors may treat penalties as routine costs.

Administrative Capacity Constraints

- Need for trained officials and robust adjudication systems.
- Institutional capacity must match the reform's ambitions.

Possibility of Arbitrary Decisions

- Civil penalties imposed by executive authorities may be misused.
- Requires transparency and strong appeal mechanisms.

Need for Clear Classification of Offences

- Clear distinction between minor and serious violations is essential.
- Prevents ambiguity and inconsistent application.

Uneven Implementation Across Ministries

- Different interpretations may create inconsistency.
- Uniform guidelines are necessary.

j. Way Forward

Strengthening Institutional Mechanisms

- Build robust administrative adjudication systems.
- Train officials for fair and consistent decision-making.

Ensuring Uniformity

- Develop standard guidelines across ministries.
- Avoid fragmented implementation.

Enhancing Awareness

- Inform businesses and citizens about new compliance norms.
- Promote clarity and transparency.

Maintaining Deterrence for Serious Offences

- Strict penalties must continue for grave violations.
- Balance between flexibility and accountability.

Establishing Transparent Appeal Systems

- Provide mechanisms to challenge administrative decisions.
- Strengthen rule of law and accountability.

Leveraging Digital Governance

- Expand digital compliance platforms.
- Reduce procedural errors and improve efficiency.

Conclusion

Jan Vishwas 2.0 represents a significant evolution in India's regulatory philosophy. It recognises that in a complex and growing economy, compliance is best achieved not through fear alone but through clarity, fairness, and trust. By decriminalising minor procedural lapses and promoting a facilitative

framework, the reform has the potential to improve governance quality, enhance economic efficiency, and strengthen institutional credibility.

However, its success will ultimately depend on effective implementation and the State's ability to maintain a careful balance between trust and accountability.

GS Paper III: Science and Technology

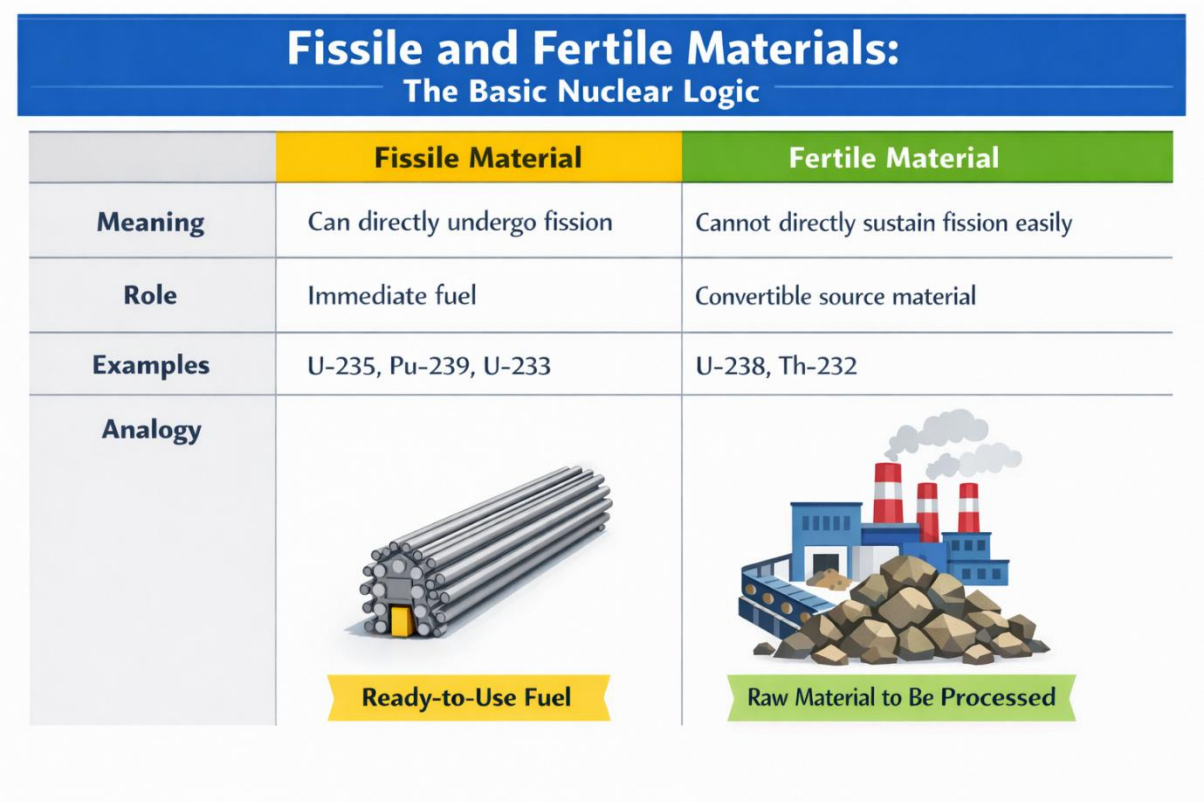
2. Fast Breeder Reactors and India's Three-Stage Nuclear Programme

a. Introduction

India's nuclear energy strategy is not meant only to generate electricity for today. It is designed as a long-term plan to ensure energy security for the future by using India's own resource base. This is where Fast Breeder Reactors (FBRs) become important.

This has become especially relevant because India's 500 MWe Prototype Fast Breeder Reactor (PFBR) at Kalpakkam attained first criticality on 6 April 2026. That milestone is significant because the PFBR is not just another power plant; it is a key part of India's larger three-stage nuclear strategy.

The basic reason is simple: India has limited uranium, but very large thorium reserves. Since thorium cannot directly serve as the main fuel in ordinary reactors, India designed a long-term system in which fast breeder reactors act as the crucial middle link. In simple words, India needs FBRs because they help the country use fuel more efficiently, create additional fissile material, and gradually move toward a thorium-based nuclear future.



b. The Basic Nuclear Idea Behind the Programme

Fissile material

- A fissile material is one that can directly undergo nuclear fission and release energy.
- Examples include uranium-235, plutonium-239, and uranium-233.

Fertile material

- A fertile material cannot by itself easily sustain fission in the same way.
- However, it can be converted into a fissile material inside a reactor.
- Examples include uranium-238 and thorium-232.

This distinction lies at the heart of India's nuclear strategy. India's long-term advantage lies in thorium, but thorium is fertile, not readily fissile. Therefore, India needs an intermediate route to convert available resources into usable nuclear fuel. That route is the three-stage programme, and the fast breeder reactor is the bridge that makes this transition possible.

c. What is a Fast Breeder Reactor?

A fast breeder reactor is a nuclear reactor that produces more fissile material than it consumes.

An ordinary reactor is mainly designed to generate electricity from nuclear fuel. A breeder reactor also generates electricity, but at the same time it creates new usable nuclear fuel. That is why the word "breeder" is used.

The word "fast" refers to the type of neutrons used. In many conventional reactors, neutrons are slowed down using a moderator. In a fast breeder reactor, the neutrons are not slowed down. These fast neutrons are then used not only to maintain the chain reaction but also to convert fertile material into fissile fuel.

Thus, an FBR is important not just because it produces electricity, but because it multiplies nuclear fuel resources.

d. How Does a Fast Breeder Reactor Work?

The working principle can be understood in a simple step-by-step way.

i. Fission in the core

- In nuclear fission, an atomic nucleus splits and releases heat and neutrons.
- In the PFBR-type system, the main fuel is generally plutonium-based mixed oxide fuel (MOX fuel).

ii. Blanket around the core

- Around the reactor core there is a surrounding layer called the blanket.
- This usually contains depleted uranium-238.

iii. Breeding process

- Plutonium in the core undergoes fission.
- This releases heat and fast neutrons.
- Some of these fast neutrons strike uranium-238 in the blanket.
- The uranium-238 then gets converted into plutonium-239, which is fissile.

iv. Strategic result

- The reactor therefore performs two functions at once:
    - it generates electricity, and
    - it produces more fissile fuel for future use.

This is the main reason breeder reactors are strategically valuable.

e. Why is it Called a "Fast" Breeder Reactor?

The reactor is called "fast" because it uses fast neutrons, not slowed neutrons.

This is the key difference from reactors such as Pressurised Heavy Water Reactors (PHWRs), where neutrons are slowed down by heavy water. In an FBR, neutron energy remains high, and this makes the breeding of fissile material from fertile material more effective.

So, the term "fast" does not refer to speed in the ordinary sense. It refers to the high-energy neutrons used inside the reactor.

f. Difference Between PHWRs and Fast Breeder Reactors

India's nuclear power programme has mainly been built around PHWRs, especially in the first stage. Fast breeder reactors are different in both design and purpose.

i. Pressurised Heavy Water Reactors (PHWRs)

Main features

- Use natural uranium as fuel.
- Use heavy water as moderator and coolant.
- Main purpose is electricity generation.

Strategic role

- During operation, they also produce some plutonium in spent fuel.
- This plutonium becomes important for the next stage.

ii. Fast Breeder Reactors (FBRs)

Main features

- Use plutonium-based fuel, often MOX.
- Operate with fast neutrons.
- Usually do not use a moderator.
- Commonly use liquid sodium as coolant.

Strategic role

- Main purpose is not only electricity generation.
- They are designed to produce more fissile fuel than they consume.

In simple terms, PHWRs help generate plutonium, while FBRs help use and multiply that plutonium further. That is why FBRs occupy a central place in the long-term fuel cycle.

g. Why are PHWRs Not Enough by Themselves?

PHWRs are highly useful for India because they can run on natural uranium and suit the country's early-stage resource conditions. However, they have an important limitation: only a small part of uranium's total energy potential is extracted before the spent fuel is removed.

This means PHWRs are effective, but they are not the final answer for a country seeking long-term nuclear self-sufficiency. Their deeper importance lies in producing plutonium, which can then be used in fast breeder reactors.

So PHWRs are best understood as the starting point, not the final destination.

h. India's Three-Stage Nuclear Programme

India's nuclear strategy, associated with Homi J. Bhabha's long-term vision, was based on a clear understanding of India's resource position: limited uranium and abundant thorium. The aim was to move gradually from uranium-based systems to a thorium-based energy future.

i. Stage One: PHWRs Using Natural Uranium

What happens in this stage

- India uses Pressurised Heavy Water Reactors fuelled by natural uranium.
- These reactors generate electricity.
- At the same time, plutonium-239 is produced in spent fuel.

Purpose of this stage

- To produce electricity.
- To generate plutonium needed for stage two.

ii. Stage Two: Fast Breeder Reactors

What happens in this stage

- Plutonium obtained from stage one is used as fuel in fast breeder reactors.
- These reactors are surrounded by fertile material such as depleted uranium.
- As the reactor operates, it both produces electricity and breeds more fissile material.

Purpose of this stage

- To increase the stock of fissile material in the system.
- To act as the bridge stage between uranium-based and thorium-based cycles.

iii. Stage Three: Thorium-Based Reactors

Long-term objective

- India aims to use thorium-232 to produce uranium-233, which is fissile.
- Uranium-233 can then be used for power generation.

Strategic significance

- This stage is the ultimate goal because India has very large thorium reserves.

Thus, stage one produces plutonium, stage two multiplies fissile material, and stage three unlocks thorium.

i. Why Does India Need Fast Breeder Reactors?

- **Long-Term Fuel Security:** India's uranium reserves are limited. A country with limited uranium cannot rely indefinitely only on ordinary uranium-based reactor systems. Fast breeder reactors allow much better use of available nuclear material and therefore strengthen long-term fuel security.
- **Productive Use of Plutonium from Stage One:** The plutonium produced in PHWRs becomes truly useful only when there is a system that can use it productively. FBRs provide exactly that link. They convert plutonium from a by-product into a strategic asset.
- **Transition Toward Thorium:** Thorium is India's major long-term advantage, but it cannot be directly inserted into the system without preparation. The breeder stage helps build the fissile base needed for a thorium-based cycle. In that sense, FBRs are essential to the programme's architecture.
- **Better Fuel Utilisation:** FBRs extract more value from nuclear fuel and fertile material. This makes them attractive for a country trying to maximise limited resources.
- **Strategic Energy Autonomy:** Energy security is not only about electricity generation. It is also about reducing dependence on imported fuel and building technological self-reliance. The breeder reactor fits naturally into this broader strategic vision.

j. Why are Fast Breeder Reactors Difficult?

Although breeder reactors are attractive in theory, they are among the most difficult nuclear systems to build and operate in practice.

i. Technological Complexity

Their reactor physics, materials, fuel cycle, and safety systems are far more complex than those of conventional reactors. Development therefore takes a long time, and the engineering margin for error is small.

ii. Use of Liquid Sodium Coolant

India's PFBR uses liquid sodium as coolant. Official project information notes sodium systems as a key part of PFBR commissioning and operations.

Why sodium is useful

- It transfers heat efficiently.
- It works at high temperatures without the kind of high pressure required in water-based systems.

Why sodium is difficult

- Sodium reacts violently with air and water.
- This means the reactor system demands very high reliability in pipes, seals, pumps, and leak-detection systems.

iii. Stringent Safety Requirements

Because of fast neutrons, reactive coolant, and high operating temperatures, breeder reactors demand especially strong safety systems, advanced monitoring, and a deep institutional safety culture.

iv. High Cost and Long Timelines

Fast breeder reactors are expensive to design, construct, test, and maintain.

v. Need for a Closed Fuel Cycle

A breeder reactor is not just one reactor project. It requires a full closed fuel-cycle ecosystem, including:

- reprocessing of spent fuel,
- plutonium handling,
- fresh fuel fabrication,
- waste management,
- and strong regulatory systems.

Without this larger support structure, the breeder logic remains incomplete.

k. India's Institutional Approach to FBRs

India has pursued breeder technology through a long-term, state-led strategy.

i. Main Institutions

- **Department of Atomic Energy (DAE):** Provides overall policy direction for the programme.
- **Indira Gandhi Centre for Atomic Research (IGCAR):** Has played a central role in design and technological development.
- **Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI):** Has been entrusted with constructing, commissioning, and operating fast breeder reactors. Official BHAVINI material explicitly states that it is building the 500 MWe PFBR as part of the second stage of India's three-stage programme.

ii. Strength and Limitation of This Model

Strength

- Strategic technologies need continuity over decades.
- India's nuclear programme has benefited from such long-term continuity.

Limitation

- Long delays and cost revisions can reduce transparency and accountability.
- Strategic insulation may sometimes weaken public scrutiny.

So, India's breeder journey reflects both strong strategic commitment and the need for greater transparency.

l. What Does Criticality Mean?

The recent milestone at Kalpakkam is important.

A reactor reaches criticality when the nuclear chain reaction becomes self-sustaining. In simple terms, each fission event releases neutrons, and enough of those neutrons go on to trigger further fission events so that the reaction continues at a stable level.

The DAE and PIB both describe PFBR's first criticality as the start of a controlled, self-sustaining fission chain reaction, achieved on 6 April 2026 at 08:25 PM.

This is a major milestone because it shows that the core reactor physics is functioning as intended.

But one point is crucial: criticality does not mean full commercial operation. It means the reactor has entered a new phase of testing and commissioning.

m. What Happens After Criticality?

After achieving criticality, the reactor is not immediately pushed into full electricity production. Instead, it is operated carefully and gradually through a commissioning phase.

During this stage, engineers evaluate:

- thermal performance,
- coolant behaviour,
- neutron flux,
- control systems,
- safety margins,
- and overall operational stability.

This is why criticality should be seen as the beginning of advanced commissioning, not the final end point.

n. Why the PFBR Matters

The PFBR matters not merely as one electricity-generating unit, but as a technology demonstrator.

It tests the second stage of India's nuclear vision

- The PFBR is the practical expression of the breeder stage in India's three-stage programme.
- Its success or failure will shape future breeder expansion.

It strengthens indigenous capability

- It is a major advance in indigenous nuclear technology capabilities and long-term energy security.

It affects the future thorium pathway

- If the PFBR performs well, it will increase confidence in India's closed fuel-cycle and thorium-linked strategy.
- If it faces prolonged technical or economic problems, India may need to reconsider the scale and speed of breeder expansion.

So, the PFBR is not simply one reactor at Kalpakkam. It is, in many ways, a test of a strategic vision formulated decades ago.

o. Is India Right to Pursue Fast Breeder Reactors?

Why the strategy is logically strong

- Fits India's uranium scarcity.
- Supports the long-term thorium vision.
- Improves fuel utilisation.
- Builds technological autonomy.

Why the pathway remains difficult

- High capital costs.
- Long delays.
- Difficult safety requirements.
- Dependence on reprocessing and closed fuel-cycle infrastructure.
- Uncertain commercial viability.

Therefore, India's breeder strategy can be called strategically rational but operationally demanding. The concept makes sense within India's resource logic, but success depends on whether it can be implemented safely, economically, and transparently.

p. Way Forward

Safety First

- Safety must remain the guiding principle.
- Symbolic milestones should never overshadow engineering caution.

Greater Transparency

- More public clarity is needed on timelines, costs, commissioning progress, and safety review.
- This would strengthen trust and policy credibility.

Strengthening the Full Fuel-Cycle Ecosystem

- India must build and maintain reprocessing, fuel fabrication, waste handling, and regulatory capacity together.

Independent and Strong Regulation

- Public confidence in nuclear power depends heavily on credible oversight.
- Regulatory systems must therefore be technically strong and institutionally independent.

Integration with a Broader Energy Strategy

- FBRs should be seen as one important component of a wider national energy mix.
- They must be integrated with renewables, storage, grid reforms, and other nuclear technologies.

Conclusion

Fast breeder reactors occupy a central place in India's long-term nuclear vision because they connect the present uranium-based system with the future thorium-based stage. In India's three-stage programme, they are the critical middle link that helps multiply fissile material and move the country toward long-term nuclear self-sufficiency.

That is why they matter not only as a technological project, but as an expression of India's deeper search for energy sovereignty. At the same time, breeder reactors are among the most complex and demanding nuclear systems in the world. Their success depends not merely on strategic intent, but on actual performance, safety, cost discipline, and institutional credibility.

The first criticality of the 500 MWe PFBR at Kalpakkam on 6 April 2026 is therefore a major milestone, but it is only an early one. The real test lies ahead: whether the reactor can operate safely, efficiently, and sustainably over time. Only then will it become clear whether India's long-envisioned breeder strategy can truly carry the country from uranium scarcity to a thorium-enabled future.

Reader's Note — About This Current Affairs Compilation

Dear Aspirant,

This document is part of the PrepAlpine Current Affairs Series — designed to bring clarity, structure, and precision to your daily UPSC learning.

While every effort has been made to balance depth with brevity, please keep the following in mind:

1. Orientation & Purpose

This compilation is curated primarily from the UPSC Mains perspective — with emphasis on conceptual clarity, analytical depth, and interlinkages across GS papers.

However, the PrepAlpine team is simultaneously developing a dedicated Prelims-focused Current Affairs Series, designed for:

- factual coverage
- data recall
- Prelims-style MCQs
- objective pattern analysis

This Prelims Edition will be released separately as a standalone publication.

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