

EDITORIAL HIGHLIGHTS

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Reforms 3.0 — towards the Bharat rate of growth

For 45 years after Independence, India grew at an anaemic 3% – the infamous “Hindu rate of growth”. Triggered by a balance-of-payments crisis, India found the gumption to liberalise. Within a decade, GDP growth surged. The lesson: crisis breeds reform, and reform breeds exponential outcomes. Artificial Intelligence (AI) provides the same transformational leverage that liberalisation provided in 1991. The question is not whether India can afford to invest – it is whether India can afford not to. After 12 years of Prime Minister Narendra Modi’s leadership, India has reached another WhatsApp moment in reform – dare I say, to take it from a Hindu rate of growth to the Bharat rate of growth – 8% and beyond for the next decade.

The case for making tokens free

India has since proven that it can leapfrog entire generations of infrastructure. Aadhaar enrolled 1.38 billion people in a biometric identity system, the largest on earth. UPI now processes 250 billion annual transactions worth \$3.4 trillion, handling 50% of the world’s real-time digital payments. Reliance Jio, launched in 2016, added 100 million subscribers in just five months and made mobile data essentially free. How India can replicate its Aadhaar, data availability deluge and UPI miracles in the age of AI – by embracing open models, diversifying compute hardware, and making tokens as free as data.

India spends just about 0.65% of its GDP on research and development (R&D), well below China (2.4%), the United States (3.5%), South Korea (4.9%), and Israel (5.4%). The excuse of the socialist Congress governments of 1947-1991 was: “we can’t afford anything more”, which does not and should not apply now. The central question is this: Has the time come to make AI tokens free? If so, how do we do it? Can we begin by making tokens free for the country’s top 100 national R&D institutions and 5,000 schools, so that AI becomes a teammate for scientists and students alike?

India spends approximately \$49 billion each year subsidising calories, chemicals, and carbon. The question is whether it is now ready to subsidise cognition. The answer is that it already can – at a fraction of what it spends today. The entire AI token subsidy for the country’s top 100 universities and national R&D institutions, along with 5,000 high schools, would cost about \$2 billion annually – roughly 0.06% of GDP. The AI investment is around one-fourteenth of India’s food subsidy, one-tenth of its fertilizer subsidy, and less than the amount paid to compensate oil marketing companies for LPG under-recoveries in a single quarter. This is not a moonshot budget. It is a rounding error in India’s existing welfare expenditure – but one with the potential to generate transformative, compounding returns.

India does not need more money; it needs new priorities, new frameworks, and some reallocation. First, AI tokens can be funded



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without cutting a single rupee from existing beneficiaries by merely freezing subsidy growth for a year. (The fertilizer subsidy alone has been compounding at 11% CAGR over the past decade.) Second, India should forge a public-private partnership with hyperscalers such as AWS, Google, and Microsoft, exchanging data centre land, power subsidies, and data sovereignty assurances for free inference capacity. India’s 1.4-billion-user market gives it negotiating leverage that few countries can match, though such techno-commercial negotiations, shaped by geopolitics and uncertainty, will require considerable skill. Third, if necessary, paid enterprise tiers can cross-subsidise free access for schools and research institutions.

Free data worked and free tokens will too. The government did not directly subsidise Jio. Instead, it created the right regulatory environment through spectrum auctions, net neutrality, infrastructure sharing, and a controversial long pilot.

The result: data prices fell from about \$3 per GB to \$0.10 in under three years. The same playbook can apply to AI tokens. Create the right conditions, and the market will deliver abundance. India’s role is not to write the cheque, but to make it unnecessary.

Hosting models

India must build the competence to host and operate large language models, not merely consume them through APIs from San Francisco or Beijing. With Sarvam, it has already shown that frontier models can be trained on Indian soil. The next step is to host models such as Qwen, DeepSeek, Kimi, Llama, and Sarvam on sovereign infrastructure, even if some open-source models originate from China. The models may be free, but the intelligence to host them at scale is not. AI infrastructure should be treated as a strategic national capability, much like what the government has already done for space and nuclear programmes. India should pursue a hybrid strategy that combines sovereign and open-source models to avoid dependence on any single ecosystem. Open-source models offer four key advantages: sovereignty by reducing reliance on foreign APIs that can be restricted overnight; lower costs by eliminating per-token licensing fees, thereby enabling free education and research uses; customisation for Indic languages and cultural contexts; and transparency through auditable model weights for government and defence applications.

Hosting LLMs at national scale is not “just deploy a container”. India must develop deep expertise in availability (multi-region redundancy, 99.99% uptime SLAs for critical government services); latency (<200ms token latency across Tier-2/3 cities); efficiency (like batch scheduling to maximise tokens-per-watt); security (data residency compliance, prompt injection defence, audit trails).

India cannot afford to be locked into a

single-vendor monopoly for its AI compute future. NVIDIA’s dominance comes at extraordinary cost – both financial and strategic. NVIDIA controls 80%+ of AI training hardware but creates deep vendor lock-in that extends far beyond hardware. For India to build sovereign AI infrastructure for 1.4 billion people, the math simply does not work at NVIDIA pricing.

India spent relatively little to build UPI; it cannot afford to spend \$50 billion on NVIDIA GPUs. The alternative hardware ecosystem is not just more economical – it is strategically essential. India should adopt a 40:30:30 hardware mix rather than rely on a single vendor. Around 40% should be built on AWS Trainium and AMD for cost-effective inference workloads available in India. Another 30% should use Google TPUs for research, model training, and academic partnerships. The remaining 30% should rely on NVIDIA for specialised training, legacy compatibility, and a domestic silicon hedge.

AI token policy, implementation timeline

India should announce a National AI Token Policy and implement it over the next 24 months. It should begin by signing public-private partnership agreements with AWS, Google, and Microsoft to establish a multi-vendor sovereign compute framework. The first pilot should provide unlimited research tokens to the top 20 IITs and the IISc. As hyperscaler inference capacity comes online, India should open an API sandbox for 500 startups, expand access to 100 universities, and launch an AI literacy pilot across 500 high schools in 10 States. The programme should culminate in the publication of the country’s first sovereign Indic AI model benchmarks.

Thereafter India needs to scale the ecosystem through cross subsidies as mentioned above and deploy fine-tuned models into health care, agriculture, judiciary and education. It must follow this up with full deployment at 5,000 high schools and all 22 languages. With this India’s token consumption will enter the global top five. In two years, India-trained models will become competitive on international benchmarks and 10,000+ AI-native startups will bloom, rocketing GDP growth.

In sum, India’s AI leapfrog is a *sine qua non* for national transformation. India needs to replicate its DPI (digital public infrastructure) miracles in the age of AI by embracing open models, diversifying compute hardware, and making tokens as free as data. India has all the necessary conditions – favourable policies, stable macroeconomy, prodigious talent and technology institutions – to become a global leader in AI applications. The sufficient condition is India’s decisive, visionary leadership. It will take three moves. One decade. And a transformed (AI) nation.

Reforms 3.0 should focus on building an AI nation, and India cannot afford to miss this opportunity

The views expressed are personal

GS 2 & 3: INTERNATIONAL RELATIONS AND INTERNAL SECURITY

Preparing India for China's missile challenge

GS 2 & 3: INTERNATIONAL RELATIONS AND INTERNAL SECURITY

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Missiles are reshaping warfare, making conflicts faster, cheaper, and more political. A limited volley of conventional missiles can paralyse a country, disrupt critical infrastructure, and complicate decision-making. With China having deployed more than 200 conventional missile launchers opposite India, the key question is how this missile superiority could shape a future conflict.

China's arsenal

While India views conventional missiles primarily as deterrents, China sees them as instruments of both political coercion and war-fighting. The threat of missile strikes alone may achieve strategic objectives without triggering a full-scale war. A barrage targeting critical infrastructure deep inside India could force New Delhi to fight on two fronts: a border conflict and a missile campaign against its hinterland.

The two missile bases located at Korla and Kunming can fire a range of conventional missiles (DF-15B, DF-16, DF-21C and DF-26). DF-15B, DF-16 and DF-21C are most suited to hit military targets along the borders; whereas the DF-26 can hit high-value targets in depth. Further, their hypersonic missiles (DF-100 and CJ-1000) can hit deeper, with no launch warning. This becomes a major vulnerability, as India has no reliable defence against it.

Consequently, China's inventory reduces the salience of the Himalayas to provide strategic depth. The DF-26, being dual-role, raises the risk of escalation. While China shoots down from the Tibetan Plateau, India has to shoot over the Himalayas. This impacts missile detection timings. Moreover, India's missile inventory is still evolving, with limitations in both range and diversity. Its long-range systems – including Agni, the Long-Range Land Attack Cruise Missile (LR-LACM) – Nirbhay, and BrahMos – and their variants are yet to be fully integrated. India also lacks robust real-time targeting capabilities, has

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choice but to absorb a Chinese missile strike. On the contrary, if India has one, both get hurt to varying degrees. That is when the missile math kicks in – in terms of mutual vulnerability. If China launches 100 missiles, India must be able to inflict significant damage – not necessarily through equal numbers, but through comparable effects. India should therefore aim to build a credible conventional missile inventory; otherwise, it risks being forced into a stalemate even before the border war begins.

Ideally, India's rocket force should deliver three effects. First, it should be able to hold the PLA's Western Theatre Command (WTC) at risk by having the threat to target deep inside Tibet and Xinjiang. Second, it should be capable of degrading the PLA's road and rail infrastructure, airbases, and logistics installations along the border. Third, it must enable field commanders to strike PLA camps, gun positions, and ammunition dumps in the tactical battle area. In essence, India needs a rocket force capable of engaging strategic, operational, and tactical military and economic targets from a single command authority.

Three aspects are important. First, at the doctrinal level, India must adopt counter-value strikes as part of its conventional missile strategy. This would require rethinking the scope and scale of its counter-force doctrine and developing a unified target list. Service- or agency-specific target lists have little place in time-sensitive missile warfare. The rocket force must also have the authority to execute pre-designated precautionary strikes in the opening hours of a conflict. Without pre-delegated launch authority, India would risk defeat at the outset.

India needs to build a rocket force before China's missile advantage grows further

Second, at the structural level, whatever blueprint is adopted for the rocket force, it must be placed under the Chief of Defence Staff (CDS). Keeping it service-specific would undermine operational effectiveness. India must also expand its medium- and intermediate-range ballistic missile (MRBM/IRBM) inventory, including Agni variants, to hold targets such as Korla and Kunming at reciprocal risk. This would raise the costs of any Chinese use of the DF-26. Fast-tracking the development of hypersonic missiles is vital, especially since the DF-100 is already part of the PLA Rocket Force's order of battle (ORBAT).

Third, at the technological level, India's missile industry faces significant challenges. Private sector participation must expand to complement the efforts of the DRDO. Major missile programmes have suffered from cost overruns and delays, while critical gaps in advanced air propulsion systems, semiconductors, and high-grade materials continue to hamper self-reliance. Dependence on foreign suppliers for high-end components remains a strategic vulnerability. Greater investment in R&D and end-to-end private-sector manufacturing will be essential.

Interim steps

Since a rocket force will take time to become operational, India must adopt interim measures. First, disperse IAF assets and harden airbases to reduce vulnerability and force an adversary to expend more missiles. Second, optimise air-defence deployment to compel the PLA Rocket Force to target the air-defences rather than critical infrastructure. Third, strengthen long-range conventional strike capabilities to hold targets in Tibet and Xinjiang at risk, creating reciprocal vulnerability. Finally, expand satellite surveillance to detect mobile launchers, particularly DF-26 systems, improving the chances of early neutralisation.

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Why artificial wisdom is the biggest AI risk

The debate surrounding Artificial Intelligence (AI) often revolves around a deceptively simple question: **is AI enhancing humanity or destroying it?** Like every major technological revolution before it, AI is generating both optimism and profound anxiety. There is little doubt that, if deployed responsibly, AI can dramatically enhance productivity across every domain of human activity.

Yet these opportunities come with substantial risks. Many commentators have painted doomsday scenarios ranging from mass unemployment to existential threats. However, not all AI risks are equally dangerous. To navigate the AI age effectively, one must distinguish between risks according to both their impact and the difficulty of mitigating them.

Need to reduce risk

Three risks deserve particular attention. The most widely discussed is the large-scale disruption of cognitive labour. For the first time, machines are not merely replacing physical tasks but appear capable of performing intellectual work once thought to be uniquely human. History, however, cautions against predictions of mass unemployment; technological progress has rarely eliminated entire professions. Instead, it has automated specific tasks while creating new forms of employment and productivity. The steam engine did not destroy labour; it created new industries. Technology redistributed labour rather than rendering humanity obsolete. AI will likely follow a similar trajectory. Some occupations will shrink, others will expand, and entirely new professions will emerge. The transition will be painful and require substantial investment in reskilling, but humanity has navigated such transformations before and can do so again.

The second risk lies in the political and economic



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AI enthusiasts often position AI as a substitute for human cognition. In doing so, society is gradually internalising a dangerous misconception that AI generates knowledge

consequences of an unprecedented concentration of power. The economics of AI are inherently capital-intensive. Developing frontier models requires enormous investments in computing infrastructure, energy, specialised talent and proprietary data. Only a handful of companies – and an even smaller number of countries – possess the necessary resources to compete in this high-risk, high-return race. As a result, ownership and control of AI capabilities are becoming highly concentrated. History teaches that concentration of strategic resources rarely produces stable outcomes. Whether the resource was gold or oil, concentrated ownership has often translated into geopolitical leverage and, at times, coercive behaviour. AI risks becoming another strategic chokepoint. Fortunately, the world has experience managing such challenges through legal institutions, international treaties and negotiated frameworks.

The third risk is unique to AI and potentially the most pervasive because it is the least understood: the curse of “artificial wisdom.” AI enthusiasts often position AI as a substitute for human cognition. In doing so, society is gradually internalising a dangerous misconception that AI generates knowledge. It does not. At its core, an AI system is trained on vast amounts of data to learn patterns and statistical relationships. It uses sophisticated algorithms to predict the most probable next step in a sequence. By repeatedly making these predictions, it can generate human-like text, summarise information and perform many language-based tasks. The distinction is fundamental. Knowledge is not the same as information. Knowledge requires context, judgment, experience and an understanding of consequences. Only a human mind with domain expertise can evaluate whether an AI-generated output is useful and appropriate for the problem at hand.

The issue becomes even more serious when AI generates synthetic information that is more persuasive, accessible or appealing than genuine information. In such circumstances, individuals and institutions may struggle to distinguish fact from fabrication, creating fertile ground for manipulation, misinformation and other unethical uses.

The challenge extends far beyond individual users. Organisations are increasingly conducting research, coding, legal drafting, and financial analysis using AI. This creates an unprecedented form of systemic risk: decisions increasingly influenced by intelligence that nobody is qualified to verify. Ironically, the age of AI might make genuine expertise more valuable than ever; the rarest skill will be the ability to determine whether machine-generated answers are actually correct.

The need for regulation

If a pharmaceutical product causes harm, manufacturers can be held accountable. However, unlike traditional products, AI systems have largely operated without clear liability. The world, therefore, requires a new governance architecture for the responsible deployment of AI. Encouragingly, society is already beginning to redraw the boundaries of accountability for digital platforms. For example, Meta Platforms has faced lawsuits alleging that aspects of its platform design contributed to harm among young users.

The world needs both technical and institutional safeguards, backed by a global non-proliferation agreement on disruptive AI, that allow humans to limit or shut down systems operating outside their intended boundaries. Humanity has avoided nuclear catastrophe for eight decades. The hope is that it should be able to navigate AI too. However, doing so will require governing wisely than ever before.

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On the delay in India-U.S. trade deal

India and the U.S. announced in February 2025 that they would work towards a Bilateral Trade Agreement, but differences over agriculture and Russian oil, along with legal battles in Washington and investigations initiated by the Trump administration, have clouded its prospects

EXPLAINER

T.C.A. Sharad Raghavan

The story so far:

India and the U.S. in February 2025 announced that they would work towards a comprehensive Bilateral Trade Agreement (BTA) that was to be finalised by fall 2025. Then, in February 2026, they signed a framework agreement for an interim trade deal that was to be implemented by April-May 2026. Neither deal has come to pass.

Why was the BTA delayed?

Soon after Prime Minister Narendra Modi and U.S. President Donald Trump announced their intentions to complete a BTA in February 2025, it became clear that a comprehensive deal would be elusive. The talk among government officials was about finalising at least the first tranche of the deal by fall 2025 (September-November 2025).

Talks intensified post April 2025, after Mr. Trump first announced his 'Liberation Day' reciprocal tariffs and then paused them for 90 days so he could negotiate deals with U.S. trade partners. However, despite several meetings, India and the U.S. could not finalise the first tranche, with key sticking points being India's reluctance to open up its agricultural and dairy sectors, and its decision to buy oil from Russia.

In two successive announcements in late July and early August, Mr. Trump raised tariffs on imports from India to 25% and then to 50%, with the latter hike being a penalty for India's Russian oil imports. This decision froze negotiations for a few months before matters thawed once again and talks resumed in October.

What is the interim deal?

Once talks resumed, Mr. Modi and Mr. Trump in February 2026 signed a



framework for an interim agreement on trade. This was not a trade deal itself, but the framework along which one could be worked out. At the time, Commerce Minister Piyush Goyal expressed his confidence that the deal would be completed by April, or at the latest by early May 2026.

Under the framework, the U.S. was to reduce total tariffs on Indian imports to 18%, providing it a competitive advantage over its competitors. Both sides also committed to providing each other preferential market access in "sectors of respective interest".

Why has this deal been delayed?

Soon after the framework was announced, the U.S. Supreme Court invalidated the reciprocal tariff system itself, saying the law it was based on – the International Emergency Economic Powers Act (IEEPA) of the U.S. – did not allow for such tariffs. That removed a major foundation on which the deal negotiations had taken place.

Since then, the U.S. has taken several decisions that have further added to the tariff uncertainty.

Right after the Supreme Court's decision, Mr. Trump announced that he would be imposing a flat 10% tariff on imports from all countries under the Trade Act of 1974, which he said authorised him to take action to address the U.S.'s ballooning trade deficit. This tariff was temporary, supposed to last 150 days up to July 24. Mr. Trump said he would raise it to 15%, but never did.

The U.S. Court of International Trade deemed these illegal as well, but an appeals court put a stay on that order.

What fresh investigations have added more uncertainty?

In March, the office of the U.S. Trade Representative (USTR) said it had initiated two investigations under Section 301 of the Trade Act into several of its trade partners that could potentially see further tariffs being imposed on them.

The first investigation against 16

economies, including India, was to see whether these economies were using excess manufacturing capacity to export to the U.S. in a manner that was hurting American businesses.

The second one, against 60 countries including India, was to look into whether these countries had taken "sufficient steps" to prohibit the import of goods produced with forced labour and how the "failure to eradicate" these practices impacts U.S. workers and businesses.

Under the forced labour investigation, the U.S. government in early June proposed to levy a tariff of 12.5% on imports from 54 countries, including India, as they have "failed to impose and effectively enforce" prohibitions on the import of goods produced using forced labour. To be sure, this does not mean the U.S. is saying that India uses forced labour, but that it has not stopped the import of goods that have been manufactured using forced labour.

India has made its representations to the U.S. on this matter and the final hearing is on July 7. The findings of the excess capacity investigations are expected in mid-July.

What is India's stance on the deal?

As repeatedly expressed by Mr. Goyal, India remains committed to finalising a trade deal with the U.S. but is firm about the fact that it should receive a comparative advantage over its competitors as was agreed in February. For this, the Section 301 investigations will have to be completed and the tariffs decided on various countries.

In the meantime, the two sides continue to negotiate on the other non-tariff aspects of the deal, such as enhanced market access, digital trade, supply chain resilience, reduction of non-tariff barriers, and expanded cooperation in strategic sectors. The latest visit by USTR Jamieson Greer to India on June 23-24 did not yield any deadlines.

THE GIST

India and the U.S. missed both the planned 2025 Bilateral Trade Agreement and the 2026 interim deal after disagreements over agriculture, dairy and Russian oil imports, followed by shifting U.S. tariff policies and legal challenges that disrupted negotiations.

New U.S. Section 301 investigations into excess manufacturing capacity and forced-labour-related imports have delayed tariff decisions, while both sides continue negotiating non-tariff issues, with India insisting on a comparative tariff advantage before finalising the deal.

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Has RBI changed the rules for scam compensation

Who can claim compensation, how much can they receive, and what are the

Aroon Deep

The story so far:

The Reserve Bank of India (RBI) on Wednesday issued fresh rules to protect customers from scam transactions where they lose money to fraudsters and cyberattacks. These directions amend the RBI's 2017 circular on "Limiting Liability of Customers in Unauthorised Electronic Banking Transactions". That previous framework only left banks liable to compensate scammed customers if transactions were not even authorised by customers, such as in a successful hacking incident. These rules are only a pilot for now, but may be extended in the future. They are effective from January 1, 2027, and last for the year.

What has the RBI changed?

In Wednesday's amendments, a draft version of which was released for public comment in March, customers can get reimbursed when they fall prey to certain scams, like digital arrests (where they are "coerced" into paying money), or when

one-time passcodes (OTPs) are "fraudulently" stolen from them. Most financial fraud currently relies on "social engineering" attacks, which require hoodwinking customers in one way or another; since banks' core cybersecurity infrastructure is heavily regulated and subject to RBI audits, "zero click" hacks are vanishingly rare.

The new key concept is "fraudulent electronic banking transactions (EBTs)". RBI defines these as transactions which are "executed by a third-party using the credentials obtained from the customer through fraudulent means or executed by the customer by granting approval under coercion or duress from the third-party" or "an EBT which is not authorised by a customer and inter alia includes an EBT occurring on account of negligence by a bank and/or a third-party breach."

This means that customers who ignore fraud signal warnings, such as those on a UPI PIN screen that a given transaction could be a scam, would not be eligible for any compensation. In cases of a third-party hack, the timeline for a customer to report the loss has been

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increased to five calendar days from three working days. As in the 2017 rules, if any amount is deducted after a customer reports fraud, the customer bears no liability and is entitled to a reversal of the transaction.

Banks can waive customers' liability even if a transaction is negligent, but this is subject to their own discretion. If a user does not have their latest phone number or email address registered with the bank, this counts as negligence, as the bank would not send fraud alerts to the right contact.

How much compensation can customers receive?

For losses up to ₹50,000, individual victims can claim 85% of the amount as compensation, only once in their lifetime, up to ₹25,000. (This means that for any amount from ₹29,412 till ₹50,000, customers will receive a flat ₹25,000 compensation.) Roughly three-fourths of the amount will be paid by RBI itself, while the customer and beneficiary banks will pay half the remaining amount.

A customer must report to the

cybercrime helpline (1930) within five days to be eligible for this. It is worth noting that scams above ₹50,000 don't seem to be covered in this framework at

in the draft and banks have been implement this new ad a July 1 by January 1, 2027.

Complaint settlement timelines are also now increased to 45-60 days, with the latter applying for international transactions.

Dvara Research, a non-profit financial inclusion think tank, had suggested that the vulnerability of customers be taken into account. "Research suggests that Indians encounter fraud attempts multiple times a week, that these attempts are growing more sophisticated, and therefore, it is not unlikely that customers may fall for them more than once," the body wrote.

"Vulnerable customers may not be expected to meet high standards of attentiveness or defend themselves against frauds that are sophisticated even for the more evolved customers ... Under the Indian Contract Act, contracts executed under information asymmetry, external influence, or fraudulent pretext are voidable... Bundling such different transactions under the common definition of 'authorised transaction' diminishes their fundamental difference and may even reduce the significance of a liability framework."

THE GIST

RBI's revised rules expand customer protection by allowing compensation for certain fraud caused by coercion or stolen credentials, not just unauthorised transactions.

Eligible customers can claim up to ₹25,000 for losses of up to ₹50,000 if they report the fraud within five days; the pilot framework takes effect from January 1, 2027.

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KEYWORD

What India's 12 'operationally deployed' nuclear warheads really mean

SIPRI's latest assessment shows the maturation of India's second-strike capability rather than a shift away from its long-standing 'no first use' doctrine; the development comes amid a broader global trend of nuclear modernisation and weakening arms-control frameworks

Shrawani Shagun

The Stockholm International Peace Research Institute (SIPRI) released its annual yearbook in June. For the first time, it classified 12 of India's estimated stockpile of 190 nuclear warheads to be operationally deployed, i.e., positioned with active military forces mated with delivery systems and ready for use.

This sounds alarming – but the alarm itself may not be warranted. The reason is that India has neither crossed a strategic threshold nor has it abandoned its decades-old 'no first use' policy.

India's promise

India's 'no first use' (NFU) policy is a pillar of its nuclear doctrine and its credible minimum deterrence posture. At the UN High-Level Meeting commemorating the International Day for the Total Elimination of Nuclear Weapons in September 2025, India's representative Sibi George reaffirmed India's commitment to NFU and to the non-use of nuclear weapons against non-nuclear-weapon states.

The political foundations of the doctrine are intact even as some analysts within India have periodically called for a conditional or hybrid first-use posture. Those calls have not prevailed.

Under NFU, India commits to not launching a pre-emptive nuclear strike. What it needs is the absolute certainty that even after absorbing a nuclear first strike, enough of its nuclear arsenal will survive to deliver a devastating retaliatory blow. This survivability guarantee is what strategists call a second-strike capability, and without it, NFU is not a doctrine but a liability. In other words, the doctrine depends on a force that can survive and retaliate.

The SIPRI report does not indicate a shift towards first use, a lowering of the threshold for nuclear employment or indeed any revision of the political controls that govern India's nuclear weapons. Instead, it documents the maturing of India's ability to credibly deliver the second strike.

Stockpile v. Deployment

This distinction is significant. Possessing a nuclear warhead and deploying it as part of an operational deterrent is not the same thing. For most of its nuclear history, India has kept its warheads in a de-mated state, meaning the warheads were stored separately from their delivery vehicles, in a central storage site and under strict civilian and political oversight. The idea was to maximise safety, reduce the risk of accidental use, and signal restraint to the international community.

Deployment, on the other hand, means a weapon has been paired with a delivery system – a missile, aircraft, or submarine – and positioned with operational military forces in a state of readiness. Again, this does not mean the weapons are about to be used; it means they are configured for use if authorised. A de-mated weapon requires time to prepare and deploy; a mated weapon can, in principle, be launched more quickly.

What SIPRI has recorded when it classified 12 Indian warheads as being deployed is that a small – but no doubt



The Stockholm International Peace Research Institute noticed India's increasing reliance on canisterised Agni-series missiles. FILE PHOTO

significant – fraction of India's arsenal now is being maintained in a state of operational readiness. And SIPRI has linked this assessment to the maturation of India's nuclear triad, particularly its sea-based deterrent, suggesting that a small number of warheads may now be deployed aboard a nuclear ballistic missile submarine (which are also called SSBN) conducting occasional deterrence patrols.

India's Arihant-class submarines have steadily strengthened the survivability of the country's second-strike capability, with additional platforms expected to further consolidate this leg of the triad. SIPRI also noticed India's increasing reliance on canisterised Agni-series missiles. This means the missiles are kept ready with fuel in a sealed cylinder, from which they can be directly fired without further preparations. Canisterisation thus indicates a greater level of operational readiness.

Overall, it seems India's long envisioned deterrent posture is becoming increasingly operational across land and sea-based delivery systems – but not that the country is on a war footing.

NFU architecture

Bearing in mind India's pursuit of a doctrine of credible minimum deterrence centred on assured retaliation, the maturation of its submarine-based deterrent doesn't depart from NFU but is a means of strengthening it.

A doctrine that relies on retaliation requires forces capable of surviving an adversary's first strike. Land-based missiles, however capable, sit at known and mappable locations. An adversary confident in its intelligence could, in theory, target them in a disarming first strike before a retaliatory order is ever

issued. On the other hand, a stealth submarine operating in the ocean can't be found, tracked or destroyed in time.

This is a fundamental difference – and in fact, ballistic missile submarines provide the most secure second-strike capability available. As the scholar Vipin Narang has written, states pursuing assured retaliation postures must, above all, solve the survivability problem, and sea-basing is the most robust solution available.

India has now done that. With three operational SSBNs sufficient to keep at least one submerged and on patrol at all times, India has closed the central vulnerability any NFU doctrine faces.

Manpreet Sethi, distinguished fellow at the Centre for Aerospace Power and Strategic Studies, New Delhi, said, "With the operationalisation of tri-SSBNs, it is not surprising that some of India's nuclear warheads now stand mated with delivery platforms. This in no way implies a doctrinal shift. Rather, it makes assured retaliation more credible and, hence, India more confident in its commitment to 'no first use'."

Wider warning

SIPRI's documentation of India's deployment milestone lies within a broader, more concerning global trend. The organisation's 2026 Yearbook observed that states are "increasingly relying on nuclear weapons as instruments of national power", signalling a reversal of decades of gradual progress in disarmament.

As of January this year, the world's nine nuclear-armed states collectively possessed an estimated 12,187 nuclear warheads. China's arsenal has grown to approximately 620 and continues to expand at a pace unmatched by any other

nuclear power. In this context, India's reported deployment of 12 operationally assigned warheads is strategically significant.

India's nuclear choices must be understood from within this evolving security environment. SIPRI has noted that India's modernisation programme is increasingly focused on developing long-range delivery systems capable of reaching targets throughout China – while continuing to account for Pakistan.

With China's arsenal now more than three times the size of Pakistan's estimated stockpile, and Beijing simultaneously expanding its sea-based nuclear deterrent, India's SSBN programme appears directed as much towards maintaining credible deterrence against China as towards preserving stability with Pakistan.

The world that the SIPRI report has described is one in which the post-Cold War nuclear order is under mounting strain. Arms-control agreements have weakened or collapsed while competition in areas such as hypersonic delivery systems, artificial intelligence-enabled decision support, missile defence, and anti-submarine warfare continues to intensify.

The risk of miscalculation is correspondingly increasing. India's evolving deterrent posture should therefore be seen not as an isolated development but as part of a wider transformation in the global strategic environment. Policymakers should treat this as a warning that the institutions designed to manage nuclear risk must adapt quickly enough to keep pace with the capabilities now being fielded. (Shrawani Shagun is a researcher focusing on environmental sustainability and space governance)

GS 2: INTERNATIONAL RELATIONS

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Next UN chief's job: Keep conversations alive when others stop talking

DAG HAMMARSKJÖLD, the United Nations' second secretary-general, once offered what remains perhaps the clearest statement of the organisation's purpose. **The UN, he said, "was not created to take mankind to heaven, but to save humanity from hell".** The remark reflected the hard lessons of the first half of the 20th century, when two world wars, genocide, imperial conquest and the horrors of the Holocaust and Hiroshima devastated much of the globe. **The UN was never intended to create a perfect international order; it was designed to prevent the recurrence of such catastrophes.** Eighty years after its founding, that mission looks increasingly precarious.

Armed conflicts are multiplying. Nuclear risks have returned to strategic calculations. International law is under pressure, while the Security Council, the world's principal instrument of collective security, is frequently paralysed by the rival interests of its permanent members. When cooperation is most needed, faith in multilateralism is ebbing as great-power rivalry thrives. **Against this backdrop, the race to succeed António Guterres, whose term ends in December 2026, has assumed unusual significance.** The next secretary-general will inherit what has often been described as the "most impossible job" on Earth. Yet there are moments when impossible jobs matter most.

The next UN chief will take office as the restraints that have helped contain international rivalry since 1945 visibly weaken. For all its shortcomings, the post-war order achieved something remarkable: It prevented World War III. Proxy wars, regional conflicts and repeated crises occurred, but **direct military confrontation between the major powers was avoided. Colonial empires disappeared, dozens of new nations emerged,** and institutions of international

cooperation often prevented local conflicts from becoming global disasters. Today, **those achievements are under strain. Russia's invasion of Ukraine, the devastation in Gaza, widening conflicts across West Asia, tensions in the South China Sea and the erosion of arms-control agreements all point to a world more willing to rely on force and coercion.** Many smaller countries feel like mere spectators rather than participants in shaping the international order.

It is in moments such as these that the secretary-general's role assumes particular importance. **The office's most successful occupants understood that preserving peace required more than administrative competence. Hammarskjöld helped navigate the Suez crisis and transformed peace-keeping into a practical instrument of conflict management. U Thant quietly created diplomatic space during the Cuban missile crisis, while Javier Pérez de Cuellar helped broker settlements from Afghanistan to Central America and contributed to the Cold War's peaceful conclusion. Kofi Annan became a moral voice for peace and humanity and was widely described as the "secular Pope".** Their influence rested not on formal authority but on credibility, discretion and the ability to help governments change course without appearing to surrender. That tradition has faded.

The secretary-general still commands a global platform unmatched by most political leaders. Yet the office has become increasingly cautious in using that authority. When governments hesitate to speak uncomfortable truths, excessive caution carries its own risks. **The next secretary-general should not merely respond to crises but identify dangers before they erupt.** Too often, the international community mobilises only after violence and humanitarian disasters have



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escalated. **The most immediate challenge is the widening gulf among the major powers. Relations between the US, China and Russia have deteriorated sharply. The office requires someone capable of combining public candour with private persuasion. Its greatest asset may be the ability to keep conversations alive when others stop talking.**

Recent setbacks in negotiations on nuclear disarmament, pandemic preparedness and plastic pollution illustrate a broader problem. **International negotiations now struggle to move beyond entrenched positions. Diplomatic breakthroughs rarely occur by accident.** The Universal Declaration of Human Rights, the Nuclear Non-Proliferation Treaty and the Paris climate agreement emerged through painstaking negotiations that uncovered common ground despite profound differences. **The UN should invest more in mediation, negotiation support and conflict-resolution capacity.**

The organisation also faces a legitimacy crisis. Across much of the Global South, governments believe the international system applies its principles inconsistently. Frustration over Security Council reform has accumulated for decades, while institutions designed in 1945 continue to reflect a world that no longer exists. Whether the next secretary-general comes from Latin America or the Caribbean, whose turn it is under the informal regional rotation, geography alone will not solve that problem. What matters is whether the office becomes a persistent advocate for a more representative international order.

The UN must also adapt to a changing landscape in which cities, universities, philanthropic foundations, civil-society organisations and private-sector actors possess capabilities once associated almost exclusively with states. During periods of govern-

mental deadlock, these networks often remain capable of advancing cooperation. Perhaps the greatest challenge lies not within institutions but in political culture. The generation that experienced world war, genocide and nuclear brinkmanship required little persuasion about the consequences of international failure. Today's leaders are more distant from those experiences, even as many of the dangers that inspired the UN's creation have returned.

The next secretary-general cannot restore the UN's relevance alone. But the office can remind governments and the public that multilateralism is not idealism but a practical necessity. Climate change, pandemics, mass displacement, cyber insecurity and nuclear proliferation do not respect borders. As Kofi Annan observed, they are "problems without passports". The next secretary-general will inherit an organisation under financial pressure, confronting geopolitical fragmentation and facing widespread scepticism about its effectiveness. Yet the history of the UN offers a paradox. **The organisation has seldom been most valuable when relations among states were harmonious. Its greatest contributions often came during periods of intense division, when channels of communication were scarce, and mistrust was abundant.**

The secretary-general cannot end wars by decree or reshape international politics alone. **What the office can do is create opportunities for diplomacy, preserve lines of communication and expand the political space in which compromise becomes feasible.** The job remains impossible. The alternative, however, is a world in which nobody is left trying to save humanity from hell.

Tharoor, MP, served the UN from 1978 to 2007. He was India's candidate for secretary-general in 2006, and came second out of seven candidates. Mathew is a former UN spokesperson.

The next UN secretary-general will take office as the restraints that have helped contain international rivalry since 1945 visibly weaken

GS 3: ECONOMY

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GOURAV VALLABH

Lower oil prices, a window of opportunity, don't waste it

INDIA'S MACROECONOMIC story today presents an unusual contrast. Consumer inflation remains comfortably below the RBI's medium-term target, while wholesale inflation has risen sharply. The rupee, which faced pressure amid recent geo-political tensions, has regained some ground. Foreign exchange reserves remain robust, and growth continues to outpace most major economies. Yet beneath these reassuring headlines lies a challenge that policymakers cannot afford to ignore.

The widening gap between wholesale and consumer inflation deserves closer attention. Such divergences rarely persist. Producer costs eventually find their way into retail prices. Higher fuel and power prices have already raised production costs across sectors ranging from chemicals and fertilisers to textiles and engineering goods. These pressures are likely to surface in consumer inflation with a lag.

The reopening of key shipping routes has moderated global oil prices. For an oil-importing nation like India, this is more than temporary relief. It is a strategic opportunity.

The temptation is to treat lower oil prices as a windfall. That would be a mistake. Commodity cycles are temporary. Countries that use periods of lower prices to strengthen their fundamentals emerge stronger when conditions reverse. Those who view them merely as an excuse for higher spending often find themselves vulnerable during the next shock. India should use this window to reinforce three pillars of macroeconomic strength: Currency stability, export competitiveness and fiscal credibility.

The opportunity is enormous. Global pension funds, insurance companies and sovereign wealth funds control more than \$110 trillion, much of it seeking stable, inflation-linked, long-term returns

The first priority should be strengthening external buffers. Lower oil prices reduce the import bill and improve the current account position. A portion of these gains should be used to strengthen foreign exchange reserves. Strong reserves provide insurance against future external shocks and help deter speculative pressure on the currency. At the same time, efforts to attract stable foreign currency inflows must continue.

The larger objective should be reducing India's structural dependence on imported energy. Over the past decade, India has expanded renewable energy capacity, promoted electric mobility and encouraged domestic manufacturing through production-linked incentives. The current oil price environment offers an opportunity to accelerate this transition.

The export sector can benefit as well. Lower energy costs reduce transportation and logistics expenses across the economy. Temporary cost advantages should be converted into durable gains in global market share. This is also an opportune moment to attract investment into energy-intensive manufacturing sectors. India's improving infrastructure, expanding domestic market, production-linked incentive framework and lower energy costs together create a compelling proposition for global investors seeking alternative production locations.

However, these opportunities can be undermined if fiscal discipline weakens. Whenever oil prices decline, governments face pressure to expand subsidies or increase recurring expenditure. While such measures may offer short-term

gains, long-term economic benefits lie elsewhere. Savings generated through lower oil prices should primarily support capital expenditure, deficit reduction and strategic reserve accumulation.

Fiscal credibility has become one of India's most valuable macroeconomic assets. It lowers borrowing costs, strengthens investor confidence and supports currency stability. Preserving this credibility must remain a policy priority. There is another reason for caution. A weaker-than-expected monsoon can quickly reverse gains in food inflation and place pressure on household budgets. Policymakers should strengthen food buffer stocks and secure supply chains while conditions remain favourable.

India has spent the last decade building stronger economic foundations through credible monetary policy, improved fiscal management, stronger reserves and accelerated infrastructure creation. These achievements deserve recognition. Yet, economic success is not measured by performance during favourable periods alone. It is measured by how effectively favourable periods are used to prepare for future challenges. The real test is whether India uses today's calm to prepare for tomorrow's turbulence.

The objective should not be to manage the next few months. It should be to use today's advantages to build resilience for the next decade. That is how temporary opportunities are converted into permanent economic strength.

The writer is professor of finance and part-time member, Economic Advisory Council to the Prime Minister. Views are personal