

Five Myths about India's Nuclear Posture

For a democracy that otherwise leaks secrets like a sieve, India's entire nuclear journey has been shrouded in remarkable secrecy. It is therefore unsurprising that India has closely guarded the details of its nuclear posture since it became an overt nuclear weapons state in 1998. For a relatively mature democracy with a vibrant political culture, the level of opacity surrounding India's nuclear posture is extraordinary, and held tightly by just a handful of senior civilian officials, scientists, and officers in a dedicated Strategic Forces Command (SFC). Widely held conventional wisdoms about the nature and disposition of India's nuclear posture—its forces, deployment patterns, and envisioned employment modes—date back to authoritative studies from the early and mid-2000s by Ashley Tellis, George Perkovich, Bharat Karnad, and Rajesh Basrur.¹ The core of these precepts is that, first, India's nuclear posture and doctrine are driven by an aim of “building and maintaining a credible minimum deterrent”;² second, India keeps its forces in a disassembled state to maximize safety and civilian control;³ and third, India has an unequivocal no-first-use policy, meaning a pledge to only use nuclear weapons in retaliation for nuclear use against India.⁴

Are these precepts still true today? I argue that they are no longer as valid as they once were. Observable indicators and interviews with senior Indian civilians and officers suggest that India is moving toward a nuclear posture that, at least toward Pakistan, can no longer be termed minimal. Its force disposition is also at a much higher state of readiness than is generally appreciated, particularly as it moves to so-called “encapsulated” or “canisterized” systems.

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India's entire nuclear journey has been shrouded in remarkable secrecy.

Although it still adopts a general nuclear posture of assured retaliation—threatening certain retribution in the event of nuclear use against it or its forces—the character of its posture has evolved substantially since the early 2000s.

Below, I dispel five prevailing myths about India's nuclear posture. The evolution of India's nuclear posture over the past decade carries significant tradeoffs and risks which scholars and policymakers have thus far underestimated. In particular, I argue that India's nuclear posture is not as minimal as the conventional wisdom asserts, carrying significant implications for safety, regional security, and crisis stability that remain underappreciated.

Myth I: India's Nuclear Posture is Credible Minimum Deterrence

In 2003, the Indian Prime Minister's Office, the apex of the country's Nuclear Command Authority (NCA), officially summarized India's nuclear doctrine in eight succinct points.⁵ The very first of these is that India would build and maintain a “credible minimum deterrent,” without of course defining what “minimum” meant or toward whom. There are several reasons why, over the past decade, this driving aim of India's nuclear doctrine has become a myth. Credible minimum deterrence may be India's declaratory doctrine, but it is far from its operational nuclear posture.

First, it is impossible for India to achieve a “credible *minimum* deterrent” toward both of its primary strategic adversaries, China and Pakistan. China's own force structure and modernization effort, combined with the location of its primary strategic centers in the far east of the country—furthest from Indian territory—mean that India's deterrence requirements against China far exceed what it would “minimally” require toward Pakistan in terms of numbers, deployment modes, and reach. Therefore, what is credible toward China will likely not be minimum toward Pakistan; and what is minimum toward Pakistan cannot be credible toward China. This theoretical paradox means that India's security managers had to choose whom they envisioned their primary deterrent adversary to be, and against whom they wanted to build and maintain a credible minimum deterrent. All the observable indicators, such as the range and numbers of their strategic missile programs, suggest unsurprisingly that they chose China. This means that India's nuclear posture is evolving into anything but minimal toward the state with whom conflict is actually most likely: Pakistan.

To be clear, India is still far from achieving a credible deterrent against Beijing. Systems developed by India's Defense Research and Development

Organization (DRDO) to impart strategic reach against China are only now coming online. The intermediate-range missile, *Agni III*, has been successfully tested only a handful of times, while the longer-range *Agni V* was first tested in April 2012, with an *Agni VI* reportedly in development. These missiles will extend India's strategic reach against China and are solid-fuel, rail- and road-mobile capabilities. In addition, India's ballistic nuclear submarine (SSBN) project to enhance survivability, christened *Arihant*, is still undergoing testing—and its submarine-launched ballistic missile (SLBM), the K-15 *Sagarika* with a range of roughly 750 km, was first launched from an underwater pontoon in January 2013. (Note that the *Sagarika's* short range does not allow India to target China's strategic centers from the Bay of Bengal, for example, and would require any SSBN to venture east to the East or South China Sea prior to a retaliatory strike.) It is unclear when India will be able to deploy an SSBN on deterrent patrol. Even when it does, it is unclear whether it will prove capable of supporting a continuous deterrent patrol, or whether SSBN(s) will be stationed primarily in port and only sent out on patrol as a crisis unfolds.

It is impossible to achieve a credible *minimum* deterrent toward both China and Pakistan.

Despite these growing capabilities, the Chinese would have good reason to be skeptical of the overall systems reliability of India's *Agni* and SLBM forces. The *Agnis* were only tested several times before "induction into the armed forces."⁶ China's security managers rightly question whether India could reliably deliver and detonate a nuclear warhead atop any of these capabilities. This ought to concern India in its development and testing cycle.

Due to the ranges of most of these capabilities, they would only really be suitable for a China contingency. However, India's expansion of its lower-order, shorter-range and potentially lower yield, use options have caused India's nuclear posture to drift well beyond any reasonable definition of minimum retaliation toward Pakistan. Although India's posture is still oriented for nuclear retaliation against Pakistan, it is developing a variety of accurate shorter-range capabilities for potential use in retaliation against hard or soft counterforce targets, such as military bases or concentrated armored formations. These include the 150-km range *Prahaar* tactical ballistic missile, aimed at "bridg[ing] the gap between the multi-barrel rocket system, *Pinaka*, and the *Prithvi* missiles,"⁷ according to the DRDO's then-head Dr. VK Saraswat (he has since been succeeded by Dr. Avinash Chander), and which can carry "different types of warheads."⁸

These statements and the fact that *Prahaar* can be tipped with a 200-kg warhead means that India could easily assign *Prahaar* a nuclear role—though it is

not clear whether it has done so yet—particularly since there are reports that they are intended to replace all the 150-km range *Prithvi*s, which were officially dual-use themselves.⁹ Similarly, the 750-km *Shourya* hypersonic missile, which is the land-based version of the *Sagarika* SLBM, could similarly find itself assigned an eventual nuclear role given its payload capabilities. Dr. W. Selvamurthy of the DRDO said the *Shourya*'s biggest advantage was its mobility and concealability: "it cannot be detected by satellite imaging. It will surprise our adversaries and strengthen our strategic defense."¹⁰

These capabilities augment India's development of cruise missiles such as *BrahMos* and *Nirbhay*. The former is a joint venture with Russia and has publicly been labeled as a nuclear-capable system. After a joint test, a Russian defense official noted that "fired from land, air and sea platforms, it can hit targets at ranges of 300 to 500 kilometers and is also capable of carrying a nuclear warhead," though Strategic Forces Command has not yet officially assigned it a nuclear role.¹¹ According to DRDO, the cruise missiles and the *Shourya* are evidently some of the world's fastest and most accurate capabilities.¹² In sum, though SFC has a firm commitment to not adopt a nuclear warfighting posture, the development of these capabilities *in toto* expands India's arsenal in numbers and in character. It is positioning Delhi for potentially greater flexibility in future options for nuclear use beyond what is suggested by minimum strategic retaliation.

But there's more: DRDO is also developing a ballistic missile defense capability, a layered system that includes the *Prithvi* Air Defense (PAD) terminal defense system and the *Ashwin*-based Advanced Air Defence (AAD) theater defense system. Though there has again been no political authorization about deploying the system, Saraswat claims that India is ready to put "Phase I"—the protection of two cities—into place and that the layered system has a hit-to-kill probability of 99.8 percent, a claim that strains mathematical credulity.¹³ Furthermore, DRDO claims it is also developing multiple independently targetable reentry vehicles (MIRVs) for some of the *Agni* missiles. Saraswat stated in May 2012 that, although the government has again made no decision to adopt MIRVs, DRDO is developing the capability for several *Agni* variants: "Where I was using four missiles, I may use only one missile. So it becomes a force multiplier given the damage potential."¹⁴

The combination of a layered ballistic missile defense system, lower-order use options, and MIRVs starts looking a lot less minimal and potentially like something much more aggressive, such as a "splendid first strike" ambition or an escalation dominance posture.¹⁵ In particular, coupling MIRVs and ballistic missile defenses could allow a state to start thinking about first-strike strategies that use multiple warheads to target an adversary's nuclear arsenal and then rely on BMD to intercept any residual assets which survive the disarming strike

attempt.¹⁶ (It is certainly true that if you are worried about the survivability of your land based forces, MIRVs increase your retaliatory throw-weight in the event a substantial portion of your forces are preemptively destroyed. It may be the case that this is India's and DRDO's thinking, but it has not been clarified by the political leadership. The worry is that these capabilities also support a posture that aims for a "splendid first strike" or at least escalation dominance.) Due to the threat this combination might pose to the survivability of Pakistan's nuclear forces, Islamabad may be forced to further increase the size of its nuclear arsenal and take dangerous steps to continuously move its nuclear assets around the country during a crisis, or even during peacetime, so that they cannot be located by India.

The development of these capabilities and the aplomb with which they are unveiled fits with a general pattern of DRDO: overpromising and underdelivering. It should be noted that there has been no official political or SFC decision to assign many of these new platforms nuclear roles, or whether India will indeed MIRV any of its missiles or deploy a layered BMD. But the loose lips of the DRDO's senior leadership in potentially assigning nuclear roles to platforms, and the damage potential of MIRVs, is sure to be discomfiting to Pakistan Strategic Plans Division.¹⁷ For Pakistan, DRDO's claims and capability development vitiate whatever meek denials may emanate from other organs in the Indian system. Pakistani force planners, already acutely worried about the growth of India's conventional and nuclear capabilities, must look at long development timelines and assess likely Indian capabilities, irrespective of present Indian intentions.

The reality is that the lower-order delivery vehicles will be able to serve as nuclear platforms if India develops warheads of suitable size and weight for any of them. DRDO is thus attempting to put India in a position to adopt a very different posture if political clearance for BMD and MIRVs is ever given. Thus, the conventional wisdom that India's strategic retaliatory capabilities starts and ends with aircraft and *Agni* missiles is untrue. India is developing a range of potential capabilities that could allow it to one day adopt a counterforce or escalation dominance strategy over Pakistan, enabling India to retaliate with lower-order use options in a variety of contingencies against a range of targets—including nuclear systems, if they can be located, as well as population centers.

The widely held belief that India's nuclear posture is one of "credible minimum deterrence" is increasingly a myth. Presently, it is neither credible toward China, nor minimal toward Pakistan. As it continues to strive for the former (in addition to developing Pakistan-specific lower-order use options), it is undermining the latter—in ways that could have significant consequences for a regional arms race.

The belief that India maintains its nuclear forces in a disassembled state is largely now a myth.

Myth 2: India Keeps Its Nuclear Weapons in a Disassembled State

In his magisterial 2001 book on India's emerging nuclear posture, Ashley Tellis wrote that the three key features of India's nuclear posture were that it was limited in size, separated in disposition, and centralized in control. He noted: "The weapons and delivery systems *are* developed and produced, with key subcomponents maintained under civilian custody, but these assets are *not* deployed in any

way that enables the prompt conduct of nuclear operations. Such assets are, in fact, sequestered and covertly maintained in distributed form, with different custodians exercising strict stewardship over the components entrusted to them for safekeeping."¹⁸ This belief that India maintains all of its nuclear forces in a disassembled, and certainly de-mated, state across various civilian agencies persists today.¹⁹ But it is largely now a myth.

Over the past decade, all observable indicators are that India, while adhering to its posture of assured retaliation, has increased the baseline readiness of at least a subset of its nuclear forces, if not all of them—particularly as it marches toward a force consisting largely of so-called "encapsulated" or "canisterized" systems in which the warhead is likely pre-mated to the delivery vehicle and kept hermetically sealed for storage and transport (though procedures may exist that allow for the warhead to be mated in the field).²⁰ This encapsulation is made possible by the fact that India's ballistic missiles are essentially all now solid fuel.

Encapsulation enhances missile longevity by protecting the solid fuel from the elements, but it also complicates our picture of an India managing its nuclear forces in a disassembled or de-mated state. Though it is possible that reserve components are stewarded by their respective civilian agencies—nuclear pits with the Department of Atomic Energy, the explosives package with DRDO, the delivery vehicle with the SFC—it seems increasingly likely that India already has some subset of the force within minutes of readiness. This is likely to include co-location of subcomponents, and in some cases, potentially fully mated systems that are either a proverbial "last screw" or "last code" from being armed and ready to be released. Indeed, in July 2013 the new DRDO head, Dr. Avinash Chander, revealed that DRDO is increasingly "working on canisterized systems that can launch from anywhere at any time . . . [and] making much more agile, fast-reacting, stable missiles so [that a] response can be within minutes" for ultimately all of India's nuclear missile systems.²¹

Several *Agni* variants are already deployed in encapsulated form, and the SLBM will almost surely have to be deployed in a pre-mated state. Though there are ways to insert final components or mate a warhead in an SLBM tube while on deterrent patrol, they are complicated. With some portion of the *Agni* family already moving to encapsulated systems, it is likely that India will rely increasingly on technological and procedural negative controls, or restraints, to prevent unauthorized release, rather than physical separation of components or de-mating. In interviews, former senior civilian security officials and former SFC officers suggest that some portion of the nuclear force, particularly those weapons and capabilities designed for retaliation against Pakistan, are now kept at a much higher state of readiness, capable of being operationalized and released within seconds or minutes—not hours, as has been previously assumed.

For example, discussions with former officers in the Strategic Forces Command confirmed that a portion of the land-based missiles are now maintained at very high levels of readiness in peacetime, and that at least some nuclear bombs for aircraft are co-located with aircraft on bases and stored in underground bunkers for rapid mating if necessary.²² Other systems that would be necessary only in contingencies with longer lead times may be kept at lower states of readiness, but this may eventually change as well. Instead of maintaining its entire nuclear force in a disassembled and de-mated state, India now appears to maintain its force at a range of readiness levels, with some systems almost fully ready during peacetime. If Chander's claims are accurate, it seems likely that all of India's nuclear missile systems will eventually be deployed in a near-ready "canisterized" state, which is a far cry from the prevailing perception that India maintains its nuclear force in a relatively recessed state.

In the previous disassembled and dispersed configuration, there would have likely been visible signals of movement up alert levels in the Indian system as subcomponents were moved, assembled, and mated to delivery vehicles. Now, however, the fact that at least some subset of the force is maintained at a relatively higher baseline readiness level means that there might not be any visible signatures that India has readied at least some of its nuclear systems. This lack of visibility could significantly complicate signaling in future crises with Pakistan or China.

Every official or officer with whom I spoke did emphasize that highly centralized procedural control still exists over India's nuclear arsenal. Every movement, or arming of a system, is still subject to at least a two-man rule, requiring at least two separate personnel to release a nuclear weapon, and can only be authorized directly by the NCA (i.e. an arming code with the targeting package would be communicated directly in the final step, preventing any one person from releasing a nuclear system without it).²³ Moreover, given that India is unlikely able to distinguish between an incoming nuclear or conventional

warhead until it detonates, this higher state of readiness does not yet afford India the ability to adopt a launch-on-warning or launch-under-attack posture. Instead, it still effectively has, according to senior former SFC officers, a “launch-after-hit” posture.²⁴ As a result, much effort has reportedly been expended to ensure the reliability and continuity of India’s command and control and communication system. But whereas dispersion and disassembly previously served as a “super permissive action link (PAL)” according to Tellis—designed to prevent unauthorized detonation or launching of a nuclear weapon—India’s current force disposition would probably require more sophisticated PALs to prevent unauthorized or accidental use. The state of these features is largely unknown in the public domain.

Myth 3: India has an Absolute No-First-Use Policy

India’s 2003 summary of its nuclear doctrine states that India strictly adheres to a policy of “no first use” (NFU) for its nuclear weapons: nuclear weapons “will only be used in retaliation against a nuclear attack on Indian territory or on Indian forces anywhere.”²⁵ Every national security advisor since then has reiterated this commitment, both publicly and privately.²⁶ There is a widely held belief that India is one of the only countries to have a blanket NFU policy, and that it has taken steps to make the pledge credible, such as dispersing subcomponents to make the first use of nuclear weapons highly unlikely.

It is a myth that India ever had an absolute no-first-use policy.

As noted in the above myths, recent developments have removed some of these costly signals that reassure adversaries of India’s NFU intent. But, here I additionally show that it is a myth that India *ever* had an absolute NFU policy. Though India presently has no intention to use its nuclear weapons in anything but a retaliatory fashion, there are several caveats that undermine the sacrosanctity of India’s NFU pledge.

First, as Stanford professor Scott Sagan and others have argued previously, India’s own 2003 doctrine undermines the absoluteness of the NFU pledge.²⁷ It included a significant caveat that reads: “However, in the event of a major attack against India, or Indian forces anywhere, by biological or chemical weapons, India will retain the option of retaliating with nuclear weapons.”²⁸ Thus, even in the official summary of its nuclear doctrine, India dilutes its NFU pledge by threatening potential nuclear retaliation in the event of chemical or biological weapons use on its soil or its forces—not just nuclear. The reasons for this “calculated ambiguity”²⁹ are discussed elsewhere, most thoroughly by Sagan,

but the notion that India has an absolute NFU policy is officially and demonstrably false. Pakistani participants regularly reference this fact in international fora when Indian participants discuss the sanctity of India's NFU pledge.

The second reason why India's NFU pledge is a myth, however, is more complicated and indirect. It centers on an issue explicated by Professor Barry Posen at the end of the Cold War: inadvertent escalation, or targeting nuclear systems with conventional forces which could result in a nuclear detonation.³⁰ In discussions with retired Indian Army and Air Force officers, it has become clear that in a conventional conflict with Pakistan or China, India's conventional operators consider any fixed nuclear target or any mobile missile launcher, in the field or on a base, as legitimate targets which they could strike without prior political clearance. In both cases, India's Air Force or Army may not be able to, or may not care to, determine whether the systems they are targeting are nuclear or conventional. Indeed, some have gone so far as to say that they intend to degrade the adversary's nuclear systems at the outset of a conventional conflict, and that this strategy would not otherwise require political authorization, despite the enormous strategic consequences.

This not only puts India's adversaries, particularly Pakistan, in a potentially use-it-or-lose-it situation, but could possibly cause a nuclear detonation, since no one can say with certainty whether Pakistani designs could tolerate a conventional blast without triggering a yield event. This is extremely dangerous, and could put India in a position where it is responsible—albeit through the application of conventional power—for the first use of a nuclear weapon on an adversary's territory.

Therefore, contrary to the conventional wisdom, India's NFU pledge is not inviolable. It is undermined both officially, in the 2003 doctrine summary, and in practice by a risky conventional strategy whose unintended consequences could include a nuclear detonation. For that reason, it is unsurprising that India's adversaries have long doubted the absoluteness of its NFU pledge. (Ironically, China doubts India's NFU pledge for the same reasons the United States doubts China's: that in a crisis, no rhetorical pledge physically prevents the state from using nuclear weapons first.)

As with "credible minimum deterrence," the reality of India's nuclear doctrine and its conventional posture are inconsistent with the claim of an absolute NFU policy. The goal of an NFU policy, after all, is to reassure an adversary that the survivability of its nuclear forces will not be threatened in peacetime or crisis. If an adversary comes to doubt that pledge, while simultaneously observing the development of capabilities and procedures noted in the first two myths, it may increase the size of its peacetime nuclear arsenal to ensure survivability. It could also cause adversaries to move toward dangerous

crisis postures that place an emphasis on employing nuclear weapons first, in fear of a preemptive nuclear strike. This, in turn, could prompt a nuclear arms race.

Myth 4: Political Leaders Determine India's Nuclear Posture

Outsiders could fairly assume that, given the stakes for Indian national security, the evolution of India's nuclear posture—development of lower-order use options, MIRVs, BMD, the dilution of India's NFU pledge, and the movement to higher readiness systems—is lucidly driven by a centralized political strategy. Whatever bureaucratic and service interests that drove past Indian nuclear policy, surely the rise of a stronger civilian national security body and the creation of the SFC (after India's 1998 nuclear tests and the 1999 Kargil War with Pakistan) have resulted in stronger centralized direction in India's nuclear posture. Surely there is now centralized and consistent political guidance on the crucial questions of what India is seeking to deter and which nuclear forces are required to do so. Right?

Nothing could be farther from the truth. The evolution of India's posture down this potentially dangerous path is still driven almost entirely by technical bureaucracies and scientists. The civilian political leadership, particularly the Prime Minister's Office, has exercised far too little discipline over these bodies. Many scholars have identified this longstanding problem over the years, most notably Perkovich, Sagan, and Tellis. But the stakes have become even higher. Especially now, India can ill-afford to allow its *own* bureaucracies to drag it into a very dangerous arms race against China and Pakistan.

DRDO, in particular, is driving India's posture without a steering wheel: it continues to advertise the development of capabilities for which it concedes there has been no political clearance. Clearly, India's scientists have their own organizational and prestige incentives to develop what they continually tout as "world class capabilities."³¹ But in this case, flaunting these projects when they do not yet have political clearance or when the capability is immature is risky. In February 2013, for example, DRDO publicized the development of the *Agni VI*, an ICBM that would be MIRV'd with "four or six warheads depending on their weight," *but* crucially admitted that "the Union government is yet to sanction [the] *Agni-VI* project."³² In other words, India's missileers are developing a multiple-warhead intercontinental capability *without* clearance from civilian authorities—a remarkable fact in a supposedly mature and modern nuclear state. Either DRDO is exceeding its brief or India's domestic organs are playing a risky good-cop/bad-cop routine that imperils global security.

Given the timelines of the development cycle, adversaries must calculate their deterrence requirements on the order of years and decades down the road.

DRDO's boasts about its present capability-development therefore certainly influences China's and Pakistan's current decisions about their own future force requirements toward India. Thus, DRDO's public musings about these capabilities will make the need for them a self-fulfilling prophecy, leaving the political leadership with little choice but to ultimately sanction them in the future since China and Pakistan will have already taken measures to price them in. The public unveiling of systems should only occur once the civilian political leadership in the Prime Minister's Office has approved their incorporation. Otherwise, confusing signals from DRDO leave India's adversaries no choice but to assume the most aggressive posture possible. Given DRDO's history of overpromising and underdelivering, touting a capability that you do not yet have and may not be able to develop is a very dangerous way to run a strategic program.³³

The second political issue at stake is that the complicated dynamic of deterrence and reassurance requires a higher level of transparency than India currently allows into its nuclear posture. For understandable security reasons, India's civilian security managers and the SFC are inward looking but outwardly silent. But deterrence and reassurance are inherently strategic interactions, and India's external signaling has long been too opaque. The old saying that "those who know don't talk, and those who don't know talk too much" applies all too well when it comes to India's nuclear developments. This means, however, that when DRDO officials discuss capability development and role assignment, their statements are often the only ones emanating from India, despite the fact that they actually have little authority to assign a particular missile a nuclear or conventional role. SFC has stronger input into nuclear policy than the conventional military, but it is still largely peripheral to overall capability development and strategy, and is viewed as an end-user subject to India's pathological civil-military relations.

It is therefore incumbent upon India's highest civilian security leadership to enforce greater signaling discipline. It must also ensure more transparent and centralized messaging about whether developments in India's nuclear posture are designed to have an intended deterrence or reassurance effect. In its current state, India is drifting toward a more dangerous nuclear posture than its civilian leadership may intend—and as China and Pakistan react to MIRVs, BMDs, and lower-order use options, India may have no choice but to eventually adopt the posture its scientists are already dreaming of building. India's civilian security managers, particularly in the Prime Minister's Office, must wrest control of India's nuclear posture away from parochial organizational interests before it is too late. Periodic reviews or a public written exercise that forces these multiple bureaucracies to accede to a centralized, coherent nuclear posture—much like the United States' Nuclear Posture Review—could serve this purpose and have significant signaling and reassurance benefits for Indian security.

Myth 5: India's Nuclear Infrastructure is Secure

India's nuclear posture has undergone a steady transformation in the last decade.

Much attention has been paid to the security of Pakistan's nuclear infrastructure and arsenal, due to increasing domestic instability and internal militant threats. However, little public attention focuses on how well or poorly India guards its own nuclear infrastructure and arsenal. There is almost no public assessment or discussion about the threats to the security of

India's civilian and military nuclear assets, and how robust India's security measures are against those threats. India's SFC and the civilian nuclear program reportedly have an armament safety authority as well as human and personnel reliability programs to guard against insider threats. But are these programs sufficiently well-designed? We do not publicly know. David Headley, who was complicit in the Lashkar-e-Taiba (LeT) attack on Mumbai in 2008, reportedly cased the Bhabha Atomic

Research Centre (BARC), and there is significant terrorist—potentially domestic as well as Pakistani—interest in attacking India's nuclear infrastructure.³⁴ BARC's security was reportedly breached 25 times in two years, both from land and sea.³⁵ Are the measures designed to protect India's nuclear infrastructure sufficient? We do not publicly know.

As India's posture evolves to greater numbers of systems and assets at potentially higher states of readiness, appropriate measures must be taken to mitigate the risk of theft, unauthorized or accidental launches, or detonation of nuclear weapons. In the erstwhile configuration that relied on disassembly and dispersion, physical separation of components would have required multiple actors to interface in order to constitute a useable weapon. This system served as an inherent safety and security measure. As that disposition evolves to a state where some warheads might already be assembled, and/or mated with delivery vehicles, it is reasonable to ask what precautions—both procedural and technical—ensure that the arsenal is managed safely and securely against both internal and external threats. Again, the answers are simply unknown in the public domain.

None of these questions is intended to implicate the security architecture India may or may not have erected to protect its nuclear assets. It is, however, remarkable how little attention these questions receive in the public domain, whether in the Indian or Western media or think tanks. For example, while Pakistani scientists and military officials have publicly discussed the state of their PALs,³⁶ almost no public discussion or work exists on the state of Indian

PALs. An overriding assumption exists that because India is a responsible nuclear state with mature democratic institutions and a highly professional military, the relevant agencies scrutinize and effectively solve these issues. But *no* nuclear state, including the United States, is immune to complacency, internal and external threats to its nuclear assets, or to the simple risk of accidents. Given the sheer growth in the number of assets as India's nuclear posture evolves, and the interest that foreign and homegrown malicious actors have already shown in compromising India's nuclear infrastructure, one only hopes that Delhi is paying sufficient attention to the security of India's nuclear assets.

Dispelling the Mythology

In the decade since India's nuclear posture was last seriously studied, it has undergone a steady transformation. Conventional understandings of its capabilities and management procedures are probably no longer true. This article has attempted to dispel five of the most prominent and enduring myths about India's nuclear posture based on these changes.

The implications are important for regional security, as well as for our understanding of India's security behavior. Antiquated Gandhian notions of minimalism and defensiveness no longer constrain India's nuclear force posture or doctrine. Instead, India, though generally still conforming to a strategy of assured retaliation, has modernized and expanded its forces both in numbers (vertically) and type (horizontally). The country has fundamentally changed its deployment patterns and procedures in ways that scholars and policymakers have generally overlooked. These changes, whether politically sanctioned or not, will force China and Pakistan to respond in ways that will likely prove detrimental to Indian and global security. Despite the attention paid to Pakistan, it may actually be *India* that triggers a South Asian arms race. It is therefore all the more disturbing that these posture developments seem to be the product of bureaucratic inertia and interests rather than of a well-considered, centralized strategic direction.

Nuclear modernization is natural, but it must be governed by a strategy. Strategic guidance in Indian nuclear posture, unfortunately, appears to be vanishingly thin in the developments of the last decade. Thanks to the changes in its nuclear posture, India may be drifting into an arms race for which it has no desire.

Despite the attention paid to Pakistan, it may actually be *India* that triggers a South Asian arms race.

Notes

1. See Ashley Tellis, *India's Emerging Nuclear Posture: Between Recessed Deterrent and Ready Arsenal* (Santa Monica: RAND, 2001), http://www.rand.org/content/dam/rand/pubs/monograph_reports/2008/MR1127part1.pdf; George Perkovich, *India's Nuclear Bomb: The Impact on Global Proliferation* (Berkeley, CA: University of California Press, 1999); Rajesh Basrur, *Minimum Deterrence and India's Nuclear Security* (Stanford, CA: Stanford University Press, 2006); Bharat Karnad, *India's Nuclear Policy* (Westport, CT: Praeger, 2008).
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