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INDIA’S EVOLVING NUCLEAR POSTURE

Devin T. Hagerty

This article analyzes India’s nuclear doctrine, finding it to be critically flawed and imimical to strategic stability in South Asia. In pursuing an ambitious triad of nuclear forces, India is straying from the sensible course it charted after going overtly nuclear in 1998. In doing so, it is exacerbating the triangular nuclear dilemma stemming from India’s simultaneous rivalries with China and Pakistan. Strategic instability is compounded by India’s pursuit of conventional “proactive strategy options,” which have the potential to lead to uncontrollable nuclear escalation on the subcontinent. New Delhi should reaffirm and redefine its doctrine of minimum credible nuclear deterrence, based on small nuclear forces with sufficient redundancy and diversity to deter a first strike by either China or Pakistan. It should also reinvigorate its nuclear diplomacy and assume a leadership role in the evolving global nuclear weapon regime.

KEYWORDS: India; China; Pakistan; South Asia; deterrence; nuclear posture; no-first-use; disarmament; nuclear policy

Seventeen years after its emergence as an overt nuclear weapon state (NWS), India has yet to fully articulate many of the details of its nuclear posture, including core elements such as “no-first-use” (NFU), “minimum credible nuclear deterrence,” “massive retaliation,” and “assured survivability” of retaliatory forces. At the same time, the Indian strategic-scientific community has ambitious plans for a robust triad of nuclear forces, consisting of land-based ballistic missiles, fighter-bomber aircraft, and submarine-launched ballistic missiles (SLBMs), as well as a sufficiently effective command-and-control system to ensure the safety, security, and responsiveness of the weapons.1 The main drivers of India’s nuclear posture are its great-power aspirations, its geopolitical competition with China, and its simmering rivalry with Pakistan. New Delhi aspires to a seat at the high table of world affairs, along with the NWS recognized by the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)—the United States, United Kingdom, China, France, and Russia—, as well as Germany, and Japan. Its 1998 decision to make public its nuclear weapon capability was partly motivated by India’s desire to be a global power. It led to a sustained engagement between Indian Foreign Minister Jaswant Singh and US Deputy Secretary of State Strobe Talbott across a wide range of nuclear issues.2 Over time, Washington adapted itself to the reality that India’s grand strategy included becoming a full-fledged NWS. In hindsight, 1998 destroyed the illusion that New Delhi could be coaxed out of pursuing the ultimate currency of great-power status; once the illusion evaporated, the United States and India began to relate to one another on a more equal footing.
India and China have been natural Asian competitors since they emerged as post-colonial states in the late 1940s. Both ancient civilizations were eclipsed in the age of imperialism, then reborn via nationalist movements that in turn inspired millions of people in the global South. New Delhi and Beijing chose competing paths to development, which then provided alternative models for scores of emerging third world governments. In 1962, China launched a surprise attack and quickly trounced India in a short war, the underlying territorial disputes of which remain unresolved. India's nuclear weapons are deeply rooted in the 1962 humiliation, which was followed two years later by China's first nuclear test. One purpose of India's nuclear arsenal is to deter another attack by China, which, while considered improbable, cannot be entirely ruled out. Indian leaders also believe that in any eventual territorial settlement with China, a non-nuclear India would be disadvantaged. Status calculations relative to China weigh heavily on the Indian strategic psyche.3

With their history of the 1947 partition of British India, three-and-a-half wars, nuclear-weapons competition, numerous crises and terrorist attacks, and chronic tension over the disputed territory of Kashmir, Pakistan represents India's chief day-to-day security threat.4 Pakistan is also the fly in the ointment of India's great-power aspirations; what New Delhi perceives as Islamabad's chronic aggressiveness forces India to expend scarce resources—money, manpower, military materiel—to deal with expensive irritants. When Indian strategic elites talk about "rising above the region," they envision a globally ascendant India that is not repeatedly dragged down and distracted by crises and conflicts with Pakistan.5 An essential purpose of India's nuclear forces is to deter nuclear or conventional attacks by Pakistan.6

Indian strategic elites perceive a compelling need for "immediate" nuclear deterrence with respect to Pakistan, which has a history of initiating conflict with India, both conventional and unconventional; regarding China, they are motivated mainly by the more relaxed imperatives of "general" nuclear deterrence.7 Unlike more established NWS such as the United Kingdom, France, Russia, and the United States, which have reduced their nuclear-weapon capabilities in response to diminished interstate security threats since the end of the Cold War, India is still on the ascent in terms of the redundancy, diversity, and sophistication of its nuclear forces—as are China and Pakistan. India today is an increasingly potent NWS, having worked hard since 1998 to increase the size of its nuclear stockpile and improve its delivery systems. One analyst wrote in 2013:

India has made impressive strides toward deploying a nuclear triad of aircraft, mobile land-based missiles, and sea-based assets. Senior national security managers have also insisted that they take the task of building operational capabilities—the institutional and infrastructure invisibles such as command, control, communications, intelligence, logistics, procedures, planning, safety, and training—very seriously.8

Moreover, according to the International Panel on Fissile Materials, India is one of only three or four states—Pakistan, Israel, and possibly North Korea—that continue to produce fissile material for nuclear weapons.9 Judging by the open-source evidence, India's strategic momentum is moving away from, rather than toward, limitations on its nuclear forces, as New Delhi strives to create ever-more survivable, assured second-strike capabilities.
Although India largely abandoned the Israeli model of nuclear opacity in 1998, its leaders remain instinctively resistant to transparency in the nuclear realm.\textsuperscript{10} New Delhi does not disclose information about the number and types of nuclear weapons it possesses, how they are stored and deployed, which delivery systems are nuclear-enabled, targeting and employment policies, and the many other details of its nuclear architecture. The Indian government believes that its deterrent posture is strengthened, rather than weakened, by preserving a considerable degree of ambiguity about its nuclear forces.\textsuperscript{11} As a consequence, public knowledge of India’s nuclear capabilities and intentions is imprecise at best, and guesswork at worst. Strategic analysts typically arrive at their estimates by calculating fissile-material stockpiles and potential, combing through government statements about testing, plans, deployments, and doctrine, assessing the potential capabilities of aircraft and missile systems, and “reading the tea leaves” of media accounts that are often anonymously sourced and of questionable reliability. These pieces of information are assembled into puzzles that comprise analysts’ best guesses about India’s nuclear program, but there is much that we do not know with any certainty. What we can say for sure about India’s nuclear arsenal (as well as China’s and Pakistan’s), is that it is “miniscule in comparison with those of Russia and the United States, but more difficult to estimate. Even so,” India and its potential enemies “have sufficient numbers of warheads and delivery systems to inflict enormous destruction over significant ranges with catastrophic humanitarian and climatic consequences in their regions and beyond.”\textsuperscript{12}

India’s grand-strategic predicament is dauntingly complex.\textsuperscript{13} The existence of New Delhi’s two potential nuclear adversaries creates a “triangular dilemma” that makes it exceedingly difficult for Indian decision makers—civilian and military—to plan and implement a coherent, reliable, well-calibrated nuclear posture. Ideally, such a posture would: deter nuclear attacks by either China or Pakistan; minimize the likelihood of conventional war with China or Pakistan (which might escalate to nuclear war); maximize the probability of India winning a war with either adversary, should one erupt; promote India’s goal of emerging as a fully sovereign and autonomous great power; and do all of these things without provoking countervailing responses in Beijing and/or Islamabad that would undermine India’s net security. At present, however, India’s nuclear posture does not meet most of these goals. Even more worrisome for New Delhi, Indian strategic elites are actively pursuing policies to address India’s perceived interests vis-à-vis China that fundamentally conflict with its interests vis-à-vis Pakistan. One analyst succinctly captures this dangerous dynamic: “Fearful of U.S. nuclear superiority, China has embarked on a systematic modernization of its own nuclear arsenal—a development that has spurred an Indian counter-response, which in turn has reinforced many troubling components of Pakistan’s own nuclear program.”\textsuperscript{14} In other words, measures that India has been taking to keep up with China are backfiring, both because they encourage Pakistan to be more strategically ambitious, but also because Beijing can relatively easily and cheaply support Islamabad’s efforts to keep up with New Delhi. As Zachary Davis, senior fellow at the Center for Global Security Research at Lawrence Livermore National Laboratory, warned in 2011:

[India’s] preoccupation with China as its primary peer competitor, including India’s development and deployment of strategic weapons aimed at Beijing, could distract Indian
planners and leaders from tending to its nuclear relationship with Pakistan, including the
effect that new forces aimed at deterring unspecified aggression from China could have
on Pakistan’s security calculus. Indian reassurances that their new capabilities (missiles,
submarines, cruise missiles, missile defenses, etc.) are not targeted on Pakistan, but
only on China, will not dissuade Pakistani military planners from taking into account a
growing imbalance of forces—and seeking to address it. Minimum nuclear deterrence
could be a casualty.15

Ironically, the more “successful” India’s nuclear policies toward China, the more they
will antagonize Pakistan. The net result is a “vicious circle of debilitating proportions,” in
which India’s ambitious nuclear strides, geared mainly toward decreasing the asymmetry
of its nuclear balance with China, serve to intensify and justify Pakistan’s “galloping
nuclear expansion.”16

This article analyzes the flaws in India’s nuclear posture and then sketches out an
alternative posture that would better promote New Delhi’s interests. My central argument
is that India should adopt a more pragmatic, logically consistent nuclear posture, which
builds on India’s own well-established tradition of strategic restraint.17 Indian leaders
should follow the realist school injunction to be powerful, but not so powerful as to spark
counterbalancing responses which can work to decrease their own security. The wisest
course would be for New Delhi to rethink its current nuclear trajectory, which, on the
whole, amounts to muddling along on an inertial, gradual, loosely linear path with only a
murky sense of the ends to which its nuclear and diplomatic means should be directed.

More specifically, I contend that India should return to its original notion of deploying
nuclear capabilities that give it a truly minimum credible nuclear deterrent, defined as pos-
sessing assured, reliable, second-strike capabilities that are sufficiently redundant and
diverse to survive a first strike by either China or Pakistan and then retaliate with destruction
of such a magnitude that no Chinese or Pakistani political objective could possibly be worth
the punitive cost. At the same time, New Delhi should develop a more coherent diplomatic
posture of support for the evolution of a non-discriminatory regime that simultaneously
reduces global nuclear warhead stockpiles to their most strategically stable levels and
secures global fissile materials, so as to minimize the potential for nuclear terrorism,
nuclear accidents, and inadvertent escalation to the use of nuclear weapons. Taken together,
these measures would better achieve the grand-strategic objectives outlined above.

The first section below summarizes what is known about the size, status, force struc-
ture, and readiness of India’s nuclear weapons. The second section outlines India’s current
nuclear doctrine. The third and fourth sections assess the robustness of Indian nuclear
deterrence vis-à-vis China and Pakistan, respectively. The fifth section analyzes India’s tri-
angular dilemma in more detail and recommends changes to New Delhi’s nuclear doctrine
and diplomacy.

Indian Nuclear Capabilities

India’s nuclear-weapon stockpile is estimated at 90–110 fission warheads.18 India also seeks
thermonuclear capabilities, but is not “known to have been successful yet.” New Delhi
claims to have conducted a thermonuclear test explosion in 1998, but “it remains
unclear whether the device performed as designed.”

Fighter-bomber aircraft comprise the “backbone of India’s operational nuclear strike force,” New Delhi “likely assigns nuclear missions to the Mirage 2000H (with a range of 1,800 kilometers), the Jaguar IS/IB (with a range of 1,600 kilometers), and possibly the MiG-27.” It is believed that one squadron of Mirages and two squadrons of Jaguars have nuclear missions. As for the future, New Delhi has agreed to buy 126 new French Dassault Rafale fighter-bombers; France uses the Rafale in a nuclear strike role, and it is possible that India will also assign it a nuclear mission.

The second leg of India’s aspirational nuclear triad consists of three land-based ballistic missiles that “may be operational.” The short-range Prithvi I, the “mainstay of the Strategic Forces Command, India’s designated nuclear weapons service,” has a range of up to 150 kilometers with a payload of 1,000 kilograms. The short-range, road-mobile Agni I has a range of up to 700 kilometers, also with a 1,000-kilogram payload. The medium-range, rail-mobile Agni II has an estimated range of up to 2,000 kilometers with a 1,000 kilogram payload. Both the Agni I and Agni II have been “declared operational,” but have “reliability issues that have delayed their full operational service.” India has also tested its Agni V missile, which has a range of 5,000 kilometers (close to the technical specifications of an intercontinental ballistic missile [ICBM]) with a 1,500 kilogram payload. While the Agni V is “still several years away from operational deployment,” it will, once deployed, be capable of reaching “any target in China.” The head of the Defence Research and Development Organisation (DRDO) has acknowledged that India is also working on the capability to deploy multiple independently-targeted re-entry vehicles (MIRVs) for the Agni V, but knowledgeable analysts doubt whether “India can or will add MIRVs to its missiles in the near future.”

India is also developing a submarine-launched ballistic missile (SLBM) capability. Its nuclear-powered Arihant submarine has been in development since 1984. The Arihant has been “designed to launch the Sagarika [K-15] SLBM,” the range of which has been variously estimated between 300 and 700 kilometers. The submarine began sea trials in 2012, and its nuclear reactor went critical in 2013. According to DRDO’s director general, Avinash Chander, the Arihant’s SLBMs are “ready for installation.” When the ongoing sea trials are completed, the vessel will reportedly be sent to sea with nuclear warheads mated to its missiles. If and when the Arihant is operationally deployed with nuclear warheads, India will be the first non-NPT NWS “to field a sea-based nuclear deterrent using ballistic missiles.” Two more Arihant-class submarines are in development.

India’s nuclear weapon systems are said to be kept in an “unassembled state.” The warheads are under civilian control, with the Bhabha Atomic Research Center (BARC) maintaining the fissile cores and the DRDO managing the weapons’ non-nuclear firing assemblies. These agencies “are believed to disperse their respective subcomponents over several highly secret locations to ensure that a fully constitutable nuclear capability survives a first strike as well as ‘iterative’ attempts to disarm India’s capability.” In addition, “not only are warheads and delivery vehicles not mated, they are in the custody of different organisations, the former with nuclear scientists, the latter with the armed forces.” India’s army and air force control the country’s nuclear-capable land-based ballistic missiles and dual-use fighter-bombers, respectively, while the navy controls its own nuclear-capable
assets. The nuclear arsenal has “never been deployed in ready-for-use form, let alone kept on alert.”

Indian Nuclear Doctrine

Indian leaders have a history of ambivalence toward nuclear weapons. For much of independent India’s existence, they have been unwilling to forgo a nuclear-weapons option, while simultaneously pushing for global nuclear disarmament. India’s conflicted nuclear-strategic culture was demonstrated in the late 1980s, when Prime Minister Rajiv Gandhi unveiled an “Action Plan for a Nuclear-Weapon-Free World and a Nonviolent World Order” just as Indian scientists were achieving the ability to fully assemble nuclear weapons for the first time. A decade later, after conducting a series of nuclear explosive tests and officially declaring itself a NWS, India insisted that its nuclear weapons were intended only to deter nuclear attacks by China or Pakistan, and that India would never be the first country to use nuclear weapons in a conflict. Soon after the 1998 test series, India produced a draft “doctrine of credible minimum nuclear deterrence,” stating that the “fundamental purpose of Indian nuclear weapons is to deter the use and threat of use of nuclear weapons” against India; “any nuclear attack on India and its forces shall result in punitive retaliation with nuclear weapons to inflict damage unacceptable to the aggressor.” The draft doctrine was approved in 2003. At the same time, New Delhi has continued to urge the “universal and non-discriminatory elimination of nuclear weapons.”

New Delhi’s 2003 “operationalization” of its nuclear doctrine made three significant changes: First, “nuclear retaliation to a first strike” would henceforth be “massive and designed to inflict unacceptable damage.” Second, the grounds for nuclear retaliation would extend to an enemy’s nuclear attack on “Indian forces anywhere.” Third, “in the event of a major attack against India, or Indian forces anywhere, by biological or chemical weapons,” New Delhi would retain the option of retaliating with nuclear weapons. Assuming that India’s actual doctrine matches its declaratory doctrine, it can be summarized as follows: the primary military purpose of India’s nuclear weapons is to deter nuclear attacks by China and Pakistan. The core means for achieving that end will be assured retaliatory capabilities, embodied in a nuclear triad of land-based ballistic missiles, SLBMs, and fighter-bombers. The triad will be sufficiently redundant and diverse to constitute a credible minimum deterrent to Chinese or Pakistani nuclear aggression. New Delhi’s nuclear forces, including its command-and-control capabilities, will be configured so as to enable Indian leaders to “ride out” an incoming nuclear attack and only then launch a “massive” reprisal, inflicting “unacceptable damage” on the enemy. India will not use nuclear weapons first, against either nuclear adversaries or non-NWS.

On paper at least, India’s broad nuclear-deterrent requirements would seem to be relatively relaxed. As one analyst writes:

Odd as it may seem, India … is an emerging nuclear power with a low dependence on nuclear weapons because it possesses sufficient conventional military power relative to both its principal adversaries, Pakistan and China. Even though this balance could deteriorate vis-à-vis the latter, New Delhi feels compelled to maintain its nuclear arsenal more
because other states possess these weapons—and hence could subject India to strategic blackmail—and less as instruments of active defense.39

Another reason why the demands of Indian nuclear deterrence are relatively straightforward is that New Delhi’s declaratory doctrine has purely countervalue foundations. “Warfighting” strategies with counterforce and counter-control targeting options are apparently not part of Indian strategic thinking and planning, mainly because of the belief that escalation cannot be controlled. Furthermore, as one scholar writes, the Indian perception has been that “during repeated crises with Pakistan, notably the severe ones of 1999 and 2001–02, nuclear deterrence has worked at a very low level of capability” by dissuading both sides from engaging in major war, a view that was reinforced by Indian leaders’ perception of having been deterred from punishing Pakistan during the tense period following the 2008 Mumbai terrorist attacks.40 Command and control demands are also less stringent in the absence of warfighting strategies, although they are clearly more challenging in the India-Pakistan dyad than in the India-China dyad, as will be discussed at greater length below.41

Experts generally believe that India has achieved its nuclear-deterrent objectives with respect to Pakistan, but not yet with China. As one analyst writes: “India already possesses the technical means for an assured strike capability against Pakistan but will need at least another decade to acquire a similar capability vis-à-vis China.”42 The aircraft leg of India’s aspirational nuclear triad is “by far the most flexible and reliable but suffers from penetration limitations, especially in targeting China.” While these are being addressed with airborne refueling capabilities, this complicates the challenge of evading defensive surface-to-air missiles. New Delhi’s efforts of late have been directed toward developing its ballistic-missile options, “which afford the advantages of longer range, easier storage and maintenance, and greater mobility.” The robustness of Indian nuclear deterrence will be enhanced if and when the Arihant-class SSBN is operational, but that prospect is well in the future. On the other hand, the achievement of a reliable sea-based deterrent would require SLBM warheads to be fully assembled and deployed, increasing the readiness of New Delhi’s deterrent—as well as its rivals’ apprehension.43

Two debates particularly animate discussion of the general principles underlying India’s nuclear doctrine. The first concerns the advisability of continuing to hew to New Delhi’s 1998 NFU declaration. Skeptics question the point of nuclear weapons if they do not deter major conventional attacks against the homeland. Some argue that serious consideration should be given to renouncing NFU, so as to increase the robustness and value of India’s nuclear deterrent posture.44 Others wonder if India should be more ambiguous about its nuclear-use intentions, arguing that greater uncertainty would create a greater deterrent effect in the minds of Chinese and Pakistani strategic elites. Still others argue that, to the contrary, New Delhi should give consideration to identifying extreme provocations that might cause it to abandon the principle of NFU and launch its nuclear weapons first. The skeptics’ concerns stem from Pakistan’s rapid buildup of its nuclear stockpile and missile-delivery capabilities over the last decade.45

A second debate concerns whether or not New Delhi is on a course to effectively abandon its commitment to “credible minimum” nuclear deterrence—or, alternatively,
whether it should abandon that commitment. Needless to say, there is no agreed-upon standard for what force structure would suffice to constitute an assured credible minimum nuclear deterrent posture, especially given the complexity of India’s triangular dilemma. New Delhi has been forthright since the late 1990s about its eminently understandable position that a credible minimum “cannot be a fixed physical quantification; it is a dynamic concept but firmly rooted in the strategic environment, technological imperatives and national security needs, and the actual size, components, deployment and employment of nuclear forces will be decided taking into account all these factors.”

However, from the standpoint of non-Indian experts, “lately, [India’s and Pakistan’s] declared nuclear doctrines of ‘minimum credible deterrence’ have seemed less and less concerned with minimisation.” Analysts point in particular to the rapid expansion of regional nuclear delivery options: “Pakistan and India have together introduced 17 new nuclear-weapon-capable delivery systems since 1998—or slightly more than one system per year. New families of cruise missiles are being readied for operational deployment, along with expanded families of ballistic missiles. Nuclear weapon delivery systems are moving out to sea.” A number of Indian analysts beg to differ. They speak instead of New Delhi’s “measured,” “unhurried” pace in constructing its nuclear triad, and argue that “minimalism is likely to continue despite a creeping inflation arising from external and especially domestic pressures.” It is difficult, though, to reconcile the claim that New Delhi does not seek capabilities that would allow it to inflict “large-scale destruction on an adversary,” with India’s declaratory doctrine of “massive” retaliation.

Deterring China

New Delhi faces a steep uphill climb as it tries to narrow the power gap with Beijing. China’s economy is roughly four times the size of India’s. In real terms, China’s economy grew at 10.3 percent annually between 2003 and 2013; India averaged 7.7 percent growth, a robust rate, but only 75 percent of China’s. In the same period, Beijing’s defense budget grew at 10.1 percent annually, while growth in New Delhi’s defense budget averaged 5.7 percent per year, or 56 percent of the Chinese rate. Experts estimate the number of Chinese and Indian “stockpiled warheads” at 250 and 110, respectively. The two states’ nuclear forces do have certain similarities: both are relatively small, unassembled, slowly growing arsenals, “oriented toward executing primarily punitive deterrence strategies rather than denial campaigns centered on damage limitation.” However, “China’s nuclear deterrent is orders of magnitude more capable than India’s because of the greater number of weapons and delivery systems deployed, the huge difference in the yield of the largest warheads deployed, the significant disparity in … survivability …, and the superior quality of Chinese missilery.” Like New Delhi, Beijing is carrying out a “comprehensive program of nuclear modernization, including improvements to its delivery systems, warhead storage facilities, missile bases, and command-and-control network.”

Although the Indian government does not admit it, New Delhi seems to be emulating key aspects of Beijing’s nuclear posture and trajectory. The air leg of China’s nuclear triad is very modest, as is India’s. Both states have recently invested a large proportion of their military-nuclear resources in the development of increasingly sophisticated land-
based missiles, and further refinement of the Agni V and Agni VI should eventually allow India to narrow the sizable gap between the two sides’ current abilities to threaten each other’s largest cities with severe devastation. China and India are also pursuing more ballistic-missile mobility and deception options, and, although neither country yet has an operational SLBM capability, both are moving intently in that direction.\textsuperscript{56} Indian strategic elites have evinced an interest in MIRVing their land-based missiles, making that one significant realm in which New Delhi is possibly not following Beijing’s lead. Two motives may underlie India’s MIRVing aspirations. The first is that they are related more to Pakistan than to China. The second is that, “in the absence of further testing to reliably validate boosting or develop a true thermonuclear capability, the onus for hardware improvements is centered on developing the ballistic missile force’s throw-weight capacity.”\textsuperscript{57} Either way, MIRVed Indian missiles with ranges that can strike Chinese population centers or military assets, “combined with increased U.S. missile defense capabilities in the Pacific region, could motivate China to deploy MIRV-capable missiles as well.”\textsuperscript{58} They would also undermine the believability of New Delhi’s NFU professions.

Of course, what matters most in the assessment of any country’s deterrence posture is not how its offensive capabilities compare with those of the adversary, but whether or not the adversary is effectively dissuaded from launching an attack. Definitions of “credible minimum nuclear deterrence” naturally vary, but clarity can be enhanced by flipping the focus from one’s own “assured second-strike capabilities” to the potential enemy’s “first-strike uncertainty.”\textsuperscript{59} This is especially so in the case of the Indian government, which either has no official definition of credible minimum nuclear deterrence, or—improbably—has succeeded in the herculean task of preventing its secret definition from leaking into the public domain. Indian officials, enamored of strategic ambiguity, do not delve into the specifics of core doctrinal concepts like “massive retaliation” and “unacceptable damage.” A literal reading of credible minimum nuclear deterrence implies that the deterring state has secure, assured second-strike retaliatory forces, with the smallest possible nuclear arsenal. But Indian strategic elites seemingly have little understanding of what this might mean from the “deterree’s”—China’s—perspective. One analyst maintains that “while Indian strategists often stress the need to develop capabilities to respond to a surprise first strike, there has been no actual talk of a real risk emanating from China. … Similarly, the argument for ‘second-strike capability’ stems from general principles and not from any sense that there is an imminent threat from China.”\textsuperscript{60} Beijing must assume that New Delhi possesses nuclear weapons that can be delivered against countervalue targets in southwestern China. India’s nuclear weapons create an incalculable, but not negligible, existential deterrent effect in the minds of Chinese decision makers, who, in any event, likely have little interest in initiating either nuclear or conventional attacks against India.

**Deterring Pakistan**

In the late 1980s, when India and Pakistan were still fully opaque NWS, the small group of Indian strategic elites who focused on nuclear issues tended to argue that if India could achieve some degree of nuclear deterrence with respect to China, it would, \textit{ipso facto}, possess sufficient nuclear robustness to deter nuclear and conventional attacks by
Pakistan. As General K. Sundarji, a former Indian chief of army staff, put it in 1988: “Against Pakistan, our dissuasive and riposte capabilities are good. Our major problem is going to be China. Pakistan we can take care of en passant.” In the mid-1990s, Sundarji and Indian strategist K. Subrahmanyam (along with two co-authors) summed up the influence of opaque nuclear-weapon capabilities on India-Pakistan relations by writing that, unlike previous NWS, “India has been content to demonstrate capability, put basic infrastructure in place, and leave deterrence implicit and somewhat ambiguous. … It appears that atomic capabilities on both sides in the Indo-Pakistani conflict have so far led to a moderation in actions between the two states.” An American analyst observed that “wisdom may lie beneath the surface of casual nuclear discussions in South Asia. By intuition, calculation, or penury, military specialists in India and Pakistan appear to reject the hyper-elaborate intellectual and technical apparatus of the U.S.-Soviet nuclear competition.”

The subcontinental nuclear equation has grown substantially more complex in the last two decades: “India and Pakistan have roughly equivalent nuclear inventories … double the number they had a decade ago. Both states have the capability to further expand their arsenals, and Pakistan is doing so explicitly, including by introducing rockets for use with tactical nuclear weapons. India and Pakistan are also developing naval nuclear weapons to add to their current ballistic-missile and aircraft-delivery platforms.” Pakistan’s nuclear posture is driven by its threat perception of a much larger, more powerful India. Although Islamabad, like New Delhi, purports to follow a doctrine of minimum credible deterrence, the essential purpose of its nuclear weapons is to deter both nuclear and conventional attacks by an adversary that enjoys marked superiority in conventional weaponry, manpower, and materiel. Because of Pakistan’s conventional inferiority and limited strategic depth, it has forsworn an NFU pledge and declared “only the basic logic of its nuclear-use policy, leaving India and the rest of the world to calculate the risks.” According to General Khalid Kidwai, former director general of the Strategic Plans Division—the apex body responsible for the command and control of Pakistan’s nuclear arsenal—nuclear weapons will be used against India “only if the existence of Pakistan as a state is at stake.” Islamabad’s potential nuclear-delivery platforms include F-16 and Mirage 5 fighter-bombers, as well as at least three land-based “operational nuclear-capable missiles: the short-range Ghaznavi (Hatf-3) and Shaheen-I (Hatf-4) and the medium-range Ghauri (Hatf-5).” Other nuclear-capable, land-based missiles are also under development, including the short-range Nasr (Hatf-9), “with a range of only 60 km and apparently intended to target troop formations rather than cities,” putting it in the category of “non-strategic or tactical nuclear weapons, rather than weapons intended for strategic deterrence.” If and when it is operational, the Nasr could be launched from a “mobile twin-canister” platform, giving Islamabad (it claims) a “quick response system” to “deter evolving threats.” The different components of Pakistan’s nuclear-weapon systems are controlled by its army and air force, rather than civilian authorities, and the warheads are not mated in peacetime with aircraft and missiles. According to one credible account: “the weapons are believed to be stored unassembled with the nuclear cores separate from the rest of the weapon, and the weapon storage areas are some distance from the delivery vehicles, under normal circumstances.” However, it is also likely that
Pakistan’s nuclear weapons and their delivery systems are close enough to one another to enable rapid deployment during a crisis.\textsuperscript{70}

Partly because Islamabad does not disavow the first use of nuclear weapons, India was deterred from mounting conventional reprisals in response to severe Pakistani provocations during the Kargil conflict of 1999 and the so-called “Twin Peaks” crisis of 2001–02.\textsuperscript{71} Frustrated by their inability to punish Pakistan for its persistent sub-conventional aggression, Indian military planners began to develop ideas for conventional retaliatory options that (they hoped) would not cross Islamabad’s nuclear “red lines.”\textsuperscript{72} These deliberations led to the Indian Army’s “Cold Start” concept, “which envisaged rapid mobilisation and attack on a broad front with shallow manoeuvre to capture limited territory…. The assumption was that operations would be kept below the perceived Pakistani nuclear threshold, and the war terminated at will through escalation dominance and control.”\textsuperscript{73} India’s civilian decision makers are understandably skeptical of a military doctrine that proposes to unleash conventional attacks against Pakistan for the first time since 1971, especially in the face of repeated statements out of Islamabad and Rawalpindi that such aggression would be met with certain Pakistani nuclear retaliation. The Cold Start “initiative failed to win support from Indian political leaders” and has been “rejected in favor of retaining the old concept relying on … three Strike Corps but focusing on a more rapid mobilization procedure to enable the Indian Army to commence offensive operations within five to seven days of an order to do so (rather than 21).”\textsuperscript{74} This has done little to assuage the fears of the Pakistan Army leadership: “anticipating the worst, [it] believes that within days of a political decision, India would deploy eight division-sized integrated battle groups, accompanied by heavy support, to advance 40–60 km. into Pakistani territory.”\textsuperscript{75}

Although India’s efforts to design what are now being referred to as “proactive strategy options” (PSOs) have received a lot of attention, they represent only one of a number of developments that have Pakistani strategic elites deeply worried.\textsuperscript{76} These include New Delhi’s ambitious and highly publicized plans to develop the submarine leg of its nuclear triad, MIRVing options for its ballistic missiles, and ballistic missile defense (BMD), as well as the now-infamous (from Islamabad’s perspective) 2005 Indo-US nuclear deal, which paved the way for India to purchase US (and other) nuclear fuel and technologies while still maintaining its nuclear-weapons program. New Delhi plans to import safeguarded nuclear fuel and then reprocess the spent fuel for use in yet-to-be constructed breeder reactors. India will also build reprocessing plants at the reactor sites, which it maintains “will eliminate transports of spent fuel and separated plutonium and therefore reduce the terrorist threat to its nuclear installations.” However, at least some of India’s future breeder reactor activities will take place outside of the International Atomic Energy Agency’s (IAEA) inspection purview, which has raised concerns India will be able to dramatically accelerate the rate at which it produces fissile material for its nuclear weapons.\textsuperscript{77}

The Mumbai terrorist attacks of November 2008, sponsored by Islamabad’s Inter-Services Intelligence Directorate (ISI), further exacerbated Indo-Pakistani tensions, with predictably negative consequences for the two sides’ nuclear postures.\textsuperscript{78} The Indian debate on PSOs grew more heated, with critics bringing enormous pressure on the government to abandon its strategic restraint and punish Pakistan for the four-day ordeal, which
killed 166 people. In turn, Pakistani military planners knew that if India were to respond to a future terrorist attack (or other sub-conventional provocation) with a conventional invasion, Islamabad would face insistent demands to respond with nuclear weapons, so as not to have its bluff called and forever diminish the power of its nuclear deterrent. Their solution has been to develop the Nasr/Hatf-9, which has been tested three times since 2011. Pakistan “calculates that because such a weapon would have a relatively low nuclear yield, India would have neither the justification nor the political will to respond with overwhelming nuclear force,” as prescribed by India’s doctrine of massive retaliation. Of course, Islamabad’s underlying hope is that, if and when it is operational, the Nasr/Hatf-9 will deter Indian conventional attacks of any kind.79 One analysis captures Pakistani strategic elites’ strategic psyche so well that it warrants extended quotation:

The issue of low or high numbers of nuclear weapons is profoundly psychological for Pakistan. The sense of vulnerability and discrimination has generated a momentum of its own; and the substantive rationale of minimum deterrence now has been replaced by an altogether different logic. … Pakistan continues to add “layers of deterrence” by introducing new weapons systems, increasing its fissile stocks, creating strategic forces and strengthening the robustness of its command and control. To Pakistani security policymakers, the best means of assuring balance and stability with India is through a large nuclear force that can compensate for unfavourable trajectories in the realm of conventional force and economic resources.80

India and Pakistan are thus heading toward a strategic interaction that is fraught with danger. Islamabad seems to be considering the adoption of a doctrine of tactical nuclear-weapon use that NATO once embraced in Europe, but ultimately scrapped because it threatened uncontrollable escalation, a prospect that would be even more likely in the northwestern Subcontinent than it was in Germany.81 For its part, New Delhi’s declared nuclear doctrine since 2003 implies that India would respond to Pakistani nuclear attacks on its conventional military forces either by unleashing massive nuclear attacks against Pakistan … or by doing nothing. Taken together, India’s nuclear and conventional strategies are incoherent and potentially destabilizing.

**Toward a Better Indian Nuclear Posture**

Sixteen years after its emergence as an overt NWS, India is pursuing a variety of policies that could increase the dangers of a regional nuclear war while failing to meet New Delhi’s own grand-strategic interests. The overarching goal of India’s nuclear posture should be to build stable strategic relationships with China and Pakistan; instead, if India stays its present course, it could antagonize both China and Pakistan and undermine India’s net security.

Analysts disagree about whether India is pursuing nuclear parity with China. One writes that India strives to “close the strategic gap with China,” but will only achieve “nominal parity” because of Beijing’s “huge lead.”82 Another argues that “there is not much concern about achieving parity” with China.83 It is probably most accurate to say that New Delhi seeks *qualitative* parity with China, consistent with the imperative of achieving great-power status and heightened prestige, and that the question of *quantitative*
parity is still open. Judging by its aspirations for a robust nuclear triad, including ICBMs and SLBMs; its interest in MIRVing its ballistic missiles; and its research and development of BMD capabilities, Indian strategic elites believe that these technological achievements will allow it to join an exclusive club of NWS. But the eventual result of Indian successes in these areas could be to alarm both China and Pakistan, inducing them to take countervailing measures, singly or together, to balance India.

India is a link in a global chain of nuclear-technological attainment. Beijing is motivated mainly by the need to maintain assured second-strike capabilities vis-à-vis the United States. In the near future, Beijing will scarcely be bothered by Indian nuclear advancements. To the extent that China eventually does grow concerned with credible Indian nuclear threats, it may begin to adapt its own capabilities with an eye to creating a wider array of means to strike Indian targets with nuclear weapons. In other words, the United States and China exert an upward pull on India’s nuclear aspirations, but China, with its superior resources, can counter Indian gains with relative ease. It also has the option of quietly aiding Pakistan’s nuclear program as a means of diverting Indian resources and energies to the northwest instead of the northeast, as it has done in the past. Judging by its own rapid nuclear momentum and deep sense of vulnerability, Islamabad would be only too glad to accept that aid. India’s acquisition of a robust, operational nuclear triad, possibly with MIRV capabilities and an operational BMD system, would move it far afield from its stated nuclear doctrine of credible minimum nuclear deterrence. Targeting demands would likely cease to be purely countervalue in nature, as warfighting options and imperatives begin to occupy the minds of Indian strategists. In turn, preemptive temptations may grow, as all three countries worry that their adversaries’ first-strike uncertainty is diminishing. This is potentially dangerous territory.

New Delhi’s initial nuclear instincts were the right ones. Remaining on the path of credible minimum nuclear deterrence is difficult as qualitative improvements are made and national pride grows. If Indian nuclear planners do not proactively resist China’s upward tug, they will effectively succumb to it. New Delhi would do better to emulate China’s own nuclear posture of accepting Sino-US nuclear asymmetry and seeking credible deterrence via the deployment of nuclear forces smaller than those of its primary peer competitor. Indian strategic elites would be wise to renew their commitment to understanding the requirements of credible minimum nuclear deterrence, by analyzing precisely what combination of redundancy and diversity would suffice to deter nuclear first strikes by China and Pakistan. Sino-Indian nuclear parity, quantitative or qualitative, is a chimera.

India would also increase its overall security by abandoning its hopeless quest for PSOs that are effective enough to punish Pakistan for nonconventional aggression, but not so effective as to cause Islamabad to consider nuclear counteroptions. As frustrating as it must have been for Indian leaders to refrain from ordering India’s superior conventional forces across the Indo-Pakistani border in 1999, 2001–02, and 2008, New Delhi’s strategic restraint has served it—and the cause of peace—well since the late 1980s. Continuing to design and publicly discuss PSOs that, if implemented, might spark a Pakistani nuclear riposte is a fool’s game. Moreover, these efforts contradict a little-noted principle of India’s 1998 draft nuclear doctrine, which states that “highly effective conventional military capabilities shall be maintained to raise the threshold of outbreak both of conventional
military conflict as well as that of threat or use of nuclear weapons. Adopting PSOs that could well increase Pakistan’s incentives to use short-range nuclear weapons against advancing Indian armor, which would then put the credibility of New Delhi’s massive-retaliatory doctrine on the line, simply does not make sense. The effect of such PSOs would lower, rather than raise, the nuclear threshold. The Pakistan Army has yet to operationalize its battlefield nuclear forces, making this a good time for the Indian Army to publicly bring the “Cold Start” era to a close.

New Delhi would also be prudent to take a greater leadership role in the emerging global nuclear-weapon regime. During the Cold War, nonproliferation, arms control, and disarmament were fundamentally distinct endeavors. Today, a new global regime is evolving that merges these thrusts and directs them toward a number of complementary goals: reducing global stockpiles of nuclear weapons and fissile materials in order to promote strategic stability and nuclear security, and preventing the further spread of nuclear-weapon capabilities and other nuclear-related materials, so as to minimize the potential for nuclear terrorism, nuclear accidents, and inadvertent escalation to the use of nuclear weapons. The central institutions nested in this burgeoning regime are the NPT, the IAEA, the Fissile Material Cut-off Treaty (FMCT), the Nuclear Suppliers’ Group, the Missile Technology Control Regime, and the UN Conference on Disarmament (CD). Although India has rhetorically embraced many of the regime’s goals, an unfortunate strategic difference characterizes its nuclear diplomacy. Instead of exercising real leadership in the various nuclear-governance forums, Indian diplomats tend—in a self-justifying way—to recount the variety of nuclear disarmament measures India has historically championed, especially a nuclear weapons convention “prohibiting the development, production, stockpiling, and use of nuclear weapons, and on their destruction, leading to the global, non-discriminatory, and verifiable elimination of nuclear weapons within a specified timeframe.”

India’s public diplomacy has long touted such “comprehensive” efforts to eliminate nuclear weapons, rather than what it derides as piecemeal approaches to nuclear arms control. For example, regarding the long-discussed FMCT, India depicts itself as a consistently strong supporter of efforts to negotiate a “non-discriminatory, multilateral, and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices.” At the same time, having negotiated for itself (in the Indo-US nuclear deal) the potential to dramatically accelerate the rate at which it produces fissile material for weapons, New Delhi shows little inclination to impose restraints on its growing stockpile of weapon-grade plutonium. On another front, Indian diplomats are conspicuously silent in discussions about moving the Comprehensive Nuclear-Test-Ban Treaty (CTBT) forward. Passage of the treaty in 1996 generated intense pressure on India to forgo the option to test nuclear explosives, which Indian scientists feared would severely limit their ability to enhance the sophistication and reliability of India’s nascent nuclear arsenal. After its 1998 nuclear tests, India declared a moratorium on nuclear testing, but its diplomats refuse to discuss actually signing the CTBT, effectively negating the moratorium’s significance. In sum, New Delhi recognizes no formal restraints on any nuclear “modernization activities that may affect the quantity or quality of its nuclear weapons.”
The key principle in New Delhi’s diplomacy on global nuclear issues is “non-discriminatory”: India should be accorded the same status and privileges enjoyed by the NPT-recognized NWS. From India’s vantage point, it has been a consummately responsible NWS that has broken no international laws or agreements—in contrast, Indian leaders like to point out, to China, France, and Pakistan, which have all helped other states become NWS. Parsing Indian pronouncements quickly leads to the conclusion that, practically speaking, “non-discrimination” translates into “parity with China.” Beijing has a minimum nuclear deterrent posture and a declared NFU doctrine, and is working to assure its second-strike capability by developing a triad of air-, land-, and sea-based capabilities. New Delhi’s view is that it should not be constrained from following the same path. China has built a fissile material stockpile that is much larger than India’s; India should therefore continue to produce fissile material, and cannot be expected to sign an FMCT that permanently freezes this asymmetry. Beijing has conducted numerous nuclear explosive tests, allowing it to steadily modernize its nuclear arsenal and develop high confidence in its reliability. New Delhi says it cannot sign the CTBT lest future circumstances dictate the advisability of additional testing for the same purposes. India considers its evolving nuclear posture to be a model of restraint given its triangular national security predicament. Furthermore, Indian strategic elites continue to view nuclear ambiguity as a strategic benefit and remain deeply skeptical of the value of transparency. Unfortunately, Indian leaders seem to be more concerned with mouthing long-standing, deeply rooted platitudes than with positioning themselves to lead a global push to reduce the dangers of nuclear weapons. They also appear to see no value in linking their nuclear weapons doctrine with their nuclear diplomacy in a way that would truly advance New Delhi’s grand-strategic interests.

Indian strategic elites are missing a promising opportunity to boost their great-power credentials. During the Cold War, when India was relatively weak and lacked much influence, it was an avid supporter of what was then a mere pipe dream—global nuclear disarmament. Now that India is stronger and more influential, and the geo-strategic context is more promising for meaningful nuclear reductions and security initiatives, it instinctively plays defense rather than offense when it comes to global nuclear diplomacy. Rather than lead, New Delhi prefers to fall back on stale and unrealistic proposals for comprehensive nuclear disarmament, such as a nuclear weapons convention, a utopian idea that has gained little traction. Indian leaders would be wiser to assume a leadership role that better integrates India’s nuclear forces, its diplomacy, and its grand-strategic interests.

The central fact of India’s geopolitical situation is that China continues to pull away from the pack in the race to great-power status. Its economy continues to grow, its global presence is expanding, its military forces are modernizing and extending their reach, and a consensus has emerged that China is now the top contender for world power with the United States. Although both India and China claim to support the evolution of a multipolar world order, the structural successor to the US “unipolar moment” may instead turn out to be a new form of bipolarity, with Washington and Beijing atop the international power hierarchy. In this context, India’s quest for parity with China portends ongoing improvements in its nuclear-weapon capabilities, both quantitative and qualitative.
While Indian analysts continue to debate the requirements—and wisdom—of “minimum credible nuclear deterrence,” technological momentum within the strategic-scientific establishment is propelling New Delhi toward a muscular strategic triad with substantially more redundancy and diversity than outside observers would “objectively” deem necessary. This suggests that India will continue to keep its nuclear-testing (and thus weapons-modernization) options open, as well as quietly appreciate Pakistan’s efforts to block any movement on fissile-material limitations in the CD. Furthermore, if discussions ever commence on reducing fissile-material stockpiles, rather than the more limited capping proposals that have been tabled in Geneva, New Delhi will press hard for a “non-discriminatory” treaty—one that would establish parity between the Indian and Chinese fissile-material stockpiles.

This principle of parity poses perhaps insurmountable challenges to the phased-reductions process envisioned in many of the nuclear disarmament proposals now circulating internationally. The working assumption driving these approaches is that once the erstwhile superpowers, Russia and the United States, have reduced their nuclear-weapon stockpiles to somewhere around 500 warheads each, other NWS would then begin to reduce their own arsenals. But if each of these states, in succession, insists on the principle of parity as the price of its joining the process, progress toward disarmament is likely to be slow, because a fundamental irrationality underlies this principle. A country’s minimum nuclear-deterrence and conventional-force requirements should logically correlate with its interests, obligations, and potential adversaries. For the United States, with its extended-deterrence commitments, these are truly global. For Russia and China, they are more limited, but still expansive. For India, they narrow to China and Pakistan, and for Pakistan, they reduce to India. Yet the logic of parity embodied in the Indian posture on disarmament suggests that there should be rough strategic equality across all of these states, which is unrealistic and impractical. Why should New Delhi expect parity with Beijing, when China’s interests, obligations, and potential adversaries exceed India’s? (Likewise, why should Islamabad expect parity with New Delhi when India has a significantly broader threat profile than Pakistan?) Theoretically, at least, the whole point of credible minimum nuclear deterrence is that it is not necessary to maintain parity with one’s adversaries, because even a small, survivable, second-strike nuclear arsenal is sufficient to deter either nuclear or conventional attacks.

Resolutely sticking to its doctrine of credible minimum nuclear deterrence and grabbing the reins of leadership in global nuclear diplomacy represents a more logical, coherent, and pragmatic nuclear posture for India. It would preserve India’s sovereign autonomy and build on its strategic culture of restraint. The revised Indian nuclear posture would be robust enough to deter aggression by New Delhi’s rivals, without provoking countervailing efforts by India’s competitors to balance against it. By linking India’s nuclear doctrine with its nuclear diplomacy, it would preserve Indian security while conserving precious resources. This refined grand strategy would enhance India’s global status and help to build its case for a permanent seat on the UN Security Council. It would also serve to reinvigorate India’s flagging entente with the United States, giving New Delhi additional strategic reassurance regarding China. Pragmatically pursuing its objectives in this fashion
would promote long-standing Indian disarmament priorities and help reduce the chances of nuclear war, nuclear terrorism, and other catastrophes. Washington should encourage India to revamp its nuclear posture along these lines, in the interest of strategic stability and nuclear security in Asia.

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NOTES


5. By “strategic elites,” I mean the relatively small group of Indians who collectively shape New Delhi’s foreign and national security policies. Their numbers include politicians and their advisors; senior and retired civil servants, military officers, and scientists; as well as influential journalists, academics, and think-tank analysts.

6. With respect to both China and Pakistan, India’s nuclear doctrine—discussed below—identifies the threat to be deterred as nuclear attacks; but New Delhi naturally hopes that its nuclear arsenal also deters conventional aggression.

7. Immediate deterrence is “highly episodic, associated with crisis and confrontation”; in general deterrence, the “potential attack is more distant and less defined, even hypothetical.” Patrick M. Morgan, Deterrence Now (Cambridge: Cambridge University Press, 2003), pp. 80–81.


13. If military strategy is the “art of distributing and applying military means to fulfill the ends of policy,” grand strategy is the art of using all of the state’s means—diplomatic, economic, military, clandestine, etc.—for this purpose. The quotation above is from B.H. Liddell Hart, *Strategy*, 2nd rev. ed. (New York: Frederick A. Praeger, 1967), p. 335.


22. Ibid., pp. 97–99. The authors point out on p. 99 that “India’s first- and second-generation warheads, even modified versions, are relatively heavy compared with warheads developed by other nuclear weapon states that deploy MIRVs. It took the Soviet Union and the United States hundreds of nuclear tests and 25 years of effort to develop re-entry vehicles small enough to equip a ballistic missile with MIRVs.” Also see McDonnell, “Nuclear Pursuits,” pp. 63, 66.


36. “India’s Draft Nuclear Doctrine.”


54. Ibid.

55. Ibid. For another analysis of China’s evolving nuclear posture, see: Jeffrey Lewis, “China’s Nuclear Modernization: Surprise, Restraint, and Uncertainty,” in Tellis, Denmark, and Tanner, eds., Strategic Asia, 2013-14, pp. 67-96.


59. “First-strike uncertainty” refers to “the existence of a kernel of doubt in the minds of the potential attacker’s leaders about whether they could destroy all of the opponent’s nuclear weapons preemptively.” Hagerty, The Consequences of Nuclear Proliferation, p. 191.


64. “Strategic Policy Issues,” p. 32.


NuclearSafetyNuclearStabilityAndNuclearStrategy.aspx>. Kidwai blurred this already vague doctrinal principle by adding several examples of Indian actions that might provoke a nuclear response by Pakistan if deterrence fails: a) India attacks Pakistan and conquers a large part of its territory; b) India destroys a large part either of its land or air forces; c) India proceeds to the economic strangling of Pakistan; d) India pushes Pakistan into political destabilization or creates a large scale internal subversion in Pakistan.

67. Hans M. Kristensen and Robert S. Norris, “Pakistan’s Nuclear Forces, 2011,” Bulletin of the Atomic Scientists 67 (2013), pp. 95-96. It bears noting that on the crowded subcontinent, the difference in magnitude between strategic and tactical nukes is modest. The main distinction lies in what is likely to be targeted: cities vs. advancing military formations, respectively. The effects of tactical nuclear blasts would still be enormous in the context of nearby population density, unpredictable climatic and meteorological conditions, uncertain missile accuracy, a dearth of sufficient training for end users, and numerous other variables.


75. “Strategic Policy Issues,” p. 36.


84. “India’s Draft Nuclear Doctrine,” point 2.7.

85. For an overview of the global nuclear agenda, see the International Commission on Nuclear Non-Proliferation and Disarmament, Eliminating Nuclear Threats: A Practical Agenda for Global Policymakers (Canberra, 2012).


90. See, for example, James M. Acton, Deterrence During Disarmament: Deep Nuclear Reductions and International Security (London: Routledge, 2011).