Any discussion of India's nuclear doctrine and future force posture is by definition fraught with uncertainty. This uncertainty arises first because India is still at the initial stages of developing a nuclear deterrent. Since this will be a long and drawn-out process that will probably require decades to complete, a multitude of factors could intervene to either modify the doctrine or change the pace and direction of India's nuclear posture in the future. The experience of previous nuclear powers has further demonstrated that doctrinal innovations usually occur in the aftermath of technological breakthroughs that, by their very nature, are often unanticipated. A "late nuclearizer" like India, however, is unlikely to reap the benefits of a similar "product cycle" because current international pressures against nuclearization have already compelled it to engage the question of appropriate doctrine well before all the technological prerequisites necessary to service such a doctrine are at hand. Consequently, future technological surprises or failures—as they occur—could result in significant modifications of any doctrine that

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1 As one scholar phrased it, at least in the United States, "a new weapon starts with a technological idea rather than as a response to a specific threat or as a means to fulfill a long-standing mission." And while in the erstwhile Soviet Union "external factors play[ed] an early role in stimulating weapons innovation and internal forces act[ed] later to influence the way a directive to implement a certain innovation [was] carried out." Doctrinal systems in both cases appeared to succeed technological innovation, not the other way around. See Matthew Evangelista, *Innovation and the Arms Race* (Ithaca, NY: Cornell University Press, 1988), p. x.
may currently be contemplated or advanced by elites and security managers in New Delhi.

It also remains uncertain whether the objectives India seeks to pursue with respect to nuclearization today represent an ironclad national consensus that will survive immutably over time. At the moment, there is good reason to believe that the desire for a minimum deterrent—one that takes the form of creeping weaponization in its initial stages but ends up as a force-in-being sometime over the next several years—represents a doctrinal vision that is shared by most key security managers in the present government as well as by influential decisionmakers within the main opposition parties outside of the extreme Left.2 This could change, however, depending on the vicissitudes of domestic politics, the performance of the Indian economy, and the international security environment.

Finally, India’s nuclear doctrine and its desired force posture have never been spelled out in any significant detail by New Delhi. Although a variety of official statements relating to these issues have appeared, such statements are by no means complete and do not address those details that are of most interest to analysts of nuclear deterrence.3 This in itself should not be surprising, since most policymakers outside the United States usually describe the contours of their nuclear doctrine and force posture in only broad terms. However, this tendency toward generality is even more pronounced in India, where it represents a conscious and deliberate effort on the part of India’s security managers—thus making it all the more difficult to describe the nation’s nuclear worldview in any comprehensive way.

This judgment applies even to that now well-publicized document, the “Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine,” which was officially released on August 17,


1999. This report, which is perhaps the single most coherent statement on nuclear doctrine ever to have been produced in India, still suffers from some internal tensions and, more important, from continuing ambiguity with respect to its status as a policy document. The report was issued by the National Security Advisory Board, formally an official body that is part of the country’s newly established National Security Council. This board, however, is located along the outer tier of a complex hierarchical political structure and is intended to be a vehicle through which senior government decision-makers can draw on the advice, judgment, and counsel of the nation’s more prominent academics, retired civil servants, retired diplomats, and retired military officers. The documents issued by the board therefore do not constitute settled policy as much but strictly represent recommendations formulated for the consideration of the “principal agents” who constitute the core of the National Security Council itself. Consequently, the Advisory Board’s report on nuclear doctrine should not be treated as representing India’s nuclear doctrine per se but should be viewed as a reasoned judgment offered by some of the nation’s leading experts about what that doctrine ought to be.

Regardless of its status, however, the Advisory Board’s report turned out to be highly controversial at the time of its initial release. Besides causing panic in Pakistan and exacerbating prevailing suspicions in China, it riled many Indian security specialists and commentators, who lambasted it for a variety of reasons ranging from poor grammar and syntax to internal inconsistency to unrealistic albeit ambitious posturing. The principal opposition party,

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5 The structure and functions of this council are discussed further in Chapter Five.

6 For a good example of Islamabad’s reaction, see “Pakistan Reacts Strongly to India’s Assertion,” The Times of India, August 19, 1999, and “Pak to Raise Nuclear Doctrine Issue at UN,” Asian Age, August 28, 1999.


8 Examples of such critiques can be found in P. R. Chari, “The Nuclear Doctrine,” August 24, 1999, available at http://www.ipcs.org/issues/articles/252-ndi-chari.htm; Kuldip Nayar, “Between Welfare and Weapons,” Indian Express, August 31, 1999; Savita Pande, “It’s a Bit of a Hogwash, This Doctrine,” Indian Express, August 30, 1999; Raja Menon, “The Nuclear Doctrine,” The Times of India, August 26, 1999; Manoj
the Congress, was also incensed by its circulation; seeing the document as merely an electoral ploy to garner public attention and possibly votes in the upcoming national election, a senior Congress leader and former Indian Foreign Minister, Pranab Mukerjee, indignantly remarked that "the caretaker government has no business, politically or morally, to bring out [a] document of this nature, which will affect the life of the entire subcontinent. The basic question is how can a government which has lost its mandate bring out such a document... They are not running a college union, but a federal government."9

More to the point, however, the Indian government itself, somewhat taken aback in the face of both domestic and international criticism, moved deftly to distance itself from the report. Thus, what had originally been intended—at least in the minds of its creators—to be a definitive statement about India’s prospective nuclear posture was now redefined by the government of India as merely a "draft."10 Not content with this relabeling, however, Indian Prime Minister Atal Bihari Vajpayee further devalued the report by arguing that "there is nothing new in the policy announced by us... We have talked about command and control in the new policy, but it is a draft policy which can be changed."11 Indian Foreign Minister Jaswant Singh quickly followed suit, announcing that he had "no inhibitions in discussing all [the report’s] aspects" with his American interlocutors, "as the document is meant for public discussion."12 Finally, in an elaborate but obviously planted interview a few months later, Singh further attempted to "dispel the widespread misconcep-

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tions on Indian nuclear doctrine by providing a critical restatement that appeared to diverge significantly from the contents of the Draft Report. This interview sought to soften the impact of many of the report’s original recommendations and even offered a new gloss on some of its linguistic formulations, but a careful reading of this redaction suggests that despite the government’s attempts to publicly distance itself from the document, there remained at least some points of convergence that must be engaged by any analysis of India’s nuclear doctrine and emerging force posture.

At one level, this evidence of convergence is not surprising in that the Draft Report had an inexorable internal logic that, although unpalatable to many both in India and in the United States (including the U.S. government, which has been justifiably critical of the document on many counts), appealed to many decisionmakers in critical loci of power—including the Prime Minister’s Office and the Ministries of External Affairs and Defence. This partial convergence of ideas, however, makes the task of analysis all the more difficult, because while the openly available Draft Report has not been formally endorsed by any Indian policymakers—except perhaps by National Security Adviser Brajesh Mishra, and here, too, only by implication—various public and private comments on the part of such policymakers do suggest an acceptance of at least some of its key tenets. Yet this acceptance has not yet translated—and may never translate—into a willingness to enunciate India’s real nuclear doctrine in any clear, comprehensive, and publicly accessible way, despite the fact that a general set of principles and perhaps even a doc-

13 "India Not to Engage in a N-Arms Race: Jaswant."

14 See “Opening Remarks by National Security Adviser Mr. Brajesh Mishra at the Release of Draft Indian Nuclear Doctrine,” available at http://www.mea.gov.in/govt/opstm-indnuclld.htm. One of India’s leading journalists, Kuldip Nayar, for example, responding to Mishra’s actions and remarks, stated that “I would not have bothered a bit about the draft ‘Nuclear Doctrine’ if it had not been released by the Prime Minister’s secretary. Brajesh Mishra. The National Security Advisory Board had issued it for ‘debate and discussion’ [Nayar errs on this point: The board prepared the report as a mandated, confidential recommendation to the government] and it should have been treated that way. But Mishra made it official. What it means is that the government had decided to weaponise its nuclear capability without even building a consensus on the important issue. . . . The government has used the board only as a cover. It could easily do so because it appointed on the board such members as were on the same level of hawkishness as the BJP men.” See Nayar, “Between Welfare and Weapons.”
ument reflecting those principles have been formally developed by India’s senior security managers.

It thus becomes evident that the details which would make India’s nuclear doctrine and emerging force posture coherent have not been furnished by any official statements and have been made available only to a limited extent by nominally official but unauthoritative documents like the Draft Report (whose internal coherence at least validates its probative value even if it does not offer conclusive proof). Consequently, such details must instead be supplied by analysts who are tasked with interpreting the few authentic declarations available in the context of a larger understanding of Indian attitudes toward nuclear deterrence, the country’s existing military and technical capability, and the challenges facing its desired force posture over time. This chapter is intended to provide just such an understanding, with the caveat that it represents an early view of India’s evolving preferences—which, because of the various intervening circumstances cited earlier, could eventually be incarnated in somewhat different form. Despite such cautionary notes, this chapter will describe India’s evolving nuclear doctrine, and the nuclear force posture predicated by that doctrine, in a much more systematic way than its security managers and strategic commentators have ever articulated. In fact, most of the analysis that follows will be characterized by a much greater order and coherence than can actually be found in reality.

The conclusions this research effort offers are also much more conditional than the declarative tone in which they are expressed might suggest. This is because the official Indian view on many of the details subsumed by the phrase “nuclear doctrine and force posture” is simply not available and, in some instances, has not even been formulated, since decisionmakers in New Delhi are just beginning to appreciate some of the more remote implications—be they political, technical, or operational—of their preferences. Despite these problems, the analytical coherence and declamatory style this chapter adopts, though artificial and perhaps premature, is nonetheless desirable insofar as it allows India’s future nuclear posture and the logic underlying its creation, maintenance, and utility to be presented in as lucid a manner as possible. This clarity of expression, which is designed to avoid equivocation, caveats, and ambiguity as much as possible even though they may be justified, is aimed at providing a
better assessment of India's evolving deterrent than is currently available while simultaneously generating a better appreciation of the consequences of that deterrent for U.S. interests both in the region and around the globe.

Three other methodological issues are also worthy of recognition in this context, the first of which pertains to the level of analytical detail that is pursued. The discussion throughout this chapter will for the most part remain abstract because the nature of the subject at hand seldom permits unclassified analysis at a level that would meet the standards of operations research.\(^{15}\) Even if issues of classification did not intrude, it is simply too early to analyze India's nuclear posture at the level of operations analysis because many of India's weapon and delivery systems, training and deployment postures, and general operational routines have not yet been developed and institutionalized. Consequently, even when it touches on military-technical issues, this discussion will focus on uncovering problems relating to successful deterrence rather than on operational minutiae that either have been classified by the government of India or, more often than not, have simply not been developed.

The second issue pertains to the method of analysis. The discussion on India's nuclear doctrine and force posture is derived primarily from static analysis. That is, its attempts to explicate New Delhi's requirements are based on an understanding of factors that are critical to India but do not integrate the capabilities, doctrines, and force postures of India's competitors, China and Pakistan. This is because integrating the latter variables would require a level of dynamic analysis—especially if a net assessment of deterrence stability is required—that lies beyond the scope of this work.\(^{16}\) The issue of Chi-

\(^{15}\) A good discussion of the type of information required to support operations research and the limitations of such research can be found in E. S. Quade and W. B. Boucher (eds.), Systems Analysis and Policy: Planning Applications in Defense (New York: Elsevier, 1968).

\(^{16}\) Strategic nuclear net assessment was obviously a staple of Cold War analysis and was possible, among other things, because both sides had nuclear arsenals with well-understood physical and organizational characteristics. For a useful survey of such work together with an example of a software program that allows nonspecialists to dynamically model a simple nuclear exchange scenario in the U.S.-Soviet context, see Lynn Eden and Steven F. Miller (eds.), Nuclear Arguments (Ithaca, NY: Cornell University Press, 1989).
ese and Pakistani nuclear capabilities is therefore discussed only when it is necessary either to illustrate points of comparison or to ascertain whether such capabilities impinge on the adequacy of the Indian deterrent in principle.

The third issue pertains to the subject of standards. Whenever discussions about nuclear deterrence involving technologies, operations, or doctrine are conducted, the U.S.-Soviet experience throughout the Cold War looms large in the consciousness of most Western analysts. This is understandable not only because that experience once served as a yardstick for evaluating the adequacy, effectiveness, and stability of various deterrent architectures but also—and perhaps more perniciously—because it has survived as the dominant framework for thinking about nuclear deterrence in general.\textsuperscript{17} The temptation to view nuclear deterrence in South Asia through the lens of U.S.-Soviet competition should be resisted, however, because the objectives both India and Pakistan have sought to attain through nuclear capabilities are very different from those historically pursued by the United States and the former Soviet Union. If the Indian deterrent is assessed in relation to the nuclear architectures epitomized by U.S.-Soviet competition, it will therefore be found wanting—but this is the wrong test of its adequacy, effectiveness, or stability. The appropriate measure in this instance is not whether India’s deterrent is good by the standards of the Cold War but rather whether it is appropriate and good enough for New Delhi given the latter’s objectives, resources, traditions, and constraints—all these understood, of course, in the context of those “eternal” verities about nuclear weapons so clearly illuminated as a result of superpower competition in the postwar period.\textsuperscript{18}

\textsuperscript{17} For more on this issue, see the remarks of Regina Cowen Karp in Serge Sur (ed.), \textit{Nuclear Deterrence: Problems and Perspectives in the 1990s} (New York: UNIDIR, 1989), pp. 122–124.

\textsuperscript{18} There is obviously great debate about what the verities distilled from the experience of the “first nuclear age” actually are. For two good studies that revisit this issue from the perspective of principle and practice, respectively, see Robert Jervis, “Strategic Theory: What’s New and What’s True,” \textit{Journal of Strategic Studies}, 9:4 (December 1986), pp. 135–162, and David A. Shlapak and David E. Thaler, \textit{Back to First Principles: U.S. Strategic Forces in the Emerging Environment}, R-4260-AR (Santa Monica: RAND, 1993).
fundamental to any worthwhile analysis of nuclear deterrence in South Asia, it will suffuse all subsequent discussions about India’s future nuclear doctrine and force posture.

INDIA’S NUCLEAR DOCTRINE: CONCERNS, CONTEXTS, AND CONSTRAINTS

There is no accepted definition of “doctrine” in modern strategic thought. In the West, the concept usually refers to those “fundamental principles by which military forces or elements thereof guide their actions in support of national objectives.”¹⁹ This definition implies that doctrine pertains first and foremost to the conduct of military forces in the field and, as such, functions as a unifying agent that regulates all the collective actions oriented toward securing specific operational objectives within a given battle space. Wayne Hughes succinctly summarized this notion when he concluded that “doctrine is the glue of tactics,”²⁰ but this conception, being limited to the operational and tactical levels of war, turns out to be unduly restrictive for purposes of this analysis. The old Soviet definition may in fact be more appropriate here, since the concept of doctrine was understood expansively as a hierarchic structure of principles anchored fundamentally in the grand strategic objectives and material capabilities of the state. Beginning at the national level, the authoritative Dictionary of Basic Military Terms thus defined doctrine as

A nation’s officially accepted . . . views on the nature of modern wars and the use of the armed forces in them, and also on the requirements arising from these views regarding the country and its armed forces being made ready for war . . . Military doctrine has two aspects, political and military-technical. The basic tenets of a military doctrine are determined by a nation’s political and military leadership according to the sociopolitical order, the country’s level of economic, scientific, and technological development, and the

armed forces' combat material, and with due regard to the conclusions of military science and the views of the probable enemy.21

This conception of doctrine is attractive because it reaches to the level of grand strategy, thereby providing an opportunity to depict India's own evolving nuclear doctrine as the supreme national view of its nuclear capabilities—a view that, despite having been articulated in only piecemeal fashion by its many security managers, is deeply rooted in its understanding of the nature and limits of nuclear war as an instrument of policy, the role of its own military forces in the political life of the state, the country's current and future levels of economic and technological modernization, and the demands imposed both by military science insofar as it pertains to nuclear weapons and by the attitudes and capabilities of its principal adversaries, China and Pakistan. Despite the lack of a formal creed that speaks to these issues comprehensively, a doctrine that is grounded in precisely these considerations can be identified from several official pronouncements, understood in the context of the larger strategic debates taking place among the "rejectionists," "pragmatists," and "maximalists" within the country.22

Explicating the doctrine in these terms allows it to be seen not as a narrow set of tactical rules governing nuclear operations in practice—as would be the case if Western notions of doctrine were adopted in this analysis—but rather as a worldview that first defines the core question of what purposes are served by the acquisition of nuclear weapons and then addresses all the important subsidiary issues pertaining to force posture, concepts of operations, and weapon employment. In so doing, India's nuclear doctrine can be seen as a system of beliefs that both describes the utility of nuclear weapons to the state and identifies the manner in which these weapons will be deployed and used consistent with the purpose for which they have been acquired.


22These labels have been used by one Indian scholar to describe the character of the Indian strategic debate insofar as it pertains to nuclear weapons. This debate has been summarized in Kanti Bajpai, "The Great Indian Nuclear Debate," The Hindu, November 12, 1999. See also Bajpai, "India's Nuclear Posture After Pokhran II," pp. 207-301.
The Declaratory Level of Policy

The most significant and distinguishing facet of India’s nuclear doctrine is its consistent claim that nuclear weapons are above all else political instruments rather than military tools. At first sight, this claim might not appear to be either interesting or of consequence, since all weapons are ultimately political to the extent that they exist to serve the interests of the state. The Indian conception of the utility of nuclear weapons, however, has a more specific and substantive meaning: Nuclear weapons are understood to be properly political instruments because they are emphatically not usable weapons in any military sense. Indian Prime Minister Atal Bihari Vajpayee attempted to capture this understanding when he stated that “nuclear weapons are weapons of mass destruction,” implying thereby that they cannot be used, must not be used, and will never be used as instruments of war fighting by New Delhi. Indian President K. R. Narayanan, addressing the nation on the occasion of the golden jubilee of India’s independence, reiterated this view when he solemnly stated that “nuclear weapons are useful only when they are not used. They can only be a deterrent in the hands of a nation.” A prominent Indian analyst, Jasjit Singh, amplified this argument when he asserted that despite the existence of many superpower doctrines projecting “a military role for nuclear weapons,” it has become obvious over time that “[a] nuclear war cannot be won, and therefore must never be fought.” Carrying this thesis to its logical end, Singh concludes that “nuclear weapons [are] more an instrument of politics . . . than a military instrument of war fighting.” Affirming this conclusion in the context of a comparison with the doctrines of other nuclear powers, K. Subrahmanyam asserted simply that “India does not subscribe to the outmoded war-fighting doctrine [followed by the United States and the U.S.S.R.], and [in contrast to the doctrines

\[\text{\footnotesize 23}^a\] Prime Minister’s Reply to the Discussion in Lok Sabha on Nuclear Tests on May 29, 1998,” p. 9.


\[\text{\footnotesize 26}^a\] ibid.
upheld by these states] the Indian nuclear weapons are meant solely for deterrence."^{27}

Nuclear weapons, in Indian readings, are thus seen as having functional utility more as pure deterrents than as implements of war. Because these weapons embody enormous destructive capability—a capability often greater than that required by most rational political ends—they are perceived as having relatively low utility in situations where all the antagonists possess similar technologies. In such situations, any use or attempted use of nuclear weapons by one state against another would be countermanded by the symmetrical use, or threatened use, of these weapons by their competitors. The net result—either a devastating war arising from actual use or a political standoff arising from prevented use—implies that the efficacy of nuclear weapons per se is least when all other states have comparable capabilities. Under situations of asymmetry, however, nuclear weapons could have remarkable efficacy as instruments of coercion because nonnuclear states would be highly vulnerable to threats that might be issued by their nuclear-armed adversaries—or so it is argued. Most Indian analysts appear to be greatly exercised by this class of contingencies, and it is therefore not surprising that Jasjit Singh, surveying 47 incidents involving the threat of nuclear weapons since 1946, concluded that "nuclear weapons played an important political role rather than a military one"^{28}—a role in which "the threatened party could ignore the threat only at its peril."^{29} Drawing similar conclusions, K. Subrahmanyam asserted that "the main purpose of a third world arsenal is deterrence against blackmail,"^{30} since this presumably constitutes the principal problem affecting nonnuclear powers in situations of nuclear asymmetry.

Irrespective of whether the historical analysis underlying these conclusions is accurate, the belief that nuclear weapons are most


^{29}Ibid.

useful as antidotes to blackmail is deeply embedded in the Indian psyche. This obsession with neutralizing blackmail, threats, and compellence is ultimately rooted in India’s long historical memory of constant invasion and repeated subjugation by foreign powers, and New Delhi’s strategic weakness for most of its independent life has only reinforced it. And while both the specific sources of threat and the level of concern about threats have varied considerably over time, the general preoccupation with negating coercion and blackmail has remained more or less constant in India’s strategic policy, deriving sustenance today from the potential for misuse arising from the nuclear capabilities India’s principal adversaries, Pakistan and China, now possess. Most security managers in New Delhi would in fact argue that their decision to acquire nuclear weaponry—that is, to move beyond simply maintaining the nuclear option—is itself a constrained choice in that they would prefer not to have any nuclear weapons to begin with if the global environment and their regional situation so permitted.\textsuperscript{31} At the same time, however, the absence of this alternative and the consequent decision to pursue nuclearization do not imply, as Subrahmanyam put it, that India ought to mimic “the U.S. nuclear strategic theology, [even though it has thus far] dominated all thinking in matters nuclear.”\textsuperscript{32} Elaborating on this notion, Subrahmanyam asserted that “India has the benefit of the

\textsuperscript{31} This argument, in fact, forms the preamble to the “Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine,” which asserts that “the use of nuclear weapons in particular as well as other weapons of mass destruction constitutes the gravest threat to humanity and to peace and stability in the international system. Unlike the other two categories of weapons of mass destruction, biological and chemical weapons, which have been outlawed by international treaties, nuclear weapons remain instruments for national and collective security, the possession of which on a selective basis has been sought to be legitimised through permanent extension of the NPT in May 1995. Nuclear weapon states have asserted that they will continue to rely on nuclear weapons with some of them adopting policies to use them even in a nonnuclear context. These developments amount to virtual abandonment of nuclear disarmament. This is a serious setback to the struggle of the international community to abolish weapons of mass destruction. . . . Autonomy of decision making in the developmental process and in strategic matters is an inalienable democratic right of the Indian people. India will strenuously guard this right in a world where nuclear weapons for a select few are sought to be legitimised for an indefinite future, and where there is growing complexity and frequency in the use of force for political purposes.” See “Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine,” p. 2.

wisdom drawn from the highly risky and totally non-viable policies of nuclear deployment followed by the United States and the USSR. It has, therefore, no intention of repeating those blunders.\textsuperscript{33}

Most Indian elites would assert that New Delhi can afford to deviate from the received wisdom pertaining to the management of nuclear weaponry—even as it acquires a nuclear arsenal—because the Indian strategic problematic is unique in many ways, at least in relation to the United States vis-à-vis the Soviet Union during the Cold War. Unlike the United States, for example—which developed its nuclear arsenal during a period of intense superpower competition and amid clear and present danger to its security—India has set out to develop a nuclear capability at a time when the global strategic environment is much less intense and when there is a clearer recognition that any nuclear use would be highly escalatory and therefore "should not be initiated."\textsuperscript{34}

Further, unlike the United States during the Cold War, India does not suffer any conventional inferiority vis-à-vis either Pakistan or China. Since it is therefore unlikely to be at the receiving end in a conventional conflict with either of these two states, it is spared the imperative of thinking about nuclear weapons as usable instruments of war fighting that may have to be harnessed \textit{in extremis} to stave off potential defeat on the battlefield.\textsuperscript{35} This by no means eliminates the problem of responding to the first use of nuclear weapons by India's adversaries, but at least this obstacle represents a different class of challenges than that arising from the need to use one's own nuclear weapons first because of serious conventional weaknesses in the face of a highly revisionist threat.

Finally, unlike the United States during the Cold War, India does not have to service any obligations relating to the extended deterrence of allies located far from its own territories, and it does not face a formidable military machine against which it has poor or, at worst, no conventional antidotes. The only object of concern here is India's own security, and given its at least nominal conventional military

\textsuperscript{33}Subrahmanyan, "Talbott Is Stuck in Pre-'85 Nuclear Groove."

\textsuperscript{34}Subrahmanyan, "Educate India in Nuclear Strategy."

superiority vis-à-vis both Pakistan and China (in the theater), the only contingency left for nuclear weapons to service is that of immunization to blackmail arising from either its adversaries’ threat of nuclear use or the political exploitation of their own nuclear assets in some abnormal political circumstances.\textsuperscript{36}

India’s simple—and perhaps even simplistic—conception of the value of nuclear weapons thus derives fundamentally from the fact that the country does not face any onerous security challenges that would demand a more expansive view of the utility of nuclear weaponry. One of India’s leading strategic commentators, C. Raja Mohan, explicated this judgment clearly when, in the context of the ongoing Indian debate about the nature and utility of nuclear weaponry, he noted that

India has taken too long to come to terms with the nuclear revolution and its impact on world military affairs. But the technology underlying the atomic revolution is 50 years old, and a continuing obsession with it will prevent India from making crucial investments and policy decisions on the new revolution in military affairs. The dramatic advances in information and communication technologies and their application to warfare will increasingly determine the locus of military power in the coming century. Worship of the old nuclear gods and the reluctance to pay attention to the impact of [information technology] on the conduct of future wars will put India back in the position of global irrelevance with or without nuclear weapons. . . . Nuclear weapons are certainly important. And India’s decision to acquire them was long overdue. But in the flush of becoming an atomic power, India could easily overstate the significance of nuclear weapons. They can only serve a limited purpose for India—of preventing the use or threat of use of nuclear weapons by its adversaries against it. There is little else that nuclear weapons can do. . . . Even the most sophisticated and expansive nuclear arsenal will not propel India into the ranks of great powers. Mindless obsession with nuclear weapons will instead push India down the ruinous path that the Soviet Union went. Having acquired

\textsuperscript{36}Jasjit Singh, for example, has argued that the only reason India needs nuclear weapons "is to provide insurance against nuclear threat (‘blackmail’ or hegemony, as the Chinese describe it) and possible use. We do not need them for power or prestige. India’s status in the final analysis will be governed by how successfully we solve our problems." See Jasjit Singh, "Nukes Have No Prestige Value," \textit{Indian Express}, June 4, 1996.
an insurance policy through nuclear weapons, India must now pursue the arduous domestic agenda of economic modernisation, political reform, and social advancement. . . . The productive economic and political engagement of the world must remain the bedrock of nuclear India’s diplomacy. A paranoid reading of external threats to security and an overdetermination of the role of nuclear weapons in national strategy will drive India into a needless confrontation with most nations and undermine New Delhi’s efforts to expand its regional influence and global standing.37

Confirming such sentiments about the limited utility of nuclear weapons to India, Prime Minister Vajpayee too summarily concluded that New Delhi “do[es] not intend to use these weapons for aggression or for mounting threats against any country; these are weapons of self-defense, to ensure that India is not subjected to nuclear threats or coercion.”38

The view that nuclear weapons are exclusively political instruments whose efficacy derives from their possession but not their use (as opposed to military tools, whose efficacy derives primarily from how they might potentially be used in operational terms) places Indian nuclear doctrine squarely at the deterrence end of the “deterrence-defense continuum” that Glenn Snyder so clearly described 40 years ago.39 Being located at this end implies that nuclear weapons are treated, in Bernard Brodie’s words, as “absolute”40 weapons that can inflict excruciating and perhaps even fatal pain on all antagonists irrespective of their relative national strength. Such weapons are also viewed as impossible to defend against in any meaningful way and consequently their presence is perceived as radically transforming the traditional ends to which force may be applied. As Brodie put it, “Thus far, the chief purpose of a military


establishment has been to win wars. From now on its chief purpose must be to avert them. It can have no other useful purpose."\textsuperscript{41} This claim about the absolute character of nuclear weaponry, which makes only deterrence and not defense viable, has been contested from the very beginning of the nuclear age\textsuperscript{42}—and these debates obviously have implications, some of which will be explored later, even in the Indian context today. For the moment, however, suffice it to say that Indian security managers appear to have rejected the U.S. solution that finally prevailed during the Cold War: By refusing to treat deterrence as an outcome that is best assured by developing various strategies of defense, such as preemptive attacks, limited nuclear options, or robust strategic defenses, New Delhi has adhered to the traditional opposition that theorists like Snyder have postulated to exist between deterrence and defense, coming down strongly in favor of the former and rejecting the latter, at least at the level of declaratory policy.\textsuperscript{43}

Dr. Raja Ramanna, one of India’s foremost nuclear weapon scientists and a former Minister of State for Defence, reaffirmed Brodie’s original insight about the absolute character of nuclear weaponry and conveyed Indian views about the illogic of transforming the challenge of deterrence into problems of defense in a speech delivered as early as 1992:

Since the end of the Second World War, the problem of security has become aggravated because of two reasons: military power has become synonymous with technological and industrial power, and new developments in technology have brought the situation to a state where weapons of destruction have not merely been improving in potency in some linear manner, but a fundamental change in overall capability has taken place. Besides being assisted by automation, never dreamt of before, some of them have reached the status of what is known as “ultimate” weapons, i.e., their individual destructive power is more than what the world can bear. The “ultimate” weapon has the power of destroying vast areas of the earth and making them uninhabitable in a matter of a few seconds.

\textsuperscript{41}ibid.

\textsuperscript{42}See the discussion about William Liscum Borden and his arguments in particular in Jervis, "Strategic Theory: What’s New and What’s True," pp. 135–137.

\textsuperscript{43}“India Not to Engage in a N-Arms Race: Jaswant.”
In spite of this, the "ultimate" nature of modern weapons does not by itself seem sufficient for countries to give up further development of more efficient weapons. Greater effort is being put on defense research and the testing of weapons continues as before. In some countries the burden of deterrence has messed up not only their entire economic structure, but even their very integrity as nations.  

Even India's hawks are usually agreed on this issue: that nuclear deterrence ought not to be treated as a problem that lends itself to solutions based on defense, as the United States held during the Cold War. Indeed, such individuals might passionately argue for a larger nuclear weapon stockpile and a technically more diverse set of weapon types than even their country's security managers consider necessary, but these capabilities are justified mainly on the grounds of enhancing the credibility of deterrence rather than in support of any sustained nuclear war-fighting strategy. Thus, for example, even Bharat Karnad, who argues for a diverse nuclear arsenal consisting of atomic demolition munitions at one end all the way to high-yield thermonuclear weapons at the other, ultimately comes down on the side of a nuclear doctrine centering on *deterrence by punishment*, which requires, in his view, a stockpile of some 330 nuclear weapons by the year 2030—clearly a minuscule force if the requirements of nuclear war fighting as understood during the Cold War are anything to go by.  

In any event, Karnad remains more or less the exception among Indian elites: Most Indians are content to eschew any nuclear weaponry that might even hint of a willingness to contemplate a war-fighting posture, and this sentiment is shared both by critical decisionmakers within the Indian government and by the top brass of the Indian armed forces today. Consequently, while all the hawks invariably assert that India needs readily available nuclear weapons for its security, almost all of them—if Karnad is treated as the exception—also believe that these capabilities ought to be subordinated, as one of the more prominent hawks phrased it, to "a doctrine that eschews both a war-fighting approach and the . . . recessed

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or non-deployed deterrence advocated by the United States and its friends.\textsuperscript{46}

Since India’s preferred outcome is thus defined solely in terms of deterrence (understood as a rejection of defense in the context of the deterrence-defense continuum), the possession of even a few survivable nuclear weapons capable of being delivered on target, together with an adequate command system, is seen as sufficient to preserve the country’s security. Preserving safety in the face of blackmail and coercion does not, however, require any additional \textit{pronouncements} about the size of the nuclear stockpile, theories of deterrence, use doctrines, targeting philosophy, or operational posture. As one highly placed manager associated with India’s nuclear program pointed out, “We don’t fall into the standard pattern of declared doctrines, specific weapons, delivery capabilities or force postures,” since the very recognition that India possesses nuclear weapons suffices to ensure that all “aggressive acts” would be adequately deterred even without the promulgation of any particular doctrine of deterrence.\textsuperscript{47}

When viewed against this background, the ideas articulated in the “Draft Report of [the] National Security Advisory Board” no doubt constitute a genuine exception to the official Indian preference for silence on all details relating to its nuclear strategy. Even the volubility of the Advisory Board in this instance, however, can be attributed to a concatenation of three distinct factors: first, the understandable but misguided pressure emanating from Washington for an Indian “nuclear doctrine” in the aftermath of the tests of May 1998; second, the absence of any individuals on the Advisory Board charged with actually carrying out the recommended doctrine outlined in the Draft Report; and third (and perhaps most important), the Advisory Board’s expectation that the report would remain a confidential recommendation to the government of India rather than a draft paper released for public debate. Absent these three conditions, it is unlikely that any detailed public articulation of India’s nuclear doctrine

\textsuperscript{46}Chellaney, “India’s Trial by Atom.”

would have been offered by the Indian government, since the latter,
by all evidence thus far, appears to believe that a global recognition
of the country's nuclear capabilities suffices for effective deterrence.
Defence Minister George Fernandes affirmed this judgment when he
noted that "being a nuclear weapon state was a [sufficient] deterrent
for [India's] enemies, and that was the entire aim of [India] declaring
itself [to be] one."48

This conservative view of sufficiency requirements, at least at the
level of declaratory policy, is strongly influenced by the belief that, as
Thomas Schelling once put it, "what makes atomic weapons different
is a powerful tradition that they are different."49 This claim, which all
Indian security managers would readily understand, accept, and
make their own, is perceived as reinforcing the extant tradition of
nonuse of nuclear weaponry—a tradition that centers on the "jointly
recognized expectation that [these weapons] may not be used in
spite of declarations of readiness to use them, even in spite of tactical
advantages in their use."50 Anticipating that this tradition will con-
tinue to hold robustly as a background condition even amid the un-
settled political conditions in the subcontinent and its environs, In-
dian policymakers believe that extended discussions about India's
nuclear capabilities, doctrine, and force posture are both unneces-
sary and counterproductive—unnecessary because India would
rarely find itself in a position where it would have to actively exploit
its nuclear reserves for defensive purposes, and counterproductive
because articulating the character of India's nuclear capabilities,
document, and posture in any detail could precipitate probing tests on
the part of its adversaries, who may seek to discern both its limits
and its vulnerabilities. Indian Defence Minister George Fernandes
provided an inkling of these sentiments when he argued that "when
people keep commenting that the nation is divided on the nuclear
tests and that it has become a contentious issue, then we are only
providing our opponents an assurance that they don’t have much to

48"Kargil Shouldn't Bias Western View of India’s N-Policy: George," The Times of
India, July 21, 1999. Indian Prime Minister Vajpayee echoed these sentiments when he
too declared in Parliament that the "fact that we've become a nuclear weapons state
should be a deterrent itself." See "PM Declares No-First Strike," Indian Express, August

50Ibid.
worry [about]; that we are not even united on our own survival. ... A nation can be at war on issues like what should be our priorities, on issues relating to social justice, etc. But on our very survival, never." 51

Official exhortations to silence such as those expressed by Fernandes have been criticized by India’s free and often feisty media 52—and once even by the Parliamentary Standing Committee on Defence, which urged the government "to move away from [the] conservative concept of keeping everything behind the veil of secrecy," since India’s adversaries could contemplate mounting nuclear attacks only if they "underestimated the robustness of our preparedness." 53 The fact remains, however, that senior Indian security managers have continued to maintain a deliberate silence about all the details relating to these issues, preferring instead to leave most analysis to the imagination in efforts to exploit whatever deterrence benefits can be derived from uncertainty, opacity, and ambiguity. Indeed, even when they have spoken about nuclear matters, such individuals have sought to describe not what India might do in the event of a deterrence breakdown but rather what needs to be done to prevent such a breakdown from occurring. And even these declamations—offered in sparse and general terms—usually turn out to be little more than either repeated justifications of why India needs a minimum but credible nuclear deterrent or pleas to the international


52 A leading national daily, The Times of India, for example, in a pointed editorial aimed at Fernandes’ remarks, noted that while Fernandes “may have reasons for taking such a position ... given the demands and sensitivities of the portfolio that [he] is handling, ... the position taken by Mr. Fernandes is itself highly debatable.... While opinion is divided on the May 1998 nuclear tests and their diplomatic and economic fallout, there has been a heartening unanimity on the view that the issue should be discussed. In fact, this continuing debate is a matter of singular pride for India. ... In this regard, India has distinguished itself from most other nuclear powers whose deterrence needs and capabilities have seldom, if ever, been publicly discussed with such passionate and informed zeal.” See “Silent Thunder,” The Times of India, October 13, 1998.

community to restrain India’s adversaries, particularly Pakistan. Even the Draft Report, in the section titled “Objectives,” does not add much more to that which might already be presumed about Indian thinking on this question: After affirming that “India’s peacetime posture aims at convincing any potential aggressor that . . . any threat of use of nuclear weapons against India shall invoke measures to counter the threat,” it simply declares that “any nuclear attack on India and its forces shall result in punitive retaliation with nuclear weapons to inflict damage unacceptable to the aggressor.”

This laconic attitude, which essentially repeats what most Indians already presume to be the essential characteristics of nuclear weaponry anyway—the ability to inflict unacceptable damage even in the context of the most limited use—stands in sharp contrast to the loquacity about nuclear doctrine and force posture that characterized the United States during the Cold War. These attitudinal differences are in turn rooted in diametrically opposed intuitions about the question “What deters?” During the Cold War, the United States—operating on the intuition that achieving successful nuclear deterrence was a difficult task requiring both extensive capabilities and credible threats—created a sizable and redundant nuclear arsenal coupled with relatively transparent nuclear-use doctrines, all designed to communicate the character of its nuclear capabilities and to ensure that its otherwise-incredible strategic threats would actually be carried out in response to any attack. India, in contrast—operating on the intuition that achieving successful

54 See, for example, the tenor of the remarks offered by both Jaswant Singh and George Fernandes in their interviews with Tim Sebastian of the BBC as reported in Surya Prakash, “We Sleep Well Mr. Sebastian, Thank You,” The Pioneer, July 28, 1999.

55 “Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine,” p. 2. The expanded discussion of various dimensions of retaliation in the Draft Report occur only in the sections on India’s desired force structure, and they cannot be treated by any means as an exhaustive statement of how India might respond in the context of a nuclear attack. These issues will be discussed in more detail in the subsequent section of this chapter, which focuses on the operational level of policy.

56 In his classic work The Strategy of Conflict, for example, Thomas Schelling assessed at some length many of the techniques that a deterrent could use to communicate its commitment to carrying out what might otherwise be dismissed as incredible threats because of their inherent painfulness. See Schelling, The Strategy of Conflict, pp. 119–161. See also Schelling, Arms and Influence, pp. 1–125.
nuclear deterrence is a relatively easier matter, thanks both to the absolute character of nuclear weaponry and the relatively robust tradition of nonuse already in place—appears content to settle for a simpler set of nuclear capabilities while remaining silent with respect to many of the details pertaining to its ability to retaliate. This response is quite logical, since India seems to be satisfied by the belief that even a ragged nuclear response would suffice to deter its adversaries given that this response would inflict more damage than any of the political objectives sought by its competitors is worth.  

Understanding this criterion is critical to comprehending India’s evolving nuclear doctrine and force posture because it suggests that no matter how serious the increase in Pakistani and Chinese nuclear capabilities may be, New Delhi believes that it faces a reasonably permissive geopolitical environment—at least insofar as this environment influences the prospects for nuclear use by India’s adversaries.  

This judgment is not unreasonable given the fact that the most likely use of nuclear weapons against India would emanate from Pakistan, not China. The Indo-Pakistani rivalry involves dynamic security competition: It entails a high degree of routine violence; is manifested through active struggle over a disputed territory; and involves in Pakistan a weak state that is highly sensitive to Indian threats to its security. Given these considerations, any conflict between India and Pakistan—even one stemming from miscalcula-

\[57\] K. Subrahmanyam formulated this criterion succinctly when he noted that war, including nuclear war, “does not make sense as an instrument of policy, if there is no worthwhile gain or if the costs of it will not be commensurate to the results expected or achieved.” See K. Subrahmanyam, “In Dubious Battle: How War Became Obsolete,” The Times of India, May 9, 1995. Since even limited nuclear—countervalue—attacks can be extraordinarily costly in terms of the casualties suffered by the victim, the possibility of even a ragged nuclear response ought to suffice to make the achievement of stable deterrence a relatively simple task. See K. Subrahmanyam, “Nuclear Defence Philosophy: Not a Numbers Game Anymore,” The Times of India, November 8, 1996. This understanding has also been explicated in some detail in K. Sundarji, “Changing Military Equations in Asia: The Role of Nuclear Weapons,” in Francine Frankel (ed.), Bridging the Nonproliferation Divide (Lanham, MD: University Press of America, 1995), pp. 119-149.

tation—is likely to produce nuclear brandishing by Islamabad and, in the limiting case, even some kinds of nuclear use.\textsuperscript{59}

Despite the challenges such a contingency poses, however, New Delhi appears to be sanguine about the problem of Pakistani nuclear use for three reasons. First, India is unlikely to ever pursue any course of action that would place Pakistan in a situation where the latter felt it had no alternative but to use its nuclear weapons in anger.\textsuperscript{60} Second, even if Pakistan were to use its nuclear weapons extensively against India, the stark geographic vulnerabilities of the former imply that even a relatively small Indian residual reserve would more than suffice to destroy Pakistan as a functioning state. As one Indian analyst phrased this judgment, “The logic of Pakistan’s nuclear posture rests in the assumption that the only way to counter India’s size and might rests in acquiring a first-strike nuclear capability, forgetting that Pakistan cannot survive even the second strike option that the Indian nuclear doctrine has reserved for itself.”\textsuperscript{61} Third, it is increasingly believed that even in the context of a limited conventional war with Islamabad, a nuclear-armed Pakistan would not be able to use its nuclear weapons with impunity against India. While these capabilities might be brandished and their political effects exploited for purposes of signaling, many Indian analysts argue that Pakistan would be unlikely to conclude such stratagems by actually using its nuclear weaponry either because the costs of doing so would far exceed its benefits in the context of a limited confrontation\textsuperscript{62} or because the superpowers—especially the United

\textsuperscript{59} For a discussion of such contingencies, see Tellis, Stability in South Asia, pp. 55-62. This conclusion is decisively rejected by some Indian hawks like Karnad, who, thanks both to an ignorance about Pakistan's true nuclear capabilities vis-à-vis India and to a somewhat patronizing belief that Islamabad’s “nuclear forces may even be complementary should the unitary strategic space of the subcontinent ever be reclaimed with the seeder of an entente cordiale,” conclude simply that “Pakistan is not too weighty a nuclear threat” to India. See Karnad, “A Thermonuclear Deterrent,” pp. 135-136.


States—would be unlikely, out of pure self-interest, "to permit Pakistan to get away with [such] a nuclear strike."\(^{63}\)

Irrespective of the veracity of each of these three claims, the bottom line is that New Delhi refuses to be unsettled even by the more likely contingency pertaining to nuclear use in Southern Asia: threats emanating from Pakistan. In large part, this is because all three considerations interact to produce an expectation that whatever Islamabad may say, it will not actually make good on any of its threats to use nuclear weapons—above all, because any nuclear exchange, while certainly painful for India, could quite simply obliterate Pakistan. Consequently, the prospect of just such an outcome should suffice to prevent Islamabad from initiating any nuclear use to begin with—or so many Indian analysts are wont to argue.\(^{64}\)

This calculus does not carry over to China in an identical way, but even here New Delhi can afford to be reasonably sanguine as far as the fear of nuclear first use against India is concerned. To begin with, Sino-Indian competition, despite all its ebbs and flows over the past five decades, has never involved the routinely high levels of violence that obtain in the case of India and Pakistan. China does lay claim to some 90,000 km\(^2\) of Indian territory in the eastern sector and occupies parts of the Aksai Chin that lie within the northern Indian state of Jammu and Kashmir. For all practical purposes, however, New Delhi is reconciled to this occupation, since the more valuable real estate claimed by China—in the eastern Indian state of Arunachal Pradesh—is already under effective Indian control.\(^{65}\) By contrast, the dispute over Aksai Chin, where China controls a modest portion of territory claimed by India, represents an area of greater value to Beijing because the critical land line of communication between Xinjiang and Tibet happens to run through this region. The character of the respective Chinese and Indian occupations therefore produces a certain equilibrium from the perspective of stability: China has defined Aksai Chin in the western sector—which it already occupies—


as strategically vital to its security interests, although it claims that the eastern sector is crucial to the solution of the border issue, while India has defined the eastern sector—which it already occupies—as strategically vital to its security interests, although it claims that Aksai Chin is crucial to the solution of the border issue.\footnote{This parallelism is borrowed from Xuecheng Liu, *The Sino-Indian Border Dispute and Sino-Indian Relations* (Lanham, MD: University Press of America, 1994), p. 170.} As a result, neither state has any real incentive either to give up the areas each currently occupies or to usurp control over the areas currently held by the other.

Consequently, although Beijing’s refusal to abdicate its claims over the eastern sector often rankles New Delhi, it is clear that these holdings are simply not considered to be \textit{intrinsically valuable}, at least in the way that they are to India. In China’s eyes, these territories do not represent the political equivalent of Taiwan or Hong Kong, and therefore Beijing has not considered it worth their reintegration through either the threat or the use of force. Thus, what is intrinsically valuable for India is simply marginal for China, and given these contrasting valuations, it is not surprising to find that India has developed a robust conventional military capability designed explicitly to frustrate any Chinese attempts at altering the status quo in the Indian northeast through forcible means. To be sure, China could use its superior nuclear capabilities—ranging from tactical nuclear weapons all the way to its strategic systems—to neutralize Indian conventional defenses in an effort to wrest control of these territories, as some Indian observers often fear.\footnote{See, for example, Sahgal and Singh, “Nuclear Threat from China: An Appraisal,” pp. 27–38.} The critical question, however, remains why. These disputed territories are so marginal to Beijing’s strategic calculations that it is not likely to fight a conventional war, let alone risk nuclear use and subsequent nuclear retaliation by New Delhi, in efforts to change the existing equities in the area.\footnote{The late General K. Sundarji affirmed this judgment by quoting Kenneth Waltz approvingly when he asked, “What issue between the latter [referring to India and China] could justify Chinese leadership in risking a city or two?” See Sundarji, “Changing Military Equations in Asia: The Role of Nuclear Weapons,” p. 138.}
China’s refusal to formally retract its claims over this territory does serve the purpose of needling India and, more justifiably, functions as a bargaining chip useful to secure New Delhi’s consent to Beijing’s claims over Aksai Chin. At the same time, however, there is clearly a difference between asserting territorial claims for psychopolitical advantage and threatening an armed conflict involving nuclear use for the purpose of recovering what are otherwise simply marginal territories. Not surprisingly, then, Beijing appears content to pursue the former course of action, and New Delhi has in turn judged correctly that the prospects of Chinese nuclear first use in support of a conventional offensive designed to recover these territories are minimal—despite Beijing’s overall nuclear superiority and the otherwise ongoing Sino-Indian strategic competition—since the value of the disputed territories for China in no way warrants issuing nuclear threats, let alone using nuclear weapons first, against India. As K. Subrahmanyam concluded as early as 1970, “Even the most ardent advocate of an Indian [nuclear] weapon programme does not visualise . . . the Chinese threat in terms of China using ballistic missiles to destroy Indian cities.” More recently, Subrahmanyam excluded even other subsidiary kinds of potential Chinese nuclear use when he argued that “it is not a question of Chinese aggression or threat” that warrants the creation of an Indian nuclear force, but rather “the need for a stable, Asian balance of power.” Other Indian observers, including Jasjit Singh, have further refined this rationale by noting that the presence of Indian nuclear weapons vis-à-vis China should be viewed primarily as a hedge against the “strategic uncertainties” in Beijing’s future political direction. Consequently, these weapons exist principally to provide political “insurance” because in their absence the “continuing asymmetry in nuclear weapons capability [between India and China] would make [the hope for] equal security [merely] a mirage.” Another Indian scholar reiterated this argument in similar terms: “There is one major strategic rationale for the

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73 Ibid, p. 20.
construction of a credible and effective Indian nuclear weapon posture: to provide a hedge—an insurance policy—against the possibility of a belligerent China in an uncertain anarchic world.”\textsuperscript{74}

Both the Pakistani and the Chinese challenges have thus been viewed as posing only modest strategic problems for New Delhi, at least as far as the use of nuclear weapons against India is concerned. Both states certainly have nuclear weapons and thus place India in a situation where it is required to have comparable capabilities for purposes of deterrence and self-assurance. The low likelihood that either adversary will use its weapons in anger against India, however, implies that New Delhi need not rely heavily on its nuclear assets. In the case of Pakistan, Islamabad’s structural weakness makes all but the most token Pakistani nuclear use highly improbable as a matter of national policy. In the case of China, the problem of proportionality between means and ends in territorial disputes between China and India produces exactly the same outcome despite Beijing’s otherwise overwhelming nuclear superiority. It is therefore possible to argue, simply in terms of these readings, that nuclear weapons are in fact unnecessary for India,\textsuperscript{75} but the validity of such a conclusion ultimately hinges on the risk tolerance of security managers in New Delhi. Being risk averse, Indian policymakers have by now made it abundantly clear that they would prefer to acquire nuclear weapons for purposes of both deterrence and self-assurance because, as Subrahmanyan framed their reasoning, “while [nuclear] deterrence may be fragile, [the] absence of [nuclear] deterrence will make the situation even more fragile.”\textsuperscript{76} These policymakers are not convinced, however, given the relatively low prospects for nuclear use by an adversary, that India requires much more than the possession of a modest but secure deterrent to ensure its national safety.

Given this minimalist notion about what it takes to deter successfully, it is obvious that India will continue to distinguish itself from


\textsuperscript{75}Such an argument has in fact been advanced most cogently in Bajpai, “The Fallacy of an Indian Deterrent,” pp. 150–188.

both Pakistan and China by retaining a highly distinctive view about nuclear weaponry. If the term \textit{nuclear weaponry} is treated as the framework of analysis, New Delhi is likely to place its greatest emphasis on the adjective \textit{nuclear}, as in \textit{“nuclear weaponry,”} thereby using this term to connote national political assets that insure against strategic blackmail and potential nuclear use. This emphasis stems directly from the belief that the absolute rather than relative performance of these weapons, coupled with the horrendous consequences of even limited use, more than suffices to make them potent deterrents against any of India’s competitors—deterrents that do not even require explicit threats of use to guarantee their political efficacy given the highly remote circumstances under which they might become relevant.\footnote{See the discussion in Singh, “Why Nuclear Weapons?” pp. 9–25.}

Islamabad, in contrast, is more likely to place greater emphasis on the noun \textit{weaponry}, as in \textit{“nuclear weaponry,”} thus using this term to refer to military instruments that might have to be employed \textit{in extremis} for purposes of ensuring national safety. This emphasis stems in turn from Pakistan’s strategic inferiority vis-à-vis India and from its ever-present fear of being overwhelmed by Indian military action—factors that, taken together, create greater incentives for systematically integrating nuclear weapons \textit{qua} weapons into its operational military planning.\footnote{See the discussion in Agha Shahi, Zulfiqar Ali Khan, and Abdul Sattar, “Securing Nuclear Peace,” \textit{The News International}, October 5, 1999.} In contrast to both India and Pakistan, Beijing is likely to emphasize both adjective and noun uniformly, meaning that it will interpret the term \textit{nuclear weaponry} to refer both to national assets constituting insurance against strategic blackmail \textit{and} to military instruments that might have to be employed operationally \textit{in extremis} against more capable powers. This emphasis on both the political-psychological and the military-operational predicates of nuclear weaponry grows directly out of China’s status as a legitimate nuclear weapon state and as an acknowledged albeit relatively weak great power—factors that interact to bequeath to China a politically useful nuclear weapon status even as they compel it to consider the potential usability of these instruments against other, more capable great powers in the international system.\footnote{See Michael D. Swaine and Ashley I. Tellis, \textit{Interpreting China’s Grand Strategy}, MR-1121-AF (Santa Monica: RAND, 2000), pp. 121–123.}
The emphasis on nuclear weaponry as political instruments and pure deterrents in India, in sharp contrast to the differing emphases placed by its competitors, is obviously grounded first and foremost in structural constraints—that is, in the specific objectives these weapons are called on to service in the context of India's grand strategic needs. This factor represents only part of the story, however, as India's inordinate emphasis on the political as opposed to the military character of nuclear weapons also stems from three distinct but separate strands of political thought that are uniquely rooted in India's strategic traditions and domestic circumstances.

The first reason for India's refusal to treat nuclear weapons as military tools is rooted in the tightly interwoven strands of idealist and liberal thought that defined the country's political culture in its formative years. Despite the many changes in New Delhi's nuclear policy since 1947, the one underlying element of continuity in India's strategic attitudes lies in its consistent refusal to invest nuclear weapons with any axiological legitimacy. Holding that such weapons are "morally, legally and politically indefensible," India led the charge for "universal and non-discriminatory disarmament" in all international forums since the beginning of the nuclear age. Indeed, even when India opposed disarmament treaties like the NPT and the CTBT, it did so on the grounds that these solutions created more problems than they remedied; in India's view, the former legitimized the entitative status of nuclear weaponry as acceptable instruments of international competition even as it enshrined a permanently discriminatory international regime, while the latter did not go far enough in the direction of disarmament even as it created new opportunities for the nuclear weapon states to maintain and improve their existing arsenals. Consistent with this belief, India argued before the International Court of Justice that "any use of nuclear weapons... to promote national policy objectives would be unlawful" and that therefore the use or threat of use of nuclear weapons should be declared illegal under international law. Hence, India's

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general attitude toward nuclear deterrence as a system of regulating interstate behavior has always been antagonistic. Indeed, even as late as the discussions leading up to the CTBT, India held that nuclear weapons were “not essential to the security of any nation” and that the threat of inflicting mass destruction to control state behavior was invariably an “abhorrent” doctrine.\textsuperscript{82}

Given this tradition, India’s decision to finally acquire nuclear weapons created considerable dilemmas for New Delhi, leading numerous Indian commentators and strategic analysts to struggle with the challenge of reconciling this decision with India’s long-standing commitment to disarmament. At the level of doctrine, however, policymakers see only one defensible way out of this predicament: to treat the acquisition of nuclear weapons as a maximin strategy—that is, as the "best of the worst" choices facing India—while simultaneously refusing to define the value of these instruments in militarily translatable terms. Indeed, only a worldview that treats nuclear weapons as political devices as opposed to military tools can emphasize the radical inutility of such weapons and thereby salvage something resembling fidelity to the country’s larger commitment to nonviolence as an ordering principle of political life. Nonetheless, the difficulty of reconciling the demands of technology in general with the ideals of political morality has continued to pose a challenge to India since its independence\textsuperscript{83}—and nuclear weapons, as the acme of technology, have only heightened this challenge. Indian security managers today believe that the solution to this conundrum cannot consist of rejecting the technology itself, since ideals, however attractive, cannot survive without power. Power without ideals, on the other hand, is draconian and dangerous, and to the degree that nuclear weapons must be possessed, their power can be tamed only by ideationally denaturing them in a way that is consistent with India’s larger moral principles. India’s exaggerated emphasis on nuclear weapons as political rather than military instruments must therefore be seen as a solution that derives from more than just a specific strategic

\textsuperscript{82}Bidwai, “BJP’s Nuclear Stance Seen as Undermining Security.”

\textsuperscript{83}This theme has been addressed at some length and with great sophistication in Ashis Nandy (ed.), \textit{Science, Hegemony and Violence: A Requiem for Modernity} (Delhi: Oxford University Press, 1988).
problem. Its viability is ultimately ensured by the fact that it tolerates the possession of such weapons only so long as possession itself is grounded in the rationale that nuclear weapons cannot be treated as weapons per se and used as such. It comes as little surprise, then, that even the Draft Report on Indian Nuclear Doctrine—perhaps uniquely among all such documents in the world—begins with a lengthy preamble that sings the praises of universal nuclear disarmament and, even as it defines the structure of what could become a significant Indian nuclear force, ends by admonishing the country's security managers “to continue [their] efforts to achieve the goal of a nuclear weapon-free world at an early date” while working to secure, in the interim, both “an international treaty banning [the] first use [of nuclear weaponry]” and “internationally binding unconditional negative security assurances by nuclear weapon states to non-nuclear weapon states.”

While the demands emanating from India’s larger philosophic and political traditions function as the first reason for treating nuclear weapons as something other than operationally usable military implements, the second reason is rooted in the more prosaic institutions of domestic politics, especially India’s peculiar organization of civil-military relations. It is often insufficiently recognized that India

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84 This position riles some Indian hawks like Bharat Karnad, who would prefer that India jettison its heritage of commitment to nonviolence and simply acquire nuclear weapons in order to enhance its security and buttress its claims to great-power status. As he phrased his larger critique, “This will require the will to power which the politically correct, if impractical, ideology of world peace through disarmament married to an inert, self-deluding, national security policy has so far made impossible.” See Bharat Karnad, “India’s Weak Geopolitics and What to Do About It,” in Bharat Karnad (ed.), Future Imperiled (Delhi: Viking, 1994), pp. 66-67. In another place, Karnad reaffirms this position even more emphatically: “[India] relies on deterrence and seeks to obtain disarmament, when these two are, in realistic military terms, at the two ends of the pole. . . . For a self-proclaimed ‘Nuclear Weapons State,’ disarmament is a manifestly counterproductive policy thrust. . . . Alas, Delhi hangs on to the vestiges of the past by conjoining its imperative to weaponise with the sentimental craving to advance disarmament. This is a somewhat quixotic and contrarian effort, especially in a milieu where military power is the fulcrum of international diplomacy.” See Karnad, “A Thermonuclear Deterrent,” p. 114.

85 “Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine,” pp. 2-3. As one Indian commentator caustically observed, “Nuclear doctrines normally deal with the deployment of nuclear arsenals. They never advocate abolition. The draft Indian nuclear doctrine [manages to] deal with not only complete nuclear disarmament but also nuclear warfighting [simultaneously].” See Sidhu, “This Doctrine Is Full of Holes.”
has one of the most rigid and ironclad systems in the world for ensuring *absolute* civilian control over the military. This institutional structure was developed early in the postindependence period, when the country’s founding fathers—fearful of the threat posed by the “man on horseback”—created a bureaucratic framework, first through the Constitution and later through a series of administrative orders, that completely subordinated the uniformed services to a variety of civilian political and bureaucratic masters.\(^{86}\) The Constitution of India vests control of the Indian military with the President, who exercises that control through the Prime Minister and the Cabinet. Within the Cabinet itself, a subcommittee called the Cabinet Committee on Political Affairs (now renamed the Cabinet Committee on National Security [CCNS]), which consists of the Prime Minister, the Home (Interior), Finance, External Affairs (Foreign), and Defence Ministers, serves as the principal decisionmaking body on all matters of national security. The deliberations of the CCNS are assisted in practice by the two most important civil servants in the government: the Principal Secretary to the Prime Minister (who currently holds the position of National Security Adviser as well) and the Cabinet Secretary, both of whom are supported by the Strategic Policy Group (which consists of the Cabinet Secretariat by another name, the three service chiefs, the heads of the Department of Atomic Energy [DAE], the DRDO, and the intelligence services, and the Governor, Reserve Bank of India) and the Joint Intelligence Committee (which has now been reincarnated as the National Security Council Secretariat).

The decisions of the CCNS, insofar as they involve the armed forces, are transmitted through the Ministry of Defence, which is headed by civilian politicians at the apex. These politicians—the Defence Minister and the Minister of State for Defence—are assisted in turn by four key civilian bureaucrats: the Defence Secretary; the Secretary, Defence Production; the Defence Finance Adviser (a Secretary-level office); and the Scientific Adviser to the Defence Minister (who is also simultaneously the Secretary, Defence Research and Development). Under these principal secretaries are several

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additional and joint secretaries, each in charge of special functional portfolios (see Figure 4).

The most interesting element of this organizational structure is that the three Indian armed forces, each with separate service headquarters, are not part of the Ministry of Defence. They ultimately report to the Defence Minister only through a Chiefs of Staff Committee, which in practice reports immediately to the Defence Secretary. Thus, although the three service chiefs in principle have policymaking access both to the Prime Minister (through their representation on the Strategic Policy Group) and to the Defence Minister (through their representation on the Defence Minister’s Committee), their access is in practice severely constrained by mores and institutional traditions that are not revealed on any organizational chart. What complicates matters further is that both bodies wherein the service

![Diagram of India's Higher Defense Organization](image)

**Figure 4—India's Higher Defense Organization**
chiefs are represented have problematic histories: The Strategic Policy Group is a fairly new institution, and to the degree that it is dominated by the Cabinet Secretariat, it is almost certain to cement the marginalization of India’s senior most military leadership; whereas the Defence Minister’s Committee is an old institution but is for all practical purposes a moribund one that, despite the present Defence Minister’s attempts to resuscitate it, continues to be less than fully effective because of the great dependence of the elected politician who holds the post of Defence Minister on the civilian bureaucrats who staff the Defence Ministry. Consequently, despite the nominal representation of India’s senior military leaders in such august bodies, the thorough subordination of the military to the civil is ultimately ensured by the fact that all strategic, budgetary, acquisition, and personnel decisions are controlled by the Indian Administrative Service, the civilian bureaucracy that consists of the principal, additional, and joint secretaries, who “play a dominant middle role and insulate professional men in uniform from [the] political leadership.”  

The opinions, requests, and recommendations of the service chiefs are thus vetted by civil servants, who, thanks to their ability to control the flow of paperwork, formulate budgets, and influence senior service promotion decisions, remain ultimately responsible for the military posture of the Indian state despite the fact that they may “have neither the knowledge nor the perspective to assume such responsibility.” To be sure, the weaknesses of this control system are widely recognized in India, but being content with the protection afforded by the country’s great size and inherent strength relative to its adversaries, Indian security managers—historically—have consciously refrained from altering the structure of strict civilian control no matter what benefits in increased military efficiency might accrue as a result. The experience of Pakistan, where the armed forces have routinely captured the management of state, has only strengthened their resolve to maintain this ironclad supremacy, and it has in fact consolidated the “fairly effective alliance between the civil service and politicians, an alliance created

88 ibid.
for the purpose of reducing the role of the military in the decision-making process.  

While the armed forces are thus separated from the locus of national security decisionmaking, they are even further removed from the nuclear weapon program. In fact, even the civilian-controlled Ministry of Defence—as a corporate entity—has never been traditionally connected to the weapon program as such; instead, all decisions pertaining to this program have been made solely—and often orally—by India’s Prime Ministers, relying on the advice of a few close advisers who can seldom be identified by their position on an organizational chart alone. The Prime Ministers, using their Secretariat as a functional clearinghouse, have in turn controlled the nuclear weapon program through the DAE, which functions as the bureaucratic parent of the AEC. The AEC, which is responsible for overseeing the country’s vast nuclear estate, including institutions like BARC in Bombay (where India’s nuclear weapons have traditionally been designed), is composed entirely of civilian scientists and managers who constitute the highest scientific-regulatory body in the nuclear realm. As such, the AEC also functions as the “brain trust” on which successive Indian Prime Ministers have relied for advice in connection with decisions pertaining to nuclear issues. To the degree that the Ministry of Defence is involved corporately in the weapon program, it has been involved mainly through the DRDO, which is headed by the Scientific Adviser to the Defence Minister, also a civilian. Between the DAE, which ultimately produces the nuclear components, and the DRDO, which is responsible for both producing the nonnuclear components of the country’s nuclear devices and transforming these devices into usable weapons, the entire Indian nuclear weapon program can thus be seen to be controlled, manned, and operated by civilians.

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89 Cohen, The Indian Army, p. 171.

90 See the most revealing description of this pattern in Subrahmanyan, “Indian Nuclear Policy—1964–98,” pp. 26–53, and episodically throughout Perkovich, India’s Nuclear Bomb.

91 The history of this development and the gradual integration of the DRDO into what was originally only a DAE-managed program is well described in Perkovich, India’s Nuclear Bomb, pp. 261–317.
India’s recent decision to formally acquire nuclear weapons is in no way intended to disturb the fundamental structure of civil-military relations, at least to the degree that such is possible. If anything, acquiring nuclear weapons has made India’s leadership even more sensitive to the need for maintaining strict civilian control over its armed forces. The experience of Pakistan once again looms large in Indian consciousness, since it is remembered that Zulfikar Ali Bhutto’s nuclear weapon program, although originally intended to serve as a civilian counterweight to the Pakistani military, was ultimately hijacked by the latter and transformed into a trump card that was used against both its civilian masters and, ultimately, India. Acutely conscious of this political history, Indian security managers appear determined to regulate the role of the military in nuclear matters to the maximum extent possible. This determination has only been fortified by the public ruminations of several retired service officers who see in India’s decision to declare its nuclear status a new opportunity for the military to actively participate in the country’s national security decisionmaking. Indian policymakers, at least thus far, appear to hold exactly the opposite view: They seem ready to sacrifice the increases in operational coherence and efficiency that might stem from unobstructed military involvement in nuclear command, control, and operations for the safety that comes with restricted military participation occurring primarily under conditions of extreme emergency.

92 Ibid., pp. 204–205.
93 Not recognizing that this is in fact a conscious decision on the part of India’s civilian security managers, at least one Indian hawk, Brahma Chellaney, has concluded that the country’s “minimum deterrent” has more bark than bite, as “the military continues to be shut out from nuclear-deterrent planning and operations.” Continuing, Chellaney argues, “There [is] no explanation as to what could be the security benefits of weapons the military does not know about and ha[s] not trained to use. . . . The Vajpayee government, without giving the military any role in nuclear deterrence, claims India can deter any threat. Will civilians by themselves prepare targeting strategies for war scenarios or do what the Prime Minister has identified as an essential minimum-deterrence requirement—maintain deployed nuclear weapons? Will the DRDO, which has devised a nuclear doctrine and command-and-control system, fire nuclear weapons when India suffers a first strike? The paradox of a country proclaiming a nuclear deterrent without the necessary military underpinnings can only make it more vulnerable in a regional situation where it confronts a well-armed, ambitious nuclear power and a state whose nuclear-weapons programme has always been run by the military.” See Brahma Chellaney, “Woolly Diplomacy,” Hindustan Times, May 5, 1999.
How this division of labor might be operationalized will be discussed later, but it suffices for now to conclude that precisely because maintaining strict civilian control over the military is a continuing national security requirement in India, the incentive to treat nuclear weapons as anything other than political instruments for pure deterrence is nonexistent. If it were imagined, even for a moment, that these weapons could have operational military use, the need to integrate the uniformed services as full partners into the national nuclear command-and-control apparatus would become obligatory. Such integration, however, would inevitably destroy the traditional framework of civil-military relations that India’s security managers have worked so hard to entrench over the last 50 years, as it would distend the military’s dominion over highly powerful weapons that affect the nation’s survival in ways that conventional military capabilities never could. Not surprisingly, then, one of the BJP’s most prominent national security specialists, Mohan Guruswamy, concluded simply that “these are not weapons to be issued to the existing armed services.” Given that New Delhi never risked integrated military participation in national security decisionmaking even when all India had were conventional weapons, it is therefore unlikely, despite the imperatives of the nuclear age, that India will enthusiastically enhance the role of the military in this sphere—at least until it has tried and run out of all other feasible alternatives.

If recent reports are to be believed, the new recommendations made by the Group of Ministers with respect to reforming India’s higher defense organization continue to reflect the ambivalence of Indian security managers about enlarging the role of the armed forces in the management of India’s national security affairs, including those aspects related to the control of its nuclear weapons. On the face of it, these recommendations appear to be, as one Indian commentator put it, “sweeping” in nature, suggesting “an altogether new architecture for managing national security.” This conclusion is derived from the fact that the Group of Ministers has apparently recommended, among other things, the appointment of a Chief of

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Defence Staff (CDS) who “will serve as the ‘single point’ military adviser”\(^{96}\) to the government of India; the creation of a new unified command that, headed by the new CDS, will oversee the country’s “nuclear forces, which [will] include delivery systems based on land, air and the sea”\(^{97}\); the creation of a new triservice Defence Intelligence Agency that will report to a new National Intelligence Board to be headed by the National Security Adviser; and the formalization of a new joint command in the far eastern theater headquartered in the Andaman Islands.\(^{98}\)

The implications of these recommendations for change in India’s higher military decisionmaking cannot be analyzed here in detail but the innovations noted above may not be as dramatic as they first appear—at least as far as the command, control, and custody of India’s nuclear assets are concerned.

First, the new CDS, although intended to be the single-point adviser to the government of India on all matters pertaining to defense, replaces, for all practical purposes, the current Chairman of the Chiefs of Staff Committee. To be sure, the new CDS will possess augmented powers relative to the erstwhile chairman, among other things because he will “report directly to the Defence Minister”\(^{99}\) and will have the power to adjudicate many kinds of interservice disputes. This power, however, may not be as decisive as it appears, because each of the three service chiefs, even under the new arrangements, will have independent access to India’s highest civilian authorities and can convey their claims, judgments, and opinions—including dissenting opinions—autonomously to these authorities.

Second, the new CDS will have no operational control over any conventional military forces whatsoever. The operational command over all of India’s conventional forces will continue to reside in the three service chiefs, who will control the employment of these components in all war-fighting operations. The primary role of the new


\(^{97}\) Ibid.

\(^{98}\) Ibid.

CDS will therefore be restricted principally to overseeing the planning, organization, training, and equipage of these forces (in coordination with the three service chiefs) while assuming additional responsibility for the overall direction, coordination, and approval—not execution—of the joint war-fighting plans that must be developed if the Indian military is to respond coherently in the face of the new challenges specific to the nuclear age. Over a period of time—perhaps after the first five-year review—the CDS could acquire some forms of operational control over India’s conventional forces at the expense of the existing service chiefs, but this development is expressly not mandated in the current slate of recommendations.

Third, the only operational role that the new CDS is supposed to acquire is supervision of India’s nuclear capabilities, and this function is likely to be expressed through the mechanism of a new unified (actually triservice) command that could be created for this purpose. This is certainly an important innovation, but its significance ought not to be exaggerated. For starters, it is unclear, as yet, whether the Prime Minister will finally accept this recommendation. Further, the creation of a new unified command overseeing India’s nuclear assets does not imply that the country’s civilian authorities will actually transfer completed nuclear weapons into the custody of this body during peacetime. Rather, the new command will oversee only the delivery systems currently maintained by the various war-fighting arms, and even its ability to discharge this function adequately is still unclear. This is because the CDS, lacking any operational authority over India’s conventional forces, will nonetheless be required to plan, procure, and operate many kinds of military assets that have both conventional and nuclear uses: With the exception of those missile systems dedicated solely to the nuclear role (and which will be available only many years from now), various other war-fighting systems, such as combat and transport aircraft, communications equipment, surveillance and battle damage assessment (BDA) assets, and automated mission-planning tools, are all dual-capable in nature. How the CDS, who has no operational control over these assets insofar as they are earmarked for conventional operations, will acquire jurisdiction over them in connection with nuclear missions remains a knotty organizational problem that will have to be ironed out.
Fourth and finally, the relationship between the CDS (in both his advisory and his operational roles) and the country's national command authority, which hitherto has been constituted exclusively by civilians, remains an issue that is not yet authoritatively clarified. If the historical record is anything to go by, however, this relationship will be reaffirmed in favor of enduring civilian supremacy, with the CDS continuing to remain responsible to the Prime Minister and to the Cabinet.\textsuperscript{106}

Even if all these bureaucratic challenges are satisfactorily resolved, the creation of a new unified command headed by the CDS and tasked with overseeing India's nuclear assets will not be as dramatic an innovation as it first appears: It will result primarily in centralized planning for nuclear operations and could over time pave the way for centralized procurement, maintenance, and deployment of the delivery vehicles that are currently operated separately by the three Indian armed services. To be sure, both the centralized planning for nuclear operations and the systematic allocation of strategic assets for nuclear missions through the mechanism of a unified command would represent a significant improvement in India's capacity for effective retaliatory response. As subsequent discussions will reveal, however, this innovation only standardizes what has already been occurring secretly within India at different levels and in different ways. Consequently, so long as these developments do not extend to the military bureaucracies dominating nuclear decisionmaking institutions in India, the military acquiring peacetime custody over completed Indian nuclear weapons, and the armed services obtaining autonomous authority over nuclear-use decisions both in peacetime and in a crisis, the baseline conclusion explicated and defended earlier—that India's nuclear weapons are primarily national political assets intended to perform as instruments of deterrence rather than war fighting—remains entirely intact. In this context, even the most relevant new innovations—the unified command headed by the CDS and tasked with overseeing India's strategic assets, joint planning, and nuclear operations—can be appreciated as a skillful political

\textsuperscript{106}When commenting on the recommendation of the Group of Ministers, Indian Defence Minister George Fernandes noted that the Prime Minister will continue to be the final authority on all matters referred to in their report, including the issue of whether the recommendations themselves ought to be accepted. See "PM Will Decide on GoM Report: Fernandes," \textit{The Hindu}, February 28, 2001.
strategy for eliminating all the potential interservice rivalries that are likely to emerge over India's developing nuclear capability. Simultaneously, they represent the minimally necessary adjustments India must make in addressing the exigencies of the nuclear age—but precisely because they have materialized in such a hesitant, incremental, and evolutionary form, they effectively serve to attenuate any stronger military claims over the possession, control, oversight, and employment of India's nuclear reserves as a whole.101

The third reason India has treated nuclear weapons as political instruments focused solely on deterrence as opposed to defense pertains to cost issues that are linked in turn to some dimensions of civil-military relations. It should be noted that the issue of cost here does not refer to the price tag of the nuclear deterrent writ large, as this cost, whatever it may be, will be borne by India given its determination to acquire a nuclear arsenal of some sort in the future.102 India recognizes, however, that the ultimate price tag for its deterrent will be determined to a significant extent by the specific kind of force architecture that it creates. And it is in this context that the distinctive conception of nuclear weapons India has adopted becomes critical, because insofar as nuclear weapons are treated as having utility as implements of war, India will have no choice but to address the many complications that arise when such weapons are viewed as "just another ingredient" in the strategic balance of power.103 In-

101 It should be noted that the "Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine," for all its loquacity on other issues, is conspicuously silent on the question of how India's military services ought to be integrated into the preparations for nuclear operations. While it clearly states that "nuclear weapons shall be tightly controlled and released for use at the highest political level" and that "the authority to release nuclear weapons for use resides in the person of the Prime Minister of India, or the designated successor(s)," it does not speak to the questions of how the custody and release of India's nuclear weapons are to be managed at an institutional level. See "Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine," pp. 2-3.

102 The Finance Minister, Yashwant Sinha, affirmed this judgment in a 1999 briefing, noting that the nuclear weapon program "had been going on for long and had been built into the regular budget." Further, he noted that although this would be a costly endeavor, these costs would be accepted because the long time frames governing such outlays and India's high growth rates would interact to make these expenditures bearable. See Sridhar Krishnaswami, "N-Programme Not a Burden, Says Sinha," The Hindu, October 1, 1999.

103 In their classic 1971 work, Enthoven and Smith lamented the use of "comparison games" that "are virtually meaningless" but nonetheless served to drive
deed, the resolution of this problem in the United States not only led to the creation of a large and costly nuclear force posture but also diluted the strict civilian control the United States initially maintained over its nuclear assets.\textsuperscript{104} Indian security managers would prefer to avoid being trapped by either of these possibilities, so to the degree that treating nuclear weapons as political instruments enables them to avoid the development of a nuclear inventory of the sort demanded by highly competitive balance-of-power models of international politics, New Delhi will continue to emphasize the political rather than the military character of its nuclear assets. As Jaswant Singh phrased it,

the Indian thinking is different principally because we have discarded the Cold War reference frame of nuclear war fighting. In our view, the principal role of nuclear weapons is to deter their use by an adversary. For this, India needs only that strategic minimum which is credible. . . . Therefore, the question of an arsenal larger than that of country X or Y becomes a nonquestion. For India, the question is only one of adequacy that is credible and thus defines our "minimum."\textsuperscript{105}

This disinclination to treat nuclear weapons as anything other than political instruments frees India from continually having to contemplate the relative balance of nuclear capabilities existing around its periphery or to prepare \textit{ex ante} for the kinds of nuclear war-fighting operations that would burden it with developing an extremely sophisticated nuclear deterrent, cultivating the requisite managerial competencies to direct such a complex force, and contemplating the prospect of intense military involvement in the day-to-day management of its national deterrent.

India's reluctance to view nuclear weapons as usable military instruments also stems from other cost concerns. Specifically, if New Delhi's nuclear weapons—or those of its adversaries, for that matter—were treated as offensive war-fighting implements, India's

\textsuperscript{104}How this process evolved is described in Feaver, \textit{Guarding the Guardians}.  
\textsuperscript{105}"India Not to Engage in a N-Arms Race: Jaswant."
conventional military forces would have to be radically redesigned and reequipped for the conduct of military operations on a nuclear battlefield. This task would in turn require not only new organizational structures and tactical doctrines but also enormous financial investment in new technologies in order to enhance the mobility, protection, and firepower of India’s maneuver formations.\footnote{As described earlier, one scholar, W.P.S. Sidhu, has argued that India’s land force modernization, which began in the mid- to late 1980s, was designed to prepare the Indian Army for military operations on the nuclear battlefield. Irrespective of the veracity of this claim, such nuclear-related modernization has still not materialized in any meaningful sense at the empirical level, and to the degree that it is being pursued, the focus today appears to be mainly on defensive NBC operations.} Some Indian military analysts, succumbing to wild flights of fancy, have already begun arguing the need for modifying the country’s conventional force posture to accommodate the prospect of nuclear warfighting operations in all three combat media (land, sea, and air\footnote{See, for example, J. K. Dutt, “The Army in the Nuclear Age,” The Statesman, August 10, 1998; Sat Pal, “Nuclear Onus on Navy,” The Pioneer, October 11, 1999; and Sharad Dixit, “IAF, the Pivot of Nuclear Power,” The Pioneer, October 25, 1999.}), and elements of the three Indian armed services have already begun privately arguing the case—with the help of various allies within the Indian nuclear and defense research establishments—for a variety of nuclear weapons, some of which may be appropriate only for specific war-fighting missions.\footnote{Rare public evidence of such exhortations was provided by one of India’s most well-known nuclear scientists, P. K. Iyengar, who argued that India ought to develop and test a neutron bomb before formally acceding to any obligations under the CTBT. See “India Must Test N-Bomb Before Signing CTBT,” The Hindu, May 2, 2000. In a similar vein, individual components within the Indian Army, Navy, and Air Force have each begun making private representations to the government of India for their preferred kinds of nuclear weapons on the assumption that such devices ought to be produced to meet various operational needs specific to each service.} Such recommendations, however—which inevitably arise from the perception of nuclear weapons as warfighting instruments—would saddle the Indian exchequer with even greater burdens than those associated with the development of a pure deterrent. Recognizing the implications for both India’s fiscal health and its national security, New Delhi has refused to endorse such ideas, in part because it seeks to avoid making the kinds of investments that, by allowing India’s military forces to integrate offensive nuclear and conventional capabilities, actually increase the prospect that nuclear weapons will be used in a subcontinental
war. This desire to avoid the "conventionalization"\footnote{Hans Morgenthau, "The Fallacy of Thinking Conventionally About Nuclear Weapons," in David Carlton and Carlo Scaerf (eds.), Arms Control and Technological Innovation (New York: Wiley, 1976), pp. 256–264.} of nuclear weaponry—as well as to avoid the considerable costs associated with developing a force posture capable of conducting tactical nuclear operations on a subcontinental battlefield—thus constitutes the final reason India has insisted that nuclear weapons remain nothing more than political instruments of statecraft.

India’s effort to depict nuclear weapons as purely political instruments is thus rooted in the multiple objectives and constraints relating to its national security policy. New Delhi’s reluctance—and perhaps inability—to pursue a conventional war that threatens either Pakistani or Chinese national survival is seen to result in its being spared the prospect that either of its adversaries will actually use nuclear weapons in anger against India. Nor do India’s own relatively benign political objectives require it to contemplate using nuclear weapons against its adversaries. The principal utility of an Indian nuclear arsenal, then, consists of providing New Delhi with the self-assurance that flows from the possession of such "absolute" or "ultimate" weapons—a self-assurance that would enable Indian decisionmakers both to stand up to attempted nuclear coercion by Pakistan and China and to deter possible nuclear use by either antagonist within the context of some escalating "crisis slides"\footnote{C. Bell, The Conventions of Crisis: A Study in Diplomatic Management (Oxford, UK: Oxford University Press, 1971), p. 17.} that might occur within the Southern Asian region (as opposed to being available for exploitative purposes in support of some premeditated, predatory wars of unlimited or limited aims). Given the narrow benefits sought from the possession of nuclear weaponry, Indian security managers, at least at the declaratory level, can afford to treat their nuclear reserves as political instruments whose utility derives solely from nonuse rather than as military tools that acquire utility only in the context of operational employment on the battlefield.

This predilection is only reinforced by the fact that while India seeks to preserve its immunity to blackmail and destruction, it also endeavors to secure other objectives of national policy simultaneously. To the extent it can do so, for example, India still hopes to
goad the international order into progressively eliminating all nuclear weaponry; still desires to maintain the stigma attached to nuclear weapons as implements of war; still seeks to preserve the existing standards of civilian supremacy over the military, which, among other things, requires minimizing the role of the latter with respect to the management of nuclear weaponry; and still yearns to minimize the costs associated with a nuclear deterrent by avoiding doctrines that require large and redundant nuclear capabilities as well as extensive modernization of its conventional military assets for purposes of integrating battlefield nuclear capabilities into its maneuver formations.

Since none of these multiple objectives can be secured by treating nuclear weapons as military instruments, the strategic necessity of treating these devices as political instruments alone—intended for and useful only as instruments of deterrence—is reinforced even further at the level of declaratory policy. And while this policy can change over time, such an alteration is unlikely to occur so long as the three domestic constraints examined above do not disappear, and so long as the present offense-dominant global nuclear regime remains more or less intact.

The Operational Level of Policy

While the analysis above suggests that there are good reasons for treating nuclear weapons solely as political instruments at the level of declaratory policy, it is obvious to many Indian security managers—particularly those in the higher bureaucracy—that such a posture may not be sustainable at the level of operational policy. The first reason for this disjuncture derives simply from the fact that India subsists in a regional environment populated by other nuclear states, some of which may possess different notions about the utility of nuclear weapons. It is likely that Pakistan, for example, and possibly China as well, would treat its nuclear weapons as war-fighting instruments to be actively integrated into its defensive preparations vis-à-vis India. While still oriented toward deterring war in general, such a posture would locate Islamabad (and possibly Beijing) at the defense end of the deterrence-defense continuum described by Sny-
der.\(^{111}\) The fact that at least one of India's adversaries treats its nuclear assets in a somewhat different way thus resurrects the old question of whether the existence of opposing doctrinal traditions actually undermines stability between two similarly armed adversaries, forcing even the side that prefers not to think of nuclear weapons qua weapons to take operations planning and weapon employment more seriously than would otherwise be the case. As Colin Gray framed this issue in the U.S.-Soviet context, "If one side to the competition pursues the assured destruction path, how great a risk is it taking should the other side, for whatever blend of reasons, choose differently?"\(^{112}\)

This question was in fact debated at great length throughout the Cold War, when a second generation of theorists in the United States, including Richard Pipes, attacked the existing U.S. declaratory policy as being obsessed with conflict avoidance when Soviet military theory was in contrast designed "to fight and win a nuclear war."\(^{113}\) The arguments of critics like Richard Pipes, Paul Nitze, Colin Gray, and others essentially boiled down to the belief that the willingness of one side to countenance the conventionalization of nuclear strategy resulted not only in the destruction of strategic stability but also in the loss of political competition, since the state that planned for the

\(^{111}\) A brief survey of Pakistani writings on nuclear strategy and its relationship with conventional war fighting can be found in "Epilogue to the 1998 Edition" in Stephen P. Cohen, The Pakistan Army, 1998 Edition (Karachi, Pakistan: Oxford University Press, 1998), pp. 177–179. At least one scholar has argued that Beijing too may be moving in the direction of integrating nuclear weapons into conventional war-fighting strategies. See Alastair Iain Johnston, "China's New 'Old Thinking': The Concept of Limited Deterrence," International Security, 20:3 (Winter 1995–1996), pp. 5–42. The empirical evidence that China is moving in such a direction, however, is currently quite ambiguous, and it is not at all clear that the current focus of Chinese nuclear modernization, centered as it is on improving the reliability, survivability, and responsiveness of its strategic nuclear assets, will ultimately translate into a shift from "minimum deterrence" into other strategies of deterrence by denial involving the integrated use of nuclear weapons for war-fighting purposes. See Swaine and Telfis, Interpreting China's Grand Strategy, pp. 121–123 and 165.


\(^{113}\) This phrase is taken from the title of Richard Pipes' celebrated essay, "Why the Soviet Union Thinks It Could Fight and Win a Nuclear War," Commentary, 64:1 (July 1977), pp. 21–34.
possession of nuclear weapon use would seek and find extraordinary ways to employ those instruments so as to confront its opponents with little more than a choice between surrender and suicide in the event of a crisis. Yet while efforts at averting this outcome preoccupied the United States throughout the latter half of the Cold War, it is still not clear whether the Soviets' attempt at conventionalizing nuclear strategy could ever have succeeded: Although there is substantial evidence that the Soviet leadership planned to fight nuclear wars in order to win, the existence of large, diversified, and complex nuclear arsenals on both sides also effectively guaranteed that any deliberate nuclear use in a major war, especially on the scale contemplated by the Soviet Union, would eventually degenerate into a mutually assured genocide that could not serve any useful policy ends. This insight, however, has unsettling implications for South Asia, because even if the presence of asymmetric doctrines does not subvert deterrence—an issue that is by no means settled—the Indian subcontinent certainly lacks the large, diversified, and redundant nuclear killing capabilities that ultimately guaranteed stability in the U.S.-Soviet context. India's desire to treat nuclear weapons as political instruments oriented purely toward deterrence might therefore prove insufficient if it is not accompanied by large numbers


117 The critical issue in the South Asian context is whether nuclear deterrence in the subcontinent can be stable if India holds onto a doctrine that nuclear weapons are solely political instruments useful only for deterrence but not defense while Pakistan, in contrast, adheres to a doctrine that views nuclear weapons as militarily useful with great utility for defense. This asymmetry in doctrinal beliefs, mirroring a similar debate in the U.S.-Soviet context during the Cold War, cannot be resolved without reference to the political objectives and military strategies pursued by both India and Pakistan. When these are analyzed in some detail—unfortunately a task that cannot be undertaken here—it is possible that the problem of doctrinal asymmetry in South Asia would lose some of its edge and that its greatest potential for destabilization might be minimized if both sides were to adopt nonprovocative military strategies even as they continue to disagree about the territorial status quo. An extended demonstration of this conclusion requires a dynamic analysis of the conventional and nuclear balances as well as the extant military strategies in the subcontinent.
of nuclear weapons, assuredly survivable delivery systems, and extremely high-yield warheads that together create presumably self-equilibrating forms of “true” existential deterrence.\textsuperscript{118}

The second reason devising an operational policy is necessary derives from the fact that despite the good intentions of India and its adversaries, deterrence can break down, and consequently the relationship between deterrence breakdown and potential nuclear use merits serious consideration. To be sure, it is unlikely that a deterrence breakdown will occur in South Asia because of any premeditated decision to launch unlimited-aims wars. Indeed, other RAND research has demonstrated that neither India nor Pakistan currently has the political incentive or the military capabilities to pursue many of the revisionist strategic goals that are often attributed to them.\textsuperscript{119} In general, this also holds true in the Sino-Indian case, at least in the near term.\textsuperscript{120} A deterrence breakdown is therefore less likely to occur as a result of premeditated choice than through miscalculation, desperation, or catalytic causes, with the last precipitant probably appearing in the form of unexpected success enjoyed by domestic dissidents who receive foreign support.\textsuperscript{121} If a deterrence breakdown does occur as a result of such causes, however, the conventional forces of any two sides (or even all three, in some implausible scenarios) could in fact find themselves engaged in an armed conflict. Depending on the political exigencies of the moment, these forces may be tasked to attain specific operational objectives, many of which may be in support of some larger damage-limiting strategies. Irrespective of what the actual aims of such force employment might be, however, they could conceivably be perceived as threatening the viability of the defenders’ state writ large if conventional op-

\textsuperscript{118} These characteristics are clearly inherent in McGeorge Bundy’s conception of existential deterrence. See Bundy, “Existential Deterrence and Its Consequences,” pp. 3–13.

\textsuperscript{119} Tellis, Stability in South Asia, pp. 13–33.


\textsuperscript{121} Tellis, Stability in South Asia, pp. 55–62, and Joeck, Maintaining Nuclear Stability in South Asia, pp. 16–34.
cractions were to deliberately or inadvertently dent the nuclear reserves deployed in the region.\textsuperscript{122}

It is in such circumstances that recourse to nuclear weapons, either for purposes of brandishing or for actual use, would become most relevant in South Asia. Coping with such a contingency would require an operational policy that explicitly addressed the question of nuclear use, since a declaratory posture pivoting on the utility of nuclear weapons as political instruments would become infructuous with the actual outbreak of conflict. This issue was widely addressed during the Cold War, especially by theorists such as Colin Gray, who argued that the disproportionate attention “directed towards the effecting of pre-war deterrence at the cost of the neglect of operational strategy” had had “extremely deleterious effects upon the quality of Western strategic thinking and hence upon Western security.”\textsuperscript{123} Gray, in fact, explicitly asserted that doctrines of the sort advanced by Bernard Brodie, which stressed the “utility in nonuse of nuclear weaponry,”\textsuperscript{124} were \textit{astrategic} because they failed to address the question of what constituted an optimal response if deterrence broke down despite the best intentions of all the antagonists involved. The challenge of devising a rational military response in the face of deterrence breakdown involving the possible use of nuclear weapons is therefore one that India cannot avoid either through rhetoric or through repeated assertions of its declaratory posture.\textsuperscript{125} Indeed, this is one of those conundrums that inevitably comes in the wake of possessing nuclear weapons, and the obligation to address all the

\textsuperscript{122} The prospect of such eventualities has already become a source of concern to Pakistani strategists, who view their country’s conventional weaknesses as increasing the vulnerability of their nuclear assets to Indian attempts at conventional counterforce. See, for example, Talat Masood, “Evolving a Correct Nuclear Posture,” \textit{Dawn}, August 21, 1990. This issue also became a subject of some concern during the later years of the Cold War. See Barry R. Posen, \textit{Inadvertent Escalation} (Ithaca, NY: Cornell University Press, 1991).


\textsuperscript{124} This phrase is in fact the title of Chapter 9 in Bernard Brodie, \textit{War and Politics} (New York: Macmillan, 1973).

\textsuperscript{125} On precisely this score, one Indian analyst correctly criticized the “Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine” as being “a totally harmless document that is of little or no use to anyone involved in translating a doctrine into a workable operational plan.” See G. Balachandran, “India’s Nuclear Doctrine,” available at http://www.ipcs.org/issues/articles/254-ndl-bala.htm.
dilemmas it entails cannot be escaped so long as there is even a minuscule prospect that nuclear weapons might actually be employed in anger. Moreover, these dilemmas must be confronted expressly at the level of operational policy—although this policy will in India’s case be grounded more or less consistently in the assumptions of its declaratory policy: that nuclear weapon use cannot be contemplated for rational political ends and, by implication, that there can never be an appropriate operational posture and employment doctrine designed to support the intelligent conduct of a nuclear war.  

Given this overarching belief—a view also held, incidentally, by most U.S. devotees of mutual assured destruction during the Cold War—India has approached the issue of operational policy reluctantly, almost as a concession to the ruthless imperatives accompanying the possession of nuclear weaponry. This operational policy—which, it may be argued, consists of four distinct components—has not yet been articulated in its entirety by any official spokesmen. What follows, therefore, is a reconstruction based on some authoritative Indian declarations combined with insights gleaned from other nonofficial Indian commentary and several private conversations with high-level Indian politicians, bureaucrats, and military officers.

The premise underlying India’s operational policy, grounded as it is in the country’s declaratory posture, is that the presence of nuclear weapons heralds the end of strategy as it is traditionally understood. All Indian security managers would thus heartily endorse Leon Sigal’s claim that “the sheer destructiveness of nuclear war has [not only] invalidated any distinction between winning and losing . . . [but] . . . it has [also] rendered meaningless the very idea of military strategy as the efficient employment of force to achieve a state’s objectives.”  

Confirming just such sentiments, G. Balachandran, a well-known Indian operations research analyst, prefaced his own

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127 Leon V. Sigal, “Rethinking the Unthinkable,” Foreign Policy, 34 (Spring 1979), p. 39.
analysis of India's nuclear requirements with the admonition that a nuclear weapon "is truly a weapon of mass destruction . . . whose use can only be a measure of last resort." This judgment, which corroborates the public statements of many Indian policymakers, implies that because nuclear weapons cannot be used in pursuit of any offensive ends through war and because nuclear war itself cannot be prosecuted for any rational political objectives, the use of nuclear weapons in extremis can have only retributive utility. This suggests that the sole circumstances justifying the threat of use of nuclear weapons would be to prevent an adversary from pursuing a course of action that, if completed, would radically abridge India's physical security and decisional autonomy.

**No First Use.** Under the aegis of this fundamentally defensive outlook, the first component of India's nuclear doctrine at the level of operational policy is its insistence on the no first use of nuclear weaponry. This emphasis on no first use is remarkably pervasive in Indian strategic thought. It was officially proposed to Pakistan first in 1994 as a formal arms control measure and has been affirmed on several occasions since that time by leading Indian political leaders in Parliament. The official paper on the "evolution of India's nuclear policy," for example—issued in the aftermath of the country's nuclear tests—once again repeated the Indian government’s "readiness to discuss a 'no-first-use' agreement with . . . [Pakistan], as also with other countries bilaterally, or in a collective forum." This commitment was reiterated in Parliament by Indian Prime Minister Vajpayee, who spelled out its two components—the no first use of nuclear weapons against nuclear states coupled with the nonuse of nuclear weapons against nonnuclear states—by avowing that India "will not be the first to use nuclear weapons. Having stated that, there remains no basis for their use against countries which do not have nuclear weapons." This willingness to formally adhere to a

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130 "India Evolves Nuclear Doctrine," *The Times of India*, August 5, 1998, and "PM Declares No-First Strike." Vajpayee's statement, and Indian policy in general on this issue, therefore directly contradict the conclusion drawn by one analyst, who argued that "if the [Indian] 'no first use' offer is not taken up and no agreement is reached,
policy of not using nuclear weapons first under any circumstances (and not using them at all where nonnuclear powers are concerned) has also been endorsed by many Indian strategic analysts, including K. Subrahmanyan, who has argued that India ought to have "a totally uncaveeted policy, with no reservation whatsoever on no first use."\textsuperscript{131} Asserting that "India should not be the first to use nuclear weapons under any circumstances," Subrahmanyan has gone to great lengths to remind both domestic and foreign audiences that "the nuclear weapons of India are meant for a punishing retaliation only if India is hit [first by a nuclear attack]."\textsuperscript{132} These sentiments, which are fairly widespread in India and shared by most of the country's senior security managers, have not, however, prevented some Indian analysts—including Subrahmanyan himself—from succumbing on occasion to the temptation to trumpet these claims more vociferously than usual in order to embarrass Pakistan, which has thus far refused to countenance a similar policy thanks to its fears of India's conventional superiority.\textsuperscript{133}

In any event, the biggest challenge to the strict no-first-use policy articulated by senior Indian security managers, including the Prime Minister, ironically emerged from the National Security Advisory Board, headed by Subrahmanyan himself. In language that was as revealing of the political rifts within the board as it was of the animus harbored toward this component of India's operational policy by a small group of "maximalists" within the strategic community, the "Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine" subtly altered New Delhi's traditional position on this subject by asserting that "India will not resort to the use or threat of use of nuclear weapons against States which do not possess nu-


\textsuperscript{132} Ibid.

clear weapons, or are not aligned with nuclear weapon powers” (italics added).\textsuperscript{134} With the addition of this qualifying clause, the Draft Report radically expanded in one fell swoop the number of countries that would potentially be threatened by India’s emerging nuclear arsenal. Under the strict no-first-use assurances provided by India’s Prime Minister in Parliament, only the eight nuclear powers—the United States, Russia, China, the United Kingdom, France, China, Pakistan, and North Korea—could in principle find themselves subjected to Indian nuclear threats, and that too, only if they were to attack India first. Under the board’s new formulation, however, even allies of these powers that did not possess nuclear weapons—for example, the thirteen nonnuclear allies of the United States in NATO, the two nonnuclear allies of the United States in the ANZUS treaty, and the three nonnuclear allies of the United States in the Five Power Defense Agreement, the six or more nonnuclear allies and partners of the United States in East Asia, and the eleven nonnuclear partners of Russia in the CIS—could now be subjected to Indian nuclear threats in some extreme circumstances.

This dramatic enlargement of India’s pool of potential adversaries was privately justified on two grounds, one formal and one substantive. The formal argument centered on the claim that the recommended nuclear doctrine was intended to be a permanent document that would provide policy guidance for the widest variety of contingencies imaginable. Although it was not expected that any of these additional states would ever fall victim to an Indian nuclear threat, the board reasoned that a strategic guidance of the sort represented by the Draft Report ought to cover even remote contingencies should those materialize at some distant point. The substantive argument, which was more unsettling, centered on the belief that if a major nuclear power were ever to threaten India’s security and autonomy, its nonnuclear allies should be prevented from concluding that they could support such coercive actions with impunity under the assumption that their own nonnuclear status would effectively bestow on them an immunity to any nuclear threats India might levy in its

\textsuperscript{134}“Draft Report of [the] National Security Advisory Board on Indian Nuclear
Doctrine,” p. 2.
own defense. Such reasoning, whether formal or substantive, served only to demonstrate how insensitive the Draft Report was both to the domestic political context and to the international political constraints facing Indian decisionmaking in the realm of nuclear policy.\(^\text{135}\) Even worse, it opened the door to expanding India’s targeting requirements—if only at a conceptual level—at the same time some of the country’s best analysts were conclusively demonstrating that New Delhi’s current and prospective nuclear stockpile might be unable to service even some variants of the minimal targeting requirements deemed necessary to deter India’s immediate adversaries, China and Pakistan.\(^\text{136}\)

Not surprisingly then, this Draft Report recommendation engendered great controversy both within India, where many viewed it as needlessly pompous and overly provocative, and abroad, where it was viewed in many Western capitals as well as in Islamabad and Beijing as evidence of a reckless commitment to the kind of irresponsible nuclearization that was both unwarranted and destabilizing in the strategic environment of Southern Asia. Recognizing these criticisms, the government of India, in the person of Minister for External Affairs Jaswant Singh, moved quickly to stem the erosion of India’s traditional position on this question by declaring simply and unambiguously—in the redaction later published in The Hindu—that “India has declared a no first use doctrine. This has implicit in it the principle that India shall not use nuclear weapons against non-nuclear weapon states.”\(^\text{137}\) This reaffirmation, which confirmed the strict no-first-use assurance that Prime Minister Atal Bihari Vajpayee had formally presented in Parliament after the nuclear tests in August 1998, continues to be attacked episodically by Indian hawks like Bharat Karnad, who stated quite baldly that the Indian “no first use

\(^{135}\) On the question of context and constraints, see the remarks of Frank Wisner, “India’s Nuclear Posture: Taking a Fresh Look,” remarks delivered at the CII Round Table on Indo-U.S. Relations: Challenges and Opportunities, New Delhi, October 20, 1999.


\(^{137}\) “India Not to Engage in a N-Arms Race: Jaswant.”
doctrine . . . is something of a hoax. It is one of those restrictions which countries are willing to abide by except in war.”

There is little doubt that the no-first-use pledge remains an unverifiable tenet of New Delhi’s operational policy. But this promise, contrary to the opinions of Karnad and others, is likely to prove valid in India’s case for several reasons. First, it is consistent with India’s nuclear doctrine at the declaratory level as well as its traditional attitudes toward nuclear disarmament and its established refusal to legitimize nuclear weapons as ordinary instruments of war (all these three components, in turn, being sensible precisely because they accord with India’s core security interests). Second, it allows New Delhi to underscore its pacific intentions vis-à-vis Pakistan and China and thereby reap all the political benefits that accrue from being perceived as a moderate, responsible, and peace-loving state in the international system. Third, it is consistent with the emerging Indian nuclear posture, which, taking the form of a force-in-being, provides at least some assurance (though not conclusive proof) that India is not committed to the rapid—including first—use of nuclear weapons in the event of a deterrence breakdown. Fourth and most important, it is unlikely to be violated because India’s strategic circumstances are favorable enough to prevent New Delhi from ever having to use nuclear weapons first against any of its adversaries. This issue requires further elaboration because it goes to the heart of why India can make good on its no-first-use promise while simultaneously revealing the circumstances under which New Delhi would in fact resort to the actual employment of nuclear weapons in anger.

As earlier discussions indicated, there are only two broad contingencies that could activate New Delhi’s reliance on its nuclear weaponry: nuclear coercion and nuclear use by its adversaries. The first contingency relates to nuclear coercion carried out either through the support of domestic dissidence in India on the expectation that India cannot retaliate militarily or through direct—be it manifest or subtle—nuclear brandishing intended to force New Delhi into making some sort of political concessions. The first category of coercion simply requires that India be able to cope with its

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138 Karnad, “A Thermonuclear Deterrent,” p. 129. The challenges imposed by the no-first-use policy for India are usefully explored in Gurmeet Kanwal, “‘No First Use’ Doctrine: India’s Strategic Dilemma,” The Tribune, July 15, 2000.
domestic dissidence through a combination of political and economic co-optation and military repression, as it has traditionally done. This “reactive” solution allows New Delhi to ignore the nuclear capabilities of its foreign adversaries altogether. Even if a “proactive” solution consisting of shallow cross-border operations is required, India’s nominal military superiority over Pakistan and local military superiority over China allow such operations to be conducted by conventional means alone. To be sure, any moves of this sort might require that India rely on its nuclear assets, if only to prevent Pakistan and China from employing their nuclear capabilities in response to India’s conventional actions, and this in turn might require that India signal its willingness to pursue strategies of “escalation dominance”—but it would not require that New Delhi contemplate any first use of its own nuclear weaponry. It could be argued, of course, that the prospect of Indian first use clearly becomes plausible in this context because successful preemptive strikes might turn out to be the only means by which New Delhi could secure the escalation dominance necessary to resolve the issue on its own terms. While this argument is plausible in theory, however, it is unlikely to hold in practice, because it is inconceivable that India will ever engage in any proactive solutions to domestic insurgencies that require accompanying nuclear first use to begin with. Even if it were to contemplate such strategies, it currently lacks (and will continue to lack well into the future) the kind of nuclear weaponry that would allow it to execute the effective damage-limiting preemptive strikes that are necessary for successful escalation dominance. The net result, therefore, is that no feasible contingency exists that would require India to engage in nuclear first use where combating nuclear

\textsuperscript{139} Gupta, \textit{India Redefines Its Role}, pp. 23–33.

\textsuperscript{140} The character and difference between “reactive” and “proactive” strategies in the Indo-Pakistani context are discussed in Tellis, \textit{Stability in South Asia}, pp. 47–54.

\textsuperscript{141} This will certainly continue to be the case where nuclear operations against an alerted adversary are concerned. The only forms of Indian nuclear preemption that stand some chance of operational success from a damage-limiting perspective are those undertaken as pure “bolts out of the blue,” and even here, success is anything but assured given the pervasive opacity that envelops both the Pakistani and the Chinese nuclear arsenals. In all other circumstances—including crisis situations wherein proactive operations might be conducted—opacity, deception, and mobility all combine to make most Pakistani and Chinese nuclear systems relatively immune to Indian attempts at damage-limiting preemption—and for this reason among many others, such strategies are unlikely to be pursued by New Delhi in the first place.
coercion, carried out through the abetting of domestic dissidence, is concerned.

This conclusion, it must be admitted, would be severely tested if India were faced with the prospect of imminent state breakdown resulting from domestic dissidence supported by foreign powers. If India were to face a situation similar to that which Pakistan confronted in 1971, where a constituent state of the union was on the verge of successfully seceding, the question of whether a possible Indian proactive solution to this contingency would require the first use of its nuclear weaponry purely for damage-limiting purposes would certainly become relevant. The few Indian theorists who have thought about this problem, such as General K. Sundarji, have essentially dismissed it by arguing that the presence of nuclear weapons essentially ensures that no foreign power would support a domestic secessionist movement to the point of success precisely because the shadow of possible nuclear weapon use would curb all such adventurism to begin with.\footnote{Sundarji, "Changing Military Equations in Asia: The Role of Nuclear Weapons," p. 127ff.} Unfortunately, the historical record in South Asia offers little support for such optimism. Pakistan, for example, has not only continued to support various secessionist movements within India even as the presence of nuclear weapons was abundantly obvious to both sides but also, more flagrantly, actually initiated a limited-aims war at Kargil in May 1999, at least partly because it was convinced that nuclear weapons would immunize it against the worst imaginable forms of Indian retaliation.\footnote{Afzal Mahmood, "From the Pakistani Press: The Nuclear Option," The Times of India, July 18, 1999.} Despite this fact, it is possible to suggest that the prospect of India facing a situation similar to that which Pakistan confronted in 1971 is highly unlikely because India’s large size, significant economic and military capabilities, democratic political order, numerous mediating institutions, vibrant civil society, and great institutional endurance all combine to prevent the “million mutinies”\footnote{This phrase is borrowed from V. S. Naipaul, India: A Million Mutinies Now (London: Heinemann, 1990).} that always appear to be breaking out from ever reaching the point at which state break-
down becomes a realistic possibility. Consequently, it is unlikely that India will face a situation analogous to the 1971 crisis faced by Pakistan in the future—and by implication, India is also unlikely to be tested by the challenge of averting nuclear use as part of a comprehensive proactive response aimed at remedying the threat of imminent national disintegration.

The second category of nuclear coercion refers to either manifest or subtle nuclear brandishing that may be carried out by India’s adversaries in efforts to intimidate New Delhi. Should such eventualities arise, India is likely to rely heavily on its nuclear assets for strategic reassurance. This comfort will, however, derive simply from the fact that India already possesses nuclear weaponry, and possession of these devices more than any manipulation of them should suffice to bolster Indian resolve given the kinds of issues that remain unsettled between Islamabad and Beijing on the one hand and New Delhi on the other. Indeed, even in the worst circumstances imaginable, nuclear brandishing by Pakistan and China would provoke counterbrandishing by India—and while such a situation is likely to have both tense and unsettling moments, involving as it does an elaborate *pas de deux* aimed at manipulating threats and risks, it is unlikely to require any Indian first use of its nuclear weapons. This conclusion is reinforced by the fact that all the imaginable incentives for nuclear first use in this context—the temptation to unleash damage-limiting preemptive strikes or the pressures building up to a “use or lose” employment decision—simply would not obtain in the Indian case for a variety of technical and operational reasons. These include the fact that no Southern Asian state currently appears to possess nuclear weaponry capable of counterforce attacks; to be capable of satisfactorily piercing the veil of opacity maintained over the nuclear capabilities of its competitors; to be interested in operationalizing a deployment posture that exacerbates

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146 This point is made so emphatically by one Indian scholar, Kanti Bajpai, that he in fact concludes that India may not need a nuclear deterrent altogether. See Bajpai, “The Fallacy of an Indian Deterrent,” pp. 150–188.
"use or lose" conundrums; or to be willing to accept the kinds of uncertainties and losses that would arise even from modest nuclear use given the nature of political competition within the region.\footnote{For a discussion that speaks to some of these issues, see the treatment in Hagerty, The Consequences of Nuclear Proliferation: Lessons from South Asia, pp. 56-59.}

If both manifestations of nuclear coercion therefore do not require India to respond with first use of its nuclear weaponry, it becomes obvious that New Delhi can provide credible assurances of no first use—and can in fact make it part of its operational policy—because no other contingencies exist that would require it to violate this policy. This judgment holds even when the second contingency—which requires that New Delhi rely on its nuclear reserves in the face of potential nuclear use by its adversaries—is investigated. The discussion in Chapter Three and elsewhere established that India possesses an effective superiority over both Pakistan and China where defense of its territories is concerned. India does not, however, possess a similar superiority in the offense, meaning that it would be likely to fail if it sought to acquire significant chunks of Pakistani and Chinese territory and hold onto them by force. Recognizing this operational fact in the context of larger political considerations, New Delhi has long eschewed the pursuit of policies designed to secure additional territory.\footnote{Tellis, Stability in South Asia, pp. 30-33.} To the degree that it seeks local hegemony in South Asia, it has emphasized its geopolitical weight and its symbols of power but has by and large refrained from enforcing its writ through the constant use of force. This implies that India is unlikely to apply its military power—including its nuclear weapons—either to enlarge its territorial holdings or to cement its hierarchic status, although it would certainly prefer to secure the latter simply by dint of its recognized size, inherent potentialities, and past achievements. Even if India were to violate this expectation in the future, it would most likely be confronted by its adversaries, particularly Pakistan, using their nuclear weapons first rather than by any contingency that compelled it to resort to the initial employment of nuclear weaponry. This judgment, once again, is grounded in the realization that New Delhi does not possess nuclear weapons, delivery vehicles, or a command sys-
tem capable of conducting "splendid" first strikes—the only condition under which a first use of nuclear weapons might be attractive to India.

It is in this context that some observers fear that even if India cannot execute “splendid” first strikes satisfactorily, it may still be compelled in some circumstances to use its nuclear weapons first if, for example, it were to be confronted by reasonable evidence that its adversaries were readying themselves for a prospective nuclear attack on India. These arguments, derived straightforwardly from the classical problem of the “reciprocal fear of surprise attack,” usually presume that New Delhi may be forced to violate its otherwise well-intentioned no-first-use pledge in some exceptional scenarios if initiating preemptive, not preventive, nuclear attacks appears better than absorbing imminent first strikes. These contingencies have received serious attention in New Delhi, and Indian strategic planners have responded in three ways. First, they argue that any information about imminent nuclear attack, if such is available at all, is likely to be more ambiguous and incomplete than transparent and conclusive given the nature of the strategic capabilities, force architectures, and deployment postures maintained on all sides. Thanks to this fact, incomplete information ought to warrant reticent responses rather than hasty overreaction, especially given the high costs of mistaken action in the nuclear realm. Second, they note that even if credible information about an imminent attack is available, it is still prudent for India not to respond preemptively because pre-emption would only ensure that an attack, which was only probable up to that point, actually became inescapable. Because the difference between probable and inescapable attack embodies enormous consequences for both Indian and regional security, policymakers in New Delhi argue that prudence and moral sensibility would demand responses that decelerate the pace of escalation, not speed it up—as preparations for preemptive responses ineluctably do. Third and fi-

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149 This term, popularized by Herman Kahn, refers to a situation in which one side can dramatically reduce damage to itself if and only if it strikes first. See Shlapak and Thaler, Back to First Principles, p. 38.


151 I am deeply grateful to K. Subrahmanyan for discussing this issue with me in some detail. See also Manoj Joshi, “India Must Have Survivable N-Arsenal,” The Times of India, April 30, 2000.
nally, they assert that the very challenge that such contingencies pose places special obligations on India and its no-first-use pledge: It requires New Delhi to ensure that its strategic assets are survivable enough that even if its adversaries are tempted to unleash first strikes, India will never feel compelled to use its nuclear weapons first merely because the vulnerability of its strategic reserves produces enormous differences between the expected costs of striking first and those of striking last.\textsuperscript{152} Indian policymakers thus appear to be cognizant of the challenges associated with the temptations of preemption, but they remain convinced—correctly—that so long as their own nuclear assets are properly safeguarded through a combination of concealment, deception, and mobility, they could escape the burdens of acting precipitously even though the temptations themselves are unlikely to disappear so long as nuclear weapons exist in Southern Asia.

\textbf{Use as Instruments of Punishment.} The above analysis therefore suggests that since India’s nuclear weapons cannot be used to resolve the problem of nuclear coercion and will not be used to underwrite either territorial or political expansionism, they can serve only as antidotes to the threats of use by its adversaries or as punishments if these weapons are in fact employed against India. Under the aegis of this essentially retributive concept—which is designed primarily to prevent deterrence breakdown from occurring but, failing that, to prevent the country from becoming a helpless victim to nuclear attack by others—\textit{the second component of India’s nuclear doctrine at the level of operational policy is its insistence that nuclear weapons, when used, will be oriented to punishment alone.} This conception of nuclear weapons as instruments of punishment was advanced by the adherents of the assured-destruction school during the Cold War because they believed that the horrendous character of nuclear

\textsuperscript{152}For more on this issue, see Glenn A. Kent and David E. Thaler, \textit{First-Strike Stability: A Methodology for Evaluating Strategic Forces}, R-3765-AF (Santa Monica: RAND, 1989). The “Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine” explicitly reflects this concern when it notes that “India shall pursue a doctrine of credible minimum nuclear deterrence. In this policy of ‘retaliation only,’ the survivability of our arsenal is critical. This is a dynamic concept related to the strategic environment, technological imperatives and the needs of national security. The actual size components, deployment and employment of nuclear forces will be decided in the light of these factors.” See “Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine,” p. 2.
weapons allowed them to be used only for purposes of deterring conflict through the threat of inflicting catastrophic damage should deterrence fail. In the event of deterrence failure, a genocidal level of damage might be inflicted by each antagonist on the other, but it was precisely this fear of annihilation that was expected to shore up the structure of deterrent threats and prevent the outbreak of hostilities.\textsuperscript{153} It was recognized, of course, that the act of retaliation in the face of a prior nuclear attack might be absurd, irrational, and possibly even immoral, since the retaliatory response could neither undo the catastrophic damage the defendant had already suffered nor procure any positive gains of its own. All retaliation could do was intensify the catastrophe through an act of vengeance, pure and simple. While an attacker could hope that the defendant, seeing the sheer irrationality of striking back, would refrain from responding in kind, he could not count on the defendant being restrained by any concerns about rationality—and fears of compounding the catastrophe that would be unleashed by such retaliation were supposed to prevent the initial shot from being discharged in the first place.\textsuperscript{154}

This logic has been adopted by India in its entirety at the operational level of policy. As a doctrine, it has a distinguished pedigree, and the spectrum illustrated in Figure 5 indicates that it is but one of three different orientations that India could have adopted with respect to the telos of its nuclear use.\textsuperscript{155} At one end, nuclear weapons can be used in an offensive mode in which the principal intention consists of disarming the adversary. Nuclear-use strategies predicated on this orientation treat nuclear weapons as war-fighting


\textsuperscript{154}Snyder, \textit{Deterrence and Defense}, p. 6.

instruments par excellence and include surprise attacks in which "bolt-out-of-the-blue" strikes (or BOOB attacks, as they are known in the trade) are used to interdict an adversary’s nuclear forces and C³I systems with the intent of eliminating his ability to retaliate effectively. These attacks could occur without any strategic warning or without a formal declaration of war. Preemptive strikes also constitute an example of offensive use, except that in this case the first use of nuclear weapons, although aimed at the same set of targets as in a surprise attack, would occur under conditions of tactical warning and perhaps even after the conventional forces of both antagonists are already engaged on the battlefield. Irrespective of how nuclear weapons are employed in such instances, the offensive use of nuclear weapons is predicated on the belief that these devices are the most effective instruments of war-fighting imaginable and, as such, can be used to "paralyze and intimidate any resistance"\textsuperscript{156} through the preplanned, purposeful, and comprehensive use of such weapons in war.\textsuperscript{157}


\textsuperscript{157} The best examples of such a conception of the utility of nuclear weapons can be found in Soviet military writings during the Cold War: A. A. Sidorenko, \textit{The Offensive: A Soviet View} (Washington, D.C.: USGPO, 1973); \textit{Marxism-Leninism on War and Army: A Soviet View} (Washington, D.C.: USGPO, 1974); A. S. Milovidov (ed.), \textit{The Philosophical
In contrast to such expansive applications of force, nuclear weapons can also be used in a defensive mode—a category located in the middle of the spectrum—in which the principal intention consists of denying the assailant either his operational objectives on the battlefield or his strategic interests in seeing the defendant's nuclear reserves effectively eliminated. Nuclear weapons in this conception are treated as war-fighting instruments as well but are intended less for exploitation and more to reinforce deterrence and/or to avert military defeat, with all the disastrous political consequences that flow from the last outcome. Many nuclear-use strategies are predicated on this posture, including (1) symbolic first use, designed mainly to warn the assailant to terminate his aggressive actions while signaling the defendant's resolve to escalate to higher levels of violence if aggression is not vacated; (2) limited or massive first use, designed either to stop an operational offensive in the absence of a robust conventional defense or to communicate, through selective theater or strategic counterforce attacks, a willingness to ratchet up the level of resistance in order to credibly force war termination short of all-out genocide or political defeat; and (3) launch-on-warning or launch-under-attack, where the defendant releases his nuclear weapons in the face of attacks that are either imminent or under way.158

Even more strongly in contrast to these middling uses, nuclear weapons can finally be used in a deterrent mode, where the principal intention consists simply of punishing the assailant if deterrence failure results in any nuclear attack on the defendant. Nuclear weapons in this context are treated not as war-fighting instruments intended to either disarm the adversary or deny him his political or

158 During the Cold War, this approach toward strategy was most closely reflected in official U.S. nuclear doctrine since the early 1970s, and it received its most systematic justification in policy statements of Secretary of Defense Harold Brown in the various annual reports of the Department of Defense issued during Brown's years in office. See also United States Congress, Senate Committee on Foreign Relations, Nuclear War Strategy, Hearing before the Committee on Foreign Relations, 96th Congress, Second Session, on Presidential Directive 59, September 16, 1980 (Washington, D.C.: USGPO, 1981).
military objectives but merely as punitive instruments to be applied in retaliation for his first use of nuclear weapons. Nuclear use strategies based on this posture include all manner of pure second-strike doctrines where the emphasis on retaliating after the defendant absorbs a first strike is modulated primarily by the extent and density of the attack. The degree of retaliation chosen, be it symbolic or massive, would thus be determined by the extent of damage suffered by the defendant in tandem with other considerations, such as the pressures for war termination, the size and composition of the surviving fraction of the retaliatory force, and the extent of assistance and/or assurance that may be available from other nuclear powers.  

From amid the three choices offered by this spectrum, India appears to have chosen the third alternative, with its nuclear use oriented solely toward punishing an adversary who employs his nuclear weapons to attack India. As the "Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine" phrased it, "Any nuclear attack on India and its forces shall result in punitive retaliation with nuclear weapons to inflict damage unacceptable to the aggressor." This implies that Indian retaliation would occur only after the country has absorbed—a nuclear first strike at the hands of its adversaries. Indian policymakers recognize, however, that the language of "first and second strikes" has a certain antiseptic quality that obscures the vast amounts of damage all antagonists would suffer in the course of such operations, and they have thus deliberately shied away from such language even in private conversations, believing it to be tainted by the offensive and defensive conceptions of nuclear use inherited from the Cold War. Being conscious of the fact that they are trying to steer a new course with respect to nuclear doctrine, given India's unique strategic needs and its limited resources, Indian strategic managers consistently emphasize that the


concept of "retaliation only"—understood as punishment for a nuclear attack—suffices to describe the ultimate objective of India’s nuclear use even though it is well understood that such a policy in effect refers to a second-strike posture of one sort or another.

There is little reason to disbelieve Indian officials when they argue that the most suitable nuclear-use policy for New Delhi is one that treats nuclear weapons as deterrents suitable only for punishment. This is because India does not possess the capabilities to use its nuclear weapons in either an offensive or a defensive mode except in the most trivial operational sense. An offensive use of nuclear weapons would require a large nuclear arsenal and incredibly accurate delivery systems maintained at high levels of readiness, a real-time intelligence-gathering capability, a highly automated mission-planning system, and robust strategic defenses capable of coping with the ragged retaliation that would inevitably occur in the aftermath of any disarming attack. It would also require great proficiency in planning complex offensive military operations. Developing such a strategic infrastructure would be extraordinarily costly and would involve high levels of military participation in both national security planning and day-to-day control over the nuclear arsenal. These are exactly the outcomes Indian policymakers seem intent on

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162 It has sometimes been asserted that this is in fact the strategy the United States intended to follow in the event of nuclear war. Irrespective of the veracity of this claim, there is little doubt that the United States did develop an enormous variety of nuclear capabilities that made such a strategic alternative an option for policy. These details are described in Robert C. Aldridge, *First Strike: The Pentagon’s Strategy for Nuclear War* (Boston: South End Press, 1983). On a more scholarly note, these capabilities are also described in great detail in Bruce G. Blair, *Strategic Command and Control: Redefining the Nuclear Threat* (Washington, D.C.: Brookings, 1985), and in Bruce G. Blair, *The Logic of Accidental Nuclear War* (Washington, D.C.: Brookings, 1993). The sheer scale and complexity of these capabilities, however, ought to suggest that even though the "Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine," pp. 2–3, somewhat grandiosely argues for "effective command, control, communications, computing, intelligence and information (C4I) systems" as well as "space-based and other assets ...[for] ... early warning, communications, [and] damage/detonation assessment," it does not argue similarly for any counterforce weaponry, thus leading ineluctably to the conclusion that even the supporting capabilities deemed to be necessary by the Draft Report are not intended to support any offensive nuclear strategies by India. This issue is discussed further in Chapter Five.
avoiding, and consequently they will neither encourage the military
to walk down this path nor provide it with the resources that would
enable it to do so.

A defensive use of nuclear weapons aimed at denying the
adversary his objectives is only mildly less demanding. Denial
operations at the tactical or operational level require large numbers
of variable-yield weapons, permanent military custody of the
devices, a real-time surveillance system, predelegated authority for
the use of nuclear weapons to field commanders, and an operational
infrastructure designed for effective command and control over a
nuclear battlefield.\footnote{For a useful survey that speaks to some of these issues in the U.S. context, see
Vulnerabilities, Command, Control, Communications, and Intelligence, Theater
Nuclear Forces: A Third Report, prepared by the staff of the Carnegie Panel on U.S.
International Peace, 1982); William R. van Cleave and S. T. Cohen, Tactical Nuclear
Weapons: An Examination of the Issues (New York: Crane, Russak, 1978); and Stephen
D. Biddle and Peter D. Feaver (eds.), Battlefield Nuclear Weapons: Issues and Options,
CSIA Occasional Paper No. 5 (Boston: Center for Science and International Affairs,
Harvard University, 1989).} Denial operations at the strategic level require
robust early-warning and attack characterization systems, nuclear
forces maintained at hair-trigger levels of alert, a complex set of stan-
dard operating procedures, and complete civil-military integration at
the levels of command, custody and execution.\footnote{These dimensions are detailed in Blair, Strategic Command and Control.} Again, these are
capabilities that India currently lacks, and many will deliberately not
be acquired because they run counter to the financial and domestic-
political imperatives of the Indian state.

Nuclear weapons acquired solely as a deterrent for purposes of
punishment embody much less onerous demands. To be sure, the
burdens associated with this posture are no doubt substantial, but
they are less so than those associated with the offensive and defen-
sive uses of nuclear weapons. A nuclear-use posture that focuses on
punishment can make do with small numbers and primitive types of
nuclear weapons, simpler standard operating procedures, relatively
higher levels of civilian custody and control, and fewer financial resources allocated to strategic deterrence.\(^{165}\)

The emphasis on punitive retaliation as the focus of India’s operational policy appears reasonable when it is understood that India’s leadership seeks to develop a modest nuclear deterrent that suffices to protect the country against relatively remote threats without bankrupting the exchequer or radically transforming the Indian domestic structures of governance in the process. Consequently, it is obvious that Indian strategic planning focuses fundamentally on shaping its nuclear threats to deter any nuclear use by its adversaries; this objective retains priority because averting nuclear use remains the most advantageous outcome for India given that its relative military superiority and its restrained political goals vis-à-vis both China (in the theater) and Pakistan do not require it to contemplate initiating either exploitative or defensive operations with nuclear weaponry. If this objective cannot be attained, the employment of nuclear weapons for punishment remains the only alternative available to a state that seeks both to eschew nuclear war fighting and to avoid offering its adversaries the hope that they could pursue their strategic goals by means of some limited forms of nuclear use.

Given the challenges associated with these two objectives, Indian strategic thinking has deliberately refused to specify publicly and in advance what the dimensions of its punitive retaliation would be in the event of a nuclear attack. Thus, it has not addressed any questions pertaining to the character, extent, or weight of Indian retaliatory action if an adversary’s nuclear use were, for example, to be restricted to the detonation of nuclear weapons on its own territory, either as part of a symbolic demonstration or in order to secure specific operational objectives; if the “use” of nuclear weapons arose as a result of an accidental detonation involving its adversaries’ nuclear forces in the course of an ongoing conventional war; if the detonation of nuclear weapons resulted from the actions of foreign terrorists or nonstate actors; or if the employment of nuclear weapons

\(^{165}\) The clearest exposition of this argument in the Indian context can be found in Sundarji, "Changing Military Equations in Asia: The Role of Nuclear Weapons," pp. 119–149, and in Nair, Nuclear India, pp. 78–193.
arose as a result of the dissolutive processes of state failure or institutional collapse in either Pakistan or China. Referring to such lacunae in the context of a critique of Indian pronouncements on this subject, especially the Draft Report, one Indian analyst asked rhetorically, “How will India respond to a nuclear attack by a non-state entity? Where will India’s retaliatory strike be targeted? What happens if a rogue entity is spread over a number of states?”

Clearly, the answers to all these questions are not publicly available today. In part, this is because India’s operational policy has not yet been fully developed, at least with respect to those problems Indian policymakers currently deem excessively abstract, more or less remote, or simply implausible. On other, more pressing contingencies, however, they have developed embryonic solutions, but whether these plans will hold amid the actual pressures of conflict is anyone’s guess. These plans, however, are unlikely to be openly articulated, mainly because India’s security managers do not want to provide any opportunities for other states to test India’s resolve to use its nuclear weapons in the case of strategic attack. Hence, on the rare occasions policymakers do choose to amplify their thinking, they are likely to simply reiterate in one form or another the bland formulation that “India can and will retaliate with sufficient nuclear weapons to inflict destruction and punishment that the aggressor will find unacceptable if nuclear weapons are used against India and its forces” without attempting to further specify the extent, mode, and limits of any Indian attempts at punishment. On this issue, India’s approach to the problem of punitive retaliation mirrors that of France during the Cold War, when Raymond Barre, for example, argued that “it is not possible nor desirable” to define punitive retaliation exhaustively, since “employment policy is not fixed and remains sufficiently supple to respond in a rational fashion to all requirements of our security and to the diversity of marginal situations”—or when Valéry Giscard d’Estaing decried the exhortations

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166 Balachandran, “India’s Nuclear Doctrine.”
to specify the nature and magnitude of punishment in advance on
the grounds that an adversary "must not be able to calculate what
would be the reaction to this or that initiative that he might take."169
Since these sentiments are shared by Indian security managers, all of
New Delhi’s pronouncements about its operational policy of
"retaliation only" will continue to be deliberately ambiguous, but the
principal Indian objective of shoring up deterrence withoutendors-
ing nuclear war fighting in any form implies that its strategic orient-
tation will remain focused—for good reason—solely on nuclear
strategies that emphasize punishment.170

Delayed but Assured Retaliation. Since Indian nuclear use will
remain directed to punitive operations for all the reasons outlined
above, the third component of India’s nuclear doctrine at the level of
operational policy is its belief that “delayed—but assured—retalia-
tion” suffices as a response to the question of when punishment
ought to be meted out. This notion of delayed but assured retaliation
suggests that Indian security managers believe that the ability to re-
taliate is more important for purposes of deterrence than when the
retaliation actually occurs.171 The extent of the permissible delay in
carrying out the retaliatory response has not yet been specified, in
part because Indian policymakers probably do not know the answer
themselves. This issue is conditioned first by several technical reali-
ties relating to the state of India’s future nuclear deterrent. These
include the number of weapon and delivery systems of which the de-
terrent force will eventually be composed; the differences in the
types of delivery systems and the time to full readiness associated
with each type of system; the precise command, control, and custody
arrangements that will be institutionalized over time; and the kind of
peacetime posture that Indian policymakers will define for each
specific component of the deterrent force. Since this deterrent writ
large is still in the process of being developed and its final disposition
is as yet unclear, it should not be surprising if Indian security man-

169 Ibid.
170 For more on this issue, see Gurmeet Kanwal, “Nuclear Targeting Philosophy for
India,” Strategic Analysis, 24:3 (June 2000), pp. 459–473, and Kanwal, “India’s Nuclear
171 “India Not to Engage in a N-Arms Race: Jaswant.”
agers cannot assess \textit{a priori} how long it would take to mount a credible retaliatory response.\footnote{This issue is related substantially to the problem of readiness, which varies both with the technological peculiarity of different types of weapon systems and with the organizational structure of the deterrent as a whole. For a good description of how the readiness of various U.S. strategic forces was expected to change in response to the five-tier defense condition (DEFCON) alerting system developed during the Cold War, see Bruce G. Blair, “Alerting in Crisis and Conventional War,” in Ashton B. Carter, John D. Steinbruner, and Charles A. Zraket (eds.), \textit{Managing Nuclear Operations} (Washington, D.C.: Brookings, 1987), pp. 75–120.}

The second point that bears on this issue is the extent of damage that India will suffer when absorbing an adversary’s first strike. Depending on the adversary’s goals in a war, its attacks could affect India’s nuclear production facilities, known or suspected weapon storage sites, military facilities and bases, key nodes in the command-and-control network, and major transportation links, all of which would affect not only India’s ability to retaliate but also the time frame within which any retaliation could be unleashed. The less effective or more limited the first strike, the greater the country’s reconstitution capability and, by implication, the shorter the time frame for executing the retaliatory response. Variables such as these, however, can be predicted only imperfectly, and while the planning cells both in various service headquarters and in the Indian Ministry of Defence will no doubt identify various time lines—depending on the state of the strategic infrastructure that survives the initial attack—the “real” answer to the question of how quickly India could retaliate will become available only amid the carnage of war. There may, in fact, be many real answers, depending on the kind of nuclear weapon use employed by the adversary. Discrete, symbolic use, for example, could allow for relatively quick, “tit-for-tat” responses, since India’s strategic capabilities would survive more or less intact. By contrast, more substantial first strikes could result in greater delays, as the country would need additional time to reconstitute its surviving capabilities before it could unleash its weapons of vengeance.

The third factor bearing on the question of when India might retaliate is simply political. The character of the circumstances surrounding the conflict and the initial use of nuclear weapons, the perceived war aims of the adversary and India’s own strategic
intentions, and the quality of support available from important states in the international system would all affect the urgency with which New Delhi felt compelled to issue its retaliatory response. This is another variable, however, that is impossible to estimate in advance. Consequently, even if Indian decisionmakers had perfect, real-time information about the state of their arsenal and could model their postattack strategic capabilities accurately, the uncertainty that always attends political events would prevent them from being able to provide any unique answers to the question of how quickly a retaliatory response could be mounted in the aftermath of a nuclear first strike.

Even if this answer were known to New Delhi, however, it is unlikely that Indian policymakers would choose to reveal it publicly. Again, this is because they would not want to provide their adversaries with any information that would enable the latter to minimize the retributive consequences of an Indian counterattack; all they would wish to convey is that retaliation is certain and that it would be devastating irrespective of when and how it was actually inflicted. As one Indian analyst phrased this requirement, the “intent for immediate and instantaneous reaction must be replaced by a mechanism which automatically becomes operative in response to a nuclear attack against the state. [India’s eventual nuclear] doctrine should guarantee that such a rejoinder cannot be repealed.” In other words, it is more important for India to develop a response system that guarantees successful retaliation once nuclear attacks have occurred than to focus on developing the capability for meting out “immediate and instantaneous” reprisals. It is ironic that this facet of Indian operational doctrine is in fact similar to Chinese nuclear doctrine, which also stresses the certitude rather than the alacrity of retaliation. In words that could have been uttered by many Indian security managers dealing with this question, one Chinese strategist, describing Beijing’s nuclear-use doctrine in the context of the Soviet Union, was reported by two Western analysts to have declared that

Chinese deterrent strategy is based on “launch at any uncertain time.” He noted that the Soviets—who cannot preempt all of

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173 Nair, *Nuclear India*, p. 104.
China's nuclear missiles, which are carefully stored in caves or otherwise protected and camouflaged—would have to continue to worry about Chinese retaliation "perhaps hours, days, weeks, months or even years later." Even if China's leadership is destroyed in a decapitating nuclear attack, "the Chinese people would not lose confidence. They will be able to wait even three months or more until a new leadership is formed. In the United States, if the government did not retaliate in 24 hours, the people would panic. But the Chinese people can wait until a new leadership is capable of ordering retaliation. Orders could even be sent by foot. The Soviet Union cannot help but be uncertain. Therefore," he concluded, "China does not need an invulnerable C3 system" to ensure the viability of its nuclear deterrent.174

While these sentiments may not hold up under the radioactive debris of a nuclear attack, they are certainly shared, even if unknowingly, by many Indian security managers and strategic elites. The idea that India ought not to develop a nuclear posture that is oriented toward the goal of prompt retaliation—understood in the Western sense as the necessity for retaliating with nuclear weapons within an hour or so of suffering an attack—has remained a key item of agreement between Indian and American diplomats in the ongoing discussions about institutionalizing a restraint regime in South Asia.175 Indian policymakers, in particular, understand especially well that because their public commitment to a no-first-use policy cannot be objectively verified by any of the conventional instruments of arms control, the character of their nuclear weapon deployment posture is a critical indicator of how genuine their commitment to such a policy actually is. Given this consideration among many others, they have gone out of their way to emphasize that any posture which intimates a capability to engage in prompt retaliation—be it launch on warning, launch under attack, or simply instantaneous reprisal—is unlikely to find favor in New Delhi.176 Based on the belief that eschewing prompt retaliation not only is in India’s interests but actually constitutes a desirable objective for the entire international

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174 Garrett and Glaser, War and Peace: The Views from Moscow and Beijing, p. 129.
175 For a good Indian view of its government’s position on this issue, see Dilip Lahiri, "Formalizing Restraint: The Case of South Asia," Strategic Analysis, 23:4 (July 1999), pp. 563–574.
176 ibid.
nuclear order, New Delhi has in fact taken the lead in calling for a "global de-alerting, de-targeting and de-activating"\(^{177}\) of all nuclear weapons as a confidence-building measure to help reduce the salience of nuclear weaponry in world politics.

These efforts, which are viewed in New Delhi as contributing to the progressive delegitimization of nuclear weapons as a necessary precondition for their eventual elimination,\(^ {178}\) suffered a setback when the "Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine" publicly repudiated the official preference for "delayed—but assured—retaliation." Arguing that India's future nuclear posture ought to be centered on the "capability to shift from peacetime deployment to fully employable forces in the shortest possible time,"\(^ {179}\) the Draft Report urged that "India's nuclear forces and their command and control... be organized for very high survivability against surprise attacks and for rapid punitive response" (italics added).\(^ {180}\) This recommendation, which certainly runs counter to other evidence about official Indian preferences on this issue, has been privately defended by many members of the Advisory Board on three grounds. First, it is held that a rapid convertibility from the de-alerted and possibly demated peacetime nuclear posture to full wartime readiness is essential to preserve the credibility of India's retaliatory capabilities; the ability to prepare for speedy nuclear retaliation, according to this line of argument, could turn out to be critical in retarding any emerging preferences on the part of the adversary for mounting first strikes against the backdrop of possible conventional deterrence breakdown. Second, it is maintained that the rapid convertibility to a wartime posture alone holds promise of denying the adversary any hope that it could count on the international community to restrain India's retaliatory strike on the grounds that such action would serve no positive purpose and would only complicate the tragedy engendered by the initial attack. This consideration is seen to be particularly significant vis-à-vis Pakistan, which

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\(^{177}\) For a discussion of this proposal, see P. R. Chari, "India's Global Nuclear Initiative," available at http://www.ipcs.org/issues/articles/157-ndi-chari.htm.


\(^{180}\) Ibid.
is often viewed as being reckless enough to consider unleashing a first strike were it to be entranced by the possibility that strong international pressures could restrain India from unsheathing its otherwise-slow nuclear sword. Third, swift convertibility to a wartime posture along with readiness to unleash a rapid punitive response is seen as possibly the only alternative available to India in situations where the preferences of the international community and New Delhi happen to diverge on the question of what constitutes the most appropriate response to an attack on India. Because the international community may be more concerned about minimizing the damage to the taboo against nuclear use or because it judges that an Indian nuclear counterresponse would undercut any prospects of restoring regional order at a time when all New Delhi cares about is vengeance for having suffered a nuclear attack, many Indian elites believe that preserving the country’s freedom of action requires it to possess the capability for rapid retaliation so that New Delhi may enjoy the option of inflicting reprisals—if it so chooses—well before its hand is possibly stayed by superior coercive pressures building up from the outside.

Irrespective of how these rationales are evaluated, the fact remains that these concerns reflect both a profound lack of confidence in India’s ability to make the hard decisions required during a nuclear crisis and an unsettling fear that the international community may seek to press its own interests even when India has suffered the trauma of nuclear attack. Not surprisingly, then, many of the Advisory Board’s recommendations veer in the direction of ensuring an automatic retributive response because of what appears to be an unstated fear that, absent some kind of a “doomsday machine” which takes either mechanical or organizational form, India may be sufficiently paralyzed in the event of a nuclear attack that it might actually contemplate abdicating its option to retaliate in extremis. Since this fear resonates deeply with the widespread suspicion among local elites that India is on balance a “soft state,” the Draft Report emphasizes that in addition to all other material accoutrements, successful deterrence finally requires “the will to employ nuclear forces and weapons.”

At a more analytical level, however, the Draft Report’s recommendations about the need to shift speedily from peacetime deployment to wartime employability in support of rapid punitive responses must be viewed as an effort to address two separate but related operational questions. The first of these pertains simply to the pace at which India’s nuclear force-in-being adjusts from its low-readiness posture in peacetime to meeting the exigencies of war, whereas the second pertains directly to the issue of how rapidly India ought to retaliate, irrespective of how fast or how slow the process of increasing force readiness actually turns out to be. Although the answer to the second question may in many instances turn out to be dependent on the first, there is no reason—at least in principle—why this should invariably be so. This is because it is possible to imagine a situation where a fully ready and alerted Indian nuclear force is not committed to rapid reprisals even in the aftermath of absorbing a nuclear attack either because New Delhi cannot execute significant retaliation with the forces it has left or because it seeks to orchestrate some other kind of international political response that would be even more damaging to its assailant’s interests than that produced by Indian nuclear retribution. Although what these responses might be cannot be speculated on beforehand, it is worth emphasizing that the failure to reiterate the distinction between the issues of rapid convertibility from one readiness state to another and the relative speed of retaliation can leave the question of how delayed Indian retaliation would be in actuality somewhat ambiguous.

Indian Foreign Minister Jaswant Singh attempted to clarify this issue by restating what was previously described as the general preference of Indian security managers. While discussing the relationship between survivability and the speed of retaliation, he repudiated the Advisory Board’s recommendation that India plan for a “rapid punitive response,” noting that “retaliation does not have to be instantaneous, [but] it has to be effective and assured.”182 Amplifying this theme, Singh asserted that neither the effectiveness nor the credibility of a retaliatory response need be contingent on the speed with which the readiness levels of a force are altered; since “mobility and dispersal [by themselves] improve survivability,”183 he argued that

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182“India Not to Engage in a N-Arms Race: Jaswant.”
183Ibid.
focusing on force protection was sufficient to enhance credibility because a retaliatory capability that remained inviolate was more useful for purposes of deterrence than an obsession with rapidly raising readiness or mounting quick punitive responses. Both of these solutions could turn out to be subversive of crisis stability and, even worse, might serve to precipitate the very first strikes that the Advisory Board’s recommendations sought to deter. Thus, Singh noted that while the requisite operating procedures would be put in place to “ensure the transition from peacetime deployment modes to a higher state of readiness when required,” these procedures would be designed to ensure that they “do not tempt an adversary to preemption but strengthen deterrence by underlying the political resolve for effective retaliation.”

The sum and substance of Singh’s clarifications therefore suggest that India’s operational policy does not emphasize prompt retaliation—understood as launch on warning, launch under attack, or any other kind of speedy reprisals—but still leaves unclear what the pace of change in readiness levels would be and, more important, what the relationship between changes in readiness levels and the various thresholds characterizing the process of deterrence breakdown might be in practice.

While Jaswant Singh thus affirms “delayed—but assured—retaliation” to be a key tenet of India’s operational policy—in effect echoing the views of the moderates among Indian strategic elites—the question of how much delay ought to be tolerated in the retaliatory response remains unanswered. To be sure, many Indian security

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184 Ibid.

185 It is interesting to note that similar postures have increasingly become a subject of discussion in the United States. Two U.S. Navy analysts, for example, have argued that U.S. strategic deterrence in the post–Cold War era should also emphasize certitude rather than urgency of retaliation. See T. R. Bendel and W. S. Murray, “Response Is Assured,” U.S. Naval Institute Proceedings, 1255 (June 1999), pp. 34–37.

186 This critical issue is discussed in further detail later in this chapter.

managers have clear preferences, and some have argued privately that India should aim to be able to execute its retaliatory response "within hours" of suffering a nuclear attack. This time line must, however, be understood—at least at present—as an aspiration rather than a reality because many of the desired delivery systems do not yet exist, the myriad organizational and procedural details relating to force employment have not yet been completely worked out (at least as far as future weapon systems are concerned), and India's capacity to execute retaliation within some specified time frame will be fundamentally conditioned by the extent and weight of the first strike unleashed by its adversaries.\footnote{This does not imply, however, that India cannot retaliate with its nuclear weapons today. It must be noted emphatically that India currently possesses both the plans and the ability to retaliate with its air-breathing systems, and it is likely to have possessed such capabilities at least since the early 1990s. How these systems will be used in the event of deterrence breakdown has been the object of much internal discussion within the DRDO and the senior leadership of the Indian Air Force.} This yardstick—the ability to retaliate "within hours"—is intended, however, to suggest that ideally India would aim to develop a deterrent posture that would allow it to respond as rapidly as its command authority deems fit. The capacity for instantaneous retaliation is obviously not favored—as Jaswant Singh has made clear—but an organized structure allowing for quick retaliation measured in at most a few days, if not several hours, is deemed to be most appropriate because such levels of responsiveness are seen as essential to insulating the national command authority from any foreign political pressures to eschew retaliation in the aftermath of a nuclear attack on India. Whether such pressures actually arise will obviously be determined by the density of the attack itself, but Indian security managers—always sensitive to the desire to maintain their freedom of action—would prefer to configure a nuclear posture that allows for a relatively quick response even if they choose not to exercise it, so long as this posture does not fundamentally subvert their larger preferences for lower system costs, enduring civilian control over critical components of their nuclear reserves, and high degrees of crisis stability. In practical terms, therefore, the outer boundaries with respect to the permissible delay in executing retaliation would probably be defined by hours to days rather than by weeks to months, as the Chinese strategist quoted earlier argued would suffice in the case of Beijing. The late General Sundarji captured this sentiment when he concluded that India's
retaliatory response "can be a good few hours or even perhaps a day after the receipt of the first strike."

The ability to execute expeditious retaliation of this sort, it must be understood, is a desire that falls under the category of "nice to have" but is emphatically not a demand that will be institutionalized in terms of either force structure or operational procedures if it underrates the larger objectives of the Indian state. Indian security managers are well aware of all the burdens inherent in the desire for relatively rapid retaliatory capabilities. The intention to construct a nuclear-use strategy built around the notion of "delayed—but assured—retaliation" in fact constitutes an explicit effort to avoid just such burdens. Maintaining forces on ready alert and perhaps even on hair-trigger readiness, developing complex C3I systems, acquiring sophisticated negative control technologies, building an elaborate physical command infrastructure, and distributing completely assembled nuclear weapons to the armed services—who then acquire both custody and practical control over the entire deterrent system—are just some of the practical consequences that follow from the desire for a force structure designed for overly rapid retaliation. However, since these ingredients are costly, are subversive of India’s traditional arrangements for political control, and violate its fundamental intuitions about the utility of nuclear weaponry, New Delhi will err in the direction of tolerating delays in executing its retaliatory responses so long as it can preserve the capacity to retaliate in ways that do not either bankrupt the country or undermine its traditional desire for strict civilian control over all the strategic instruments the state possesses.

Tolerating such delays—and, in fact, planning for them—actually makes sound strategic sense in that it allows New Delhi to operationalize solutions that would enhance the survivability of what would ultimately be its relatively small nuclear force. There is, on balance, no good reason India should seek to develop even a force posture that would allow it "to move from concealed, separate, stor-

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189 "India and the Nuclear Question: An Interview with General K. Sundarji, PVSM (Retd)," p. 51.
190 See the remarks in "India Not to Engage in a N-Arms Race: Jaswant."
age of nuclear components to a fielded force within 24 hours."\textsuperscript{191} Meeting the demands imposed by even such a more relaxed time frame would, however, require greater centralization of India’s nuclear assets, thus increasing their vulnerability to interdiction by an adversary. Even if the components constituting these assets are dispersed, the constraints imposed by a 24-hour retaliatory window implies that they cannot be dispersed very far and, in many instances, may simply be distributed in different locales close to a small number of relatively salient and obvious nodes. Such localized distribution, while probably effective against Pakistan, could be ineffective against China, as the large damage radii obtaining from Beijing’s high-yield weapons could easily negate all the benefits that might otherwise accrue to such compact patterns of dispersal.

Where the length of the retaliatory window is concerned, Indian policymakers are confronted with a set of trade-offs. A shorter retaliatory window may insulate them against pressures from the international community, but it could result in a force posture that is relatively more vulnerable to interdiction. This conclusion, of course, would not hold if the nuclear attacks on India were merely token attacks or if they were, at best, relatively small in number; if India’s concealment, deception, and denial practices were robust enough to offset any attempts made by an adversary to strip its nuclear reserves of their protective opacity; or if the kinds of nuclear weapons used to attack Indian targets were relatively small in yield and thus incapable of interdicting multiple targets through the destructive effects of a detonation occurring at any single given aim point. Precisely because New Delhi can never be certain that these assumptions will hold vigorously over time, it makes most sense for India to plan on a deployment posture that, despite extending the length of time required to retaliate, actually serves to decrease an adversary’s incentives to attack. In many instances, these incentives can be decreased most easily by adopting a deployment posture that forces the adversary to increase the number of nuclear weapons it must lay down in order to minimize the pain that would accompany any expected Indian retaliatory action. Pursuing this objective may, however, require that India emphasize a greater dispersal of components, higher levels of mobility, and more stringent forms of opacity, camouflage, decep-

\textsuperscript{191} Giles and Doyle, “Indian and Pakistani Views on Nuclear Deterrence,” p. 143.
tion, and denial, all of which may in turn increase the length of the retaliatory window required to mount a successful punitive counter-response. And while this lengthier retaliatory window may give the international community more time to influence India in directions that it may prefer not to go a priori, it nonetheless allows New Delhi to put in place a distributed deployment posture that may actually increase the survivability of its retaliatory assets, especially against formidable nuclear adversaries like China.\textsuperscript{192}

Given the costs and benefits of these two alternatives, it is obvious that coping with international pressures is a risk that India should be willing to take, especially if it increases the survivability of its relatively small nuclear forces. Having survivable forces is necessary to prevent attacks on India to begin with, but if such attacks—especially extensive strikes—occur nonetheless, the most pressing strategic problem facing New Delhi will be whether it has the requisite residual capability to retaliate, not the extent of international pressure that may be brought to bear on it or the length of time within which retaliation ought to take place. When the survivability of the force is at a premium—as all Indian security managers acknowledge today\textsuperscript{193}—trading away the capacity for expeditious retaliation, as represented by the criterion of a 24-hour window, is a small price to pay, especially since New Delhi resolutely seeks to avoid all high-cost antidotes to the problems of survivability, pervasive military control over its national deterrent, and any technical solutions that are likely to exacerbate the problem of crisis stability. Indian policymakers recognize this already, and while they are content to entertain arguments in support of rapid retaliation emanating, for example, from sections of the uniformed military and the National Security Advisory

\textsuperscript{192}Whether this conclusion holds in practice and to what degree will have to be verified by applying various techniques of operations research. All that can be said in the abstract is that applying the logic of a “shell game” increases the coordination costs of mounting a retaliatory response and, by implication, expands the time interval required to mount such a strike, but this solution could contribute to increasing the survivability of the retaliatory force as a whole. In other words, if there is a trade-off between relatively rapid retaliation—understood here as occurring within 24 hours—and enhanced survivability, India ought to settle for the latter in order to enhance both its own safety and regional stability as a whole.

\textsuperscript{193}“India Not to Engage in a N-Arms Race: Jaswant”; Lahiri, “Formalizing Restraint: The Case of South Asia,” pp. 563–574; and Joshi, “India Must Have Survivable N-Arsenal.”
Board, it is unlikely that they will be swayed because the costs and risks such preferences embody clearly overwhelm their presumed benefits.

This willingness to stand up to the assorted pressures for rapid retaliation may not, however, withstand the test of time. While India’s emerging nuclear forces are still embryonic in form and there is no pressing predatory threat on the horizon, the Indian government can continue to enjoy the manifold benefits of settling for a relatively relaxed nuclear response posture. But as Indian nuclear capabilities gradually distend, its investments in C3I slowly mature, and the patterns of civil-military coordination required to execute retaliatory acts progressively stabilize, it is increasingly likely that New Delhi will steadily move toward creating a readiness posture that enables it to unleash full-scale retaliation within 24 hours or so of suffering a nuclear attack even though it will continue to be reticent about publicly disclosing this or any other preferred time frame despite the calls for such disclosure that have already emerged in the Indian strategic debate. More important, India will continue to be even more tight-lipped about any details pertaining to the nature of its retaliatory response. Clearly, the principal question here consists of whether India would—within the limits of its doctrine of “delayed—but assured—retribution”—choose to respond in a graduated fashion, where the punishment meted out was intended to be proportionate to the attack suffered, or whether it would react with a single spasm of nuclear violence designed to exact ultimate retribution once and for all. On this question more than any other, Indian security managers are likely to be even more taciturn than usual because their desire to maximize deterrence effectiveness translates into a refusal to assist any adversary’s calculations with respect to possible Indian reactions to a contemplated attack. Thus, even if it were possible to communicate what the pattern of retaliation might be in advance, New Delhi would consider such communication to be highly undesirable insofar as it might enable Pakistan or China to plan a series of

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counterresponses which, even if eventually unsuccessful, might contribute to a costly deterrence breakdown in the interim.\footnote{This reticence should not be surprising given that Indian Defence Minister George Fernandes, when asked in Parliament about whether nuclear weapons would be inducted into the armed forces, declared that it was “not wise” to make any statement in this regard. See “Govt. Will Not Bow to Pressure on N-Arms,” The Hindu, July 24, 1998. For a critique of this policy emphasizing uncertainty, see Joshi, “From Technology Demonstration to Assured Retaliation: The Making of an Indian Nuclear Doctrine,” pp. 1476–1479.}

Although the reasons for India’s official silence are thus understandable, it is possible to speculate about what the structure of New Delhi’s retaliatory response might be simply by understanding India’s strategic objectives and the relative balance of capabilities in Southern Asia. Put simply, the principal Indian strategic objective in the context of all matters nuclear consists of avoiding nuclear attack (or nuclear coercion) at all costs (since the threat of conventional attack has essentially been defanged as a result of New Delhi’s local military superiority). Since effective offensive and defensive nuclear strategies essentially do not exist as far as India is concerned, stable deterrence requires it to possess the ability and willingness to inflict horrific pain on any adversary who dares to cross the nuclear-use threshold. Despite the current belief on the part of many experts that Pakistan possesses some sort of lead vis-à-vis India as far as strategic capabilities go,\footnote{See, for example, Perkovich, “South Asia: A Bomb Is Born,” p. 52; John Donnelly, “Official: Pakistan’s Nuclear Warheads Outpace India’s,” Defense Week, July 27, 1998; Joshi, “Deadly Option,” p. 39; and Robert Windrem and Tammy Kupperman, “Pakistan Nukes Outstrip India’s, Officials Say,” MSNBC International News, June 6, 2000, available at http://www.msnbc.com/news/417106.asp.} Pakistan’s geographic vulnerability coupled with India’s greater nuclear potential implies that New Delhi could eventually acquire the kind of nuclear superiority that is consistent with its greater resources and relative strength. In contrast to China, however, India will always remain the weaker nuclear power; not only will Beijing possess a larger nuclear inventory and more powerful nuclear weapons, but it will also maintain a more diversified set of delivery capabilities vis-à-vis New Delhi indefinitely. India’s operational challenge therefore lies in devising a retaliatory response that suffices to penalize two different kinds of adversaries—one possibly weak and the other certainly strong—in a wide range of circumstances. This implies that even as it seeks to avoid suffering nuclear
attack, India must be capable of inflicting the requisite punishment should deterrence fail while still working toward attaining effective intrawar deterrence and speedy conflict termination.

Given these constraints, it is possible to suggest—at least as a first cut—that India, while developing retaliatory capabilities that allow it to execute both “massive” retaliation and “graduated” nuclear responses (these terms understood, of course, in the suitably denatured forms appropriate to the South Asian context), could end up in practice carrying out proportionate retaliation if deterrence failed. New Delhi can afford to consciously pursue a range of options involving graduated responses vis-à-vis Islamabad if it eventually acquires a larger and more capable nuclear arsenal that provides it with opportunities for escalation dominance over Pakistan. Obviously, the possibility of this outcome obtaining hinges on the following conditions:

1. That New Delhi acquires sufficient nuclear superiority over Pakistan, understood in terms of both the number and yield of the weapons present in its stockpile;

2. That both New Delhi and Islamabad recognize India’s relative superiority as far as the nuclear balance is concerned; and

3. That the Pakistani first strike which precipitates Indian retaliation is essentially a symbolic or limited attack that is viewed as such both in New Delhi and in Islamabad.

Under such circumstances, India could choose to respond only in proportion to the Pakistani attack, using its superior nuclear reserves to enforce intrawar deterrence and speedy conflict termination on its own terms.

There are, in fact, sound practical reasons why massive retaliation vis-à-vis Islamabad may be unnecessary if the above conditions hold, most deriving from Pakistan’s relative strategic vulnerabilities. These vulnerabilities—manifested by Pakistan’s narrow geographic depth, the high concentration of its national assets along a very small target array, and the significant threat posed to the Punjabi heartland by even localized infrastructure attacks—imply that even relatively modest levels of Indian nuclear retaliation could result in catastrophic damage that could push Pakistan well beyond the pale
of speedy recovery. Thanks to these structural weaknesses, even low levels of Indian retaliation would suffice to inflict relatively high levels of punishment on Islamabad especially where population losses and critical assets destroyed are concerned, thus making massive retaliation unnecessary and possibly counterproductive. On balance, however, it is not at all clear that the three conditions identified as necessary for the outcome of limited or proportionate Indian retaliation actually obtain in South Asia today, and consequently the prospect of a massive nuclear counterresponse by New Delhi vis-à-vis Islamabad deserves at least passing attention.

The temptation for India to respond to a Pakistani nuclear attack with massive retaliation would arise under one or more of the following conditions:

1. The Pakistani first strike turns out to be large in scope and weight, suggesting either an attempt at damage limitation pursued through widespread counterforce attacks or the execution of a “Samson option” involving widespread countervalue or countermilitary attacks as a last roll of the dice. Under such circumstances, India’s nuclear response is likely to consist of large-scale retaliation with everything deployed in New Delhi’s arsenal and then some.

2. The Pakistani first strike turns out to be relatively limited but occurs in the context of a general misperception in New Delhi about Pakistan’s strategic intentions relating to the conflict. If New Delhi perceives any Pakistani first use as merely the opening salvo in what could turn out to be a series of sequential attacks, Indian policymakers are likely to respond with a “massive” use of their own reserves the first time around so as to eliminate the threat of expected future attacks while they can.

3. The Pakistani first strike turns out to be relatively limited but occurs in the context of a pervasive misperception in New Delhi

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198 This phrase is borrowed from Seymour M. Hersh, The Samson Option: Israel's Nuclear Arsenal and American Foreign Policy (New York: Random House, 1991), which describes Israeli nuclear strategy as essentially a Wagnerian Götterdämmerung executed in extremis.
about its own relative capabilities vis-à-vis Islamabad. If Indian policymakers believe that the nuclear balance in South Asia favors them asymmetrically over Pakistan—despite uncertainty elsewhere about this issue—they could be tempted to respond even to modest Pakistani nuclear use with substantial counterresponses of their own, intending these counterresponses to severely punish Islamabad for its breach of the nuclear-use taboo and executing them on the solipsistic assumption that New Delhi possesses the strategic wherewithal to ratchet the levels of punishment even higher if Islamabad should choose to mount further nuclear attacks.

All in all, it is reasonable to conclude that both proportionate and massive Indian retaliation are equally possible in the context of a subcontinental nuclear war, with the probability of one occurring over the other being determined principally by the validity of the three pairs of boundary conditions delineated above.\textsuperscript{199}

A different logic—as well as a different conclusion altogether—dominates the calculus vis-à-vis China but produces in the process a more assured outcome. India is clearly the weaker state in the Sino-Indian dyad and may eventually turn out to be just as insubstantial vis-à-vis China as many Indian hawks believe Pakistan would be against India in matters of nuclear capability. In the context of a Chinese nuclear attack (assuming, of course, that this was something less than all-out nuclear use), an Indian attempt at executing massive retaliation would be futile because the disparity in Sino-Indian nuclear capabilities could result in an overwhelming Chinese rejoinder that destroys Indian society in exchange for at best only catastrophic damage to the Chinese polity.\textsuperscript{200} Accepting such an exchange ratio would be illogical even by an otherwise reasonable theory of punishment. The differential in the relative ability to punish is in fact so great in the Sino-Indian case that when retaliation must actually be executed—as opposed to merely being threatened—India either would be self-deterred or would engage only in proportionate pun-

\textsuperscript{199} On this issue, see also Kanwal, “Nuclear Targeting Philosophy for India,” pp. 459-473.

\textsuperscript{200} For a good discussion about the weight of possible Chinese nuclear attacks on India, see Jones, \textit{From Testing to Deploying Nuclear Forces}, p. 4.
ishment designed to satisfy the demand for retribution as a prelude to speedy war termination. The strategic objective of preserving Indian safety against nuclear attack in the face of the country’s own relative weakness vis-à-vis China almost guarantees that if the fateful demand for nuclear retaliation were to confront Indian decision-makers, they would settle for limited, proportionate, or graduated rather than massive retaliation precisely because it was the prudent thing to do: It would satisfy the need for punishment without in any way precluding the possibility of an even greater catastrophe for both sides should a speedy termination of conflict elude the antagonists.201

The actual Indian retaliatory response vis-à-vis both Pakistan and China could therefore be similar in some instances and radically different in others, though—as the analysis indicates above—for different reasons in each case. In any event, prewar Indian declaratory policy will certainly continue to insinuate the prospect of sure “massive” retaliation because security managers in New Delhi would seek to deny both Islamabad and Beijing the hope that they could pursue nuclear aggression while accommodating some low and manageable levels of Indian retribution. Thus, for example, during the Kargil crisis with Pakistan in May and June of 1999, Brajesh Mishra, the Indian National Security Adviser, asserted, “Let me make one thing absolutely clear. We have a policy of no first use. . . . But if any attempt is made against us, God forbid, we will go all out.”202 Indian policymakers are also likely to devalue the significance of an adversary’s nuclear threats whenever possible in order to underscore their own composed posture and to minimize the prospects of self-deterrence in a crisis. Thus, for example, Brajesh Mishra decried Pakistan’s nuclear threats on several occasions during the Kargil crisis as “border[ing] on lunacy.”203 while Prime Minister Vajpayee,

201 Except for K. Subrahmanyan, Bharat Karnad, Vijai Nair, and Gurmeet Kanwal, Indian analysts have not discussed targeting challenges vis-à-vis China in any detail, thereby suggesting either that China is not an imminent nuclear threat or that there is not much India can do about China, at least in the near term, except to deploy the best deterrent it possibly can in the hope of immunizing itself against potential Chinese threats.


when asked about Pakistan’s reported nuclear threats, serenely replied that “we are prepared for all eventualities.”

Such prewar declaratory postures, however, are not the same as wartime operational policies, and while Indian decisionmakers may certainly execute massive retaliation—especially if they either absorbed an immense first strike that left them with little other choice or sought to punish a weaker state like Pakistan on the presumption that they possessed the capability for escalation dominance—it is possible that in many other circumstances India would settle for a limited or proportionate retaliation that, while embodying retribution and perhaps signaling its inherent capabilities, threatens to escalate to even higher levels of violence in the hope of enforcing a speedy termination of conflict. Of course, since an adversary cannot be confident that India would respond in this measured fashion and no other, the emphasis on deterrence by punishment is likely to suffice as an effective antidote to adventurism.

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205 This formulation, of course, raises another interesting possibility: Could India avoid nuclear retaliation altogether even if it has suffered a modest nuclear attack by an adversary? This possibility has been raised by both Indian and American scholars—see Srivastava, “Nuclear India: Problems and Praxes,” p. 36; Sharad Dixit, “A Nuclear Strategy for India,” The Pioneer, September 3, 1998; and Joek, Maintaining Nuclear Stability in South Asia, p. 57—and represents an intriguing though in the final analysis somewhat unlikely possibility. One reason for this judgment is that no Indian government is likely to survive politically if it fails to respond to a nuclear attack by mounting at least token retaliation. More significantly, however, the alternative of avoiding a nuclear response would become plausible if India could retaliate by alternative means such as altering its war aims vis-à-vis the immediate adversary. During the Gulf War, such an alternative was bruited by the U.S. leadership in the event Saddam Hussein used weapons of mass destruction on Coalition forces. In the South Asian case, however, few possibilities of this sort present themselves. For example, India could not respond to limited nuclear attacks by threatening to occupy Pakistan or China physically, since it not only lacks the conventional resources to do so but would actually precipitate further nuclear attacks if it ever attempted such solutions. In theory, it could also attempt to retaliate by supporting secessionist movements in both countries after the cessation of hostilities, but such solutions too are slow, may not succeed, and, even if successful, may only provoke a resumption of nuclear attacks on India. Thus, except for the plausible but unlikely solution that posits the international community banding together to inflict political and military reprisals on the attackers coupled with a large-scale reassurance effort aimed at preventing New Delhi from seeking individual retribution, it is difficult to imagine any kind of satisfaction that could be dangled before India to induce it to accept a policy of nonretaliation in the event of suffering a nuclear attack. For more on this issue, see Dixit, “A Nuclear Strategy for India.”
policymakers, in turn, will only seek to reinforce the robustness of this strategy by refusing to clearly specify their nuclear employment policy _a priori_ in any detail and, if they do, will tend to emphasize its overwhelmingly painful consequences, even if at the moment of truth they find it counterproductive to carry out their own prewar ultimatums.206

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206 The resemblance of this strategy to that pursued by both the British and the French “independent deterrents” during the Cold War is more than just coincidental, having all arisen from similar strategic circumstances. Both British and French efforts in this regard are reviewed in Lawrence Freedman, “British Nuclear Targeting,” and Yost, “French Nuclear Targeting,” both appearing in Desmond Ball and Jeffrey Richelson (eds.), _Strategic Nuclear Targeting_ (Ithaca, NY: Cornell University Press, 1986), pp. 109–126 and 127–156.

It is important to recognize, however, that India’s prewar emphasis on “massive” punishment for any infraction of the no-nuclear-use rule could in some situations precipitate the very outcome India sought to avoid—namely, massive employment of nuclear weapons by India’s adversaries in the event of a deterrence breakdown. This unintended outcome could occur if Pakistan, for example, were to reason that because even the most token nuclear use in the context of a conventional war would precipitate a massive Indian nuclear counterresponse anyway, it might as well go first with an overwhelming nuclear attack of its own—when its nuclear weapons reserves are still secure and its C3I systems are operationally coherent in a way that they would not be in the aftermath of the large expected Indian riposte. This incentive to unleash a massive nuclear attack—when only token nuclear employment might otherwise have sufficed—would not exist if Pakistan were to be convinced about the survivability of its nuclear reserves in the face of even a potentially massive Indian response. In such circumstances, Islamabad could use its nuclear weapons in the modest fashion appropriate to its strategic situation while waiting to see whether New Delhi would in fact make good on its threat to unleash massive nuclear punishment. Since Pakistan’s nuclear capabilities would by definition be secure in these circumstances, it could afford to ride out Indian retaliation and then proceed to escalate in an appropriate fashion depending on what India’s retaliatory response actually was—as opposed to unleashing a massive nuclear strike to begin with simply for the prudential reason of limiting the damage that would be caused by the anticipated Indian reaction. This logic, then, serves to highlight three important issues: First, India’s insistent prewar emphasis on massive retaliation, although understandable as a strategy for shoring up deterrence, could precipitate the very phenomenon it seeks to avoid: a nuclear attack on India that takes on even greater proportions than might otherwise have been the case. Second, the survivability of Pakistan’s nuclear assets (and Islamabad’s confidence about that survivability) makes a critical difference to whether Pakistan executes limited or massive nuclear first-use strategies. Parenthetically, it also suggests that—for purely self-interested reasons—Islamabad would be better off investing in enhancing the survivability of its nuclear reserves rather than pursuing nuclear strategies aimed at eroding India’s capability to retaliate if it is to avoid being put in a situation where it has to choose committing suicide simply for fear of death. Third, the paradoxes of rationality that cause perverse outcomes in the Indo-Pakistani case do not obtain in the Sino-Indian dyad because Beijing’s existing nuclear superiority and the high survivability of its strategic assets vis-à-vis New Delhi’s make...
Strategic Nuclear Targeting. The logic of “delayed—but assured—retaliation” satisfactorily addresses the question of when punishment might be executed if deterrence breakdown were to result in nuclear weapon use by an adversary against India. It does not specify, however, what the targets of such retaliation might be, and consequently the fourth component of India’s nuclear doctrine at the level of operational policy relates to the “countervalue plus” targeting strategy that New Delhi is likely to pursue in support of a posture of mutual assured vulnerability that simultaneously embodies some targeting flexibility. This dimension of operational policy—the intended target set that is the object of any retaliatory action—has not been discussed publicly by any Indian security managers and probably never will be for the reasons alluded to earlier. New Delhi’s discomfort with nuclear weapons reinforces its inclination to brush all the unsavory dimensions of nuclear strategy under the table. And while Indian security managers recognize that strategic targeting has to be carried out precisely because it remains the price of effective deterrence, they will be satisfied by modest efforts carried out in complete secrecy. In fact, these activities are already under way: Various planning cells in the Indian Ministry of Defence, particularly the DRDO, and in the service headquarters have begun to examine targeting requirements in some detail, although the scale of effort, the extent of direction from the civilian leadership, and the degree of coordination between the civilian nuclear weapon designers and civilian and uniformed operational planners are not known. In any event, the secrecy that accompanies this effort is driven first and foremost by the political imperative of not giving needless offense to any adversaries while simultaneously seeking to minimize the concerns of the Indian public about their own relative vulnerability—concerns that would arise if any discussions about nuclear targeting were to be carried out publicly. Indian policymakers have, in fact, consciously sought to avoid replicating the provocative rhetoric that emerged from Pakistan in the aftermath of its Ghauri missile test, when a number of Pakistani politicians took the stage in order to gloat about their new offensive reach—some even publicly identify-

any Indian threats of massive retaliation incredible—irrespective of the kinds of Chinese nuclear-use strategies that are at issue.

207 The author is deeply grateful to an Indian scholar who has requested anonymity for sharing his understanding of these efforts.
ing a host of cities in India that would supposedly be targeted by Islamabad’s new strategic systems.208

While the desire to avoid agitating public sentiment in the region at large represents the political reason for refusing to discuss India’s targeting policy publicly, there is also a sound strategic reason for New Delhi’s continued silence on this issue. Because Indian strategic managers have consistently held that their nuclear deterrent is oriented fundamentally toward the political management of crises rather than toward the achievement of some military objectives on the battlefield, they have consciously sought to avert all attention from the operational issues surrounding nuclear weapon employment, such as targeting requirements, damage expectancy calculations, and the criteria for assured destruction. In fact, this aversion to operational issues is best illustrated by the fact that India’s Foreign Minister, Jaswant Singh, is reported to have “decried”—on the record—“[even] the use of the word ‘arsenal,’ terming it as ‘a throwback to the years of the Cold War.’”209 This conscious disregard of operational issues in public discussion is grounded on the premise that these problems represent narrow and secondary concerns that cannot be allowed to dominate the central strategic problem facing India: legitimizing the need for a modest but capable nuclear force to guarantee India’s strategic independence in the face of any nuclear threats, blackmail, and coercion that may be mounted by its adversaries. Since defending this objective against both domestic skeptics and a hostile international community remains a challenging endeavor in its own right,210 Indian policymakers have sought to avoid any discussions that would feed public controversy and debate about the country’s evolving nuclear posture. The only external discussions of such matters have been conducted off the record by some Indian think tanks and by a few defense analysts writing for national newspapers and magazines. Among the more significant of these must be counted General K. Sundarji, the late Chief of Staff of the Indian


Army, and Brigadier Vijai Nair, whose work on India's nuclear policy, despite being incomplete in some areas, represents the best early discussion of the country's nuclear requirements and strategy. A more recent contribution that is both sophisticated and interesting (but that is clearly embedded in the classical approach to nuclear deterrence familiar in the West and hence is unlikely to command the allegiance of Indian policymakers in all its details) is Admiral Raja Menon's A Nuclear Strategy for India.

Since this last dimension of operational policy—targeting doctrine—is not publicly discussed by Indian policymakers, all the assertions that follow are proffered purely on the basis of logical deduction supplemented by insights gained from conversations with Indian security managers and elites. In this instance, though, deductive claims are generally adequate because targeting policies are invariably a complex function of a country's grand strategy and overarching nuclear doctrine, the size of its arsenal, the quality of its nuclear weapons and delivery systems, and the number, hardness, relative concentration, and intrinsic mobility of the potential targets to be interdicted. A good deal of general information about most of these variables in Southern Asia is publicly available, and while these data may not suffice to forecast any actual targeting plans, they are more than sufficient to describe the broad orientation of Indian targeting that is likely to obtain both in the near term and over time.

Figure 6 identifies a range of targeting options subsumed by a variety of nuclear strategies. While these options are identified as distinctly as possible for purposes of analysis, it is likely that most war plans would in practice cover a mix of target sets, with each plan probably dominated by an emphasis on one particular targeting orientation to the relative neglect of others. This emphasis is usually

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212 Menon, A Nuclear Strategy for India.

conditioned by both the grand strategy of the state concerned and the size and quality of its nuclear arsenal—a fact that allows its targeting policy to be described in terms of some specific orientation despite all the complexities that may otherwise characterize its war plans.214

At one extreme, strategic nuclear targeting could be oriented toward interdicting "counterforce" targets.215 This target set usually consists of the adversary’s nuclear weapons themselves, the storage sites at which the weapons are located, the delivery systems slated to carry the weapons (if these are not already mated to the warheads), the bases that host the delivery systems, and the command-and-control architecture that directs the operations of the entire force. Counterforce targets thus consist of both hard and soft systems that may in turn be either fixed or mobile. ICBMs deployed in fixed, fully hardened silos and strategic submarine bases represent examples of hard fixed targets; manned bombers and submarines at sea, in contrast, are example of soft targets that are also mobile; and missile

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214 This argument is borne out in the survey of targeting polices followed by the great powers during the Cold War, which, with the conspicuous exception of China, are described in Desmond Ball and Jeffrey Richelson (eds.), Strategic Nuclear Targeting (Ithaca, NY: Cornell University Press, 1986), pp. 35–156.

215 The nature of these targets and their relevance, for example, in the U.S.-Soviet context are well described in Desmond Ball, Targeting for Strategic Deterrence, Adelphi Paper No. 165 (London: IISS, 1983).
storage facilities, above-ground \textsuperscript{3}I sites, and strategic surface-to-air missile (SAM) installations remain good examples of soft fixed targets. Irrespective of the specific attributes of a given system, counterforce targets as a whole share certain characteristics: They exist in relatively significant number; they are relatively small in size; and they enjoy a relatively high degree of protection against nuclear effects either because they are hardened by design or because their inherent mobility allows them to escape beyond the lethal radii of an attacking weapon. Both offensive and defensive nuclear strategies can emphasize counterforce targeting because they seek to disarm the adversary of his coercive capabilities either to secure counterforce-countercontrol preeminence or to limit the extent of damage that may be inflicted as a result of an assailant’s first strike.\(^{216}\)

In the middle of the spectrum lies a vast range of assorted “countermilitary” targets that consist for the most part of the myriad instruments required for the successful prosecution of high-intensity combat.\(^{217}\) These targets include all the conventional military forces of the adversary, especially high-value resources such as armored and mechanized divisions, capital ships and submarines, and strategic air capabilities in the form of both combat aircraft and support platforms. Countermilitary targets also include the strategic infrastructure required to enable these high-value resources to operate effectively. Some of the principal kinds of countermilitary targets include barracks, supply depots, and marshaling yards; tank, vehicle, and ammunition storage facilities; transportation assets and military communications facilities; naval bases and shipbuilding and repair yards; and conventional air bases, command posts, and early warning and air defense facilities. These targets obviously embody disparate characteristics—some are hard, some are soft, some are fixed, and some are mobile—but the most distinguishing feature of the set as a whole is the vast number of its constituent parts, each of which

\(^{216}\) A good general discussion of this issue with an assessment of its benefits, challenges, and limitations for strategic stability can be found in Albert Legault and George Lindsey, The Dynamics of the Nuclear Balance (Ithaca, NY: Cornell University Press, 1976).

\(^{217}\) On the characteristics of these targets, which used to be generically described as “other military targets” (OMT), and the challenges of interdicting them in the U.S.-Soviet context, see Jeffrey Richelson, “The Dilemmas of Counterpower Targeting,” Comparative Strategy, 2(3) (1980), pp. 223–237.
is defined by its relatively small size. Both offensive and defensive nuclear strategies incorporate significant countermilitary targeting, although the latter are more likely to stress such targets, especially at the operational level, given their emphasis on denying the adversary his war aims on the battlefield.218

At the other end of the spectrum, strategic nuclear targeting could focus mainly on "countervalue" targets, which, broadly defined, are targets that host most of the resources necessary for the sustenance of a modern society.219 The most conspicuous countervalue targets are population centers such as cities, which contain significant portions of the workforce in an industrialized economy as well as most of the critical economic and industrial capabilities that constitute either the war-supporting capability of a country or the resources bearing on its ability to recover in the aftermath of a nuclear attack. The former category would include, for example, petroleum refineries, industrial plants, and arms and munitions production facilities, while the latter category would include all facilities pertaining to the production of coal, steel, aluminum, cement, and electric power. Countervalue targets may also encompass specific national infrastructure assets such as the communications system, the transportation network, and the power grid, including switching stations, space control facilities, dams, rail junctions and switching yards, bridges and tunnels, and generating stations and nuclear power plants, all of which help maintain the connectivity modern societies require for their survival and functioning.220

218 During the Cold War, the need to interdict these kinds of targets gave rise to an entire class of specialized "theater" and "tactical" nuclear weapons. The multifaceted rationale for these systems is explored in Ashley J. Tellis, "NATO and Theater Nuclear Force Modernization: Looking Backward, Looking Forward," Journal of East and West Studies, 15:2 (Fall–Winter 1986), pp. 101–126.


220 The author is deeply grateful to David Shlapak for sharing his unpublished RAND work on effective air campaigns, which examines attacks on this class of targets in detail.
The organization of modern societies often results in the concentration of many countervalue targets in a few geographic locations with large populations, and consequently even a strategy that seeks to avoid population targeting per se could generate enormous fatalities simply by virtue of the collocation of critical economic and industrial targets with dense pockets of habitation. Such fatalities are often the result of peculiar interactions ensuing from the complex physical effects of a nuclear explosion. The human body, for example, can withstand simple overpressures of 30 psi, but winds associated with as little as 2–3 psi could blow people out of buildings, causing instant death. Consequently, many nuclear damage calculation models simply assume that minimum overpressures of 5 psi would suffice to kill at least half the population located within the 5-psi ring of a nuclear detonation. Since high population fatalities would inevitably accompany any nuclear strategy oriented toward countervalue targeting—even if populations per se are not targeted—this kind of targeting doctrine best supports a deterrent strategy aimed mainly at punishment. In fact, observers such as Bernard Brodie have argued that so long as an adversary’s cities are targeted by a retaliatory strategy, the distinction between counterculture, counter-military, and countervalue targeting could simply break down because if these targets are collocated, “it can hardly mean much to the population involved whether the destruction of cities is a by-product of, [for example], the destruction of airfields or vice versa.”

Confronted with a choice of these three options, India is almost certain to settle for countervalue targeting and, by implication, seek to service a nuclear strategy centered on some kind of mutual assured vulnerability. While such a targeting posture follows directly from India’s operational policy, which focuses on deterrence

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based on threats of punishment, it is more fundamentally grounded in the character of the country’s nuclear capabilities—or lack thereof. These capabilities will be discussed in some detail in the next chapter, but a summary description at this point should suffice to clarify why countervalue targeting is most logical for India vis-à-vis both China and Pakistan, though New Delhi would certainly possess greater targeting flexibility in the case of the latter. India’s nuclear capabilities essentially reside in a small inventory of relatively low-yield nuclear weapons that will be delivered, at least in the foreseeable future, primarily by tactical strike aircraft. This inventory will likely not exceed 150 to 175 weapons by the year 2010, with the most reliable designs today producing yields in the 10- to 20-kt range.\footnote{The primary Indian fission design, the levitated “flying plate” version of the device tested in 1974, is credited with being capable of producing yields in the 10- to 20-kt class and is believed to have produced most of the recorded yield during the 1998 test series. This design and its expected yield are described in Raj Chengappa, “Is India’s H-Bomb a Dud?” \textit{India Today International}, October 12, 1998, pp. 22–28.} Although Indian scientists have claimed that they can produce boosted fission weapons with yields of some 200 kt\footnote{India Can Produce N-bomb of 220 Kiloton: Chidambaram, "The Times of India," May 23, 1998, cited in Karnad, "A Thermonuclear Deterrent," p. 117, and “India Can Make 200 Kilotons of Nuke Weapons,” \textit{Hindustan Times}, October 31, 2000.} and even thermonuclear weapons with megaton-sized yields, these capabilities have not yet been demonstrated to the universal satisfaction of others, especially India’s adversaries. Consequently, it is reasonable—at least for heuristic purposes—to base the analysis on nuclear capabilities that have been unambiguously demonstrated thus far while simply alluding to the likely consequences if these capabilities were to change in the future. These demonstrated capabilities, which consist of levitated versions of the basic fission design tested in 1974 and are capable of producing yields in the range of 20 kt \textit{at best}, essentially imply that both significant counterforce and countermilitary targeting are ruled out for all practical purposes—especially in the case of nuclear operations against China—because of the limited yields and relatively small number of nuclear weapons that India will eventually acquire.\footnote{This issue is discussed in greater detail in Chapter Five.}

To begin with, most of the primary Chinese counterforce targets, consisting of nuclear-tipped ballistic missiles, are either mobile or
deployed in hardened silos and caves. While some missiles are maintained in soft garrisons, these systems would disperse in periods of crisis or on receipt of strategic warning. Since Indian nuclear use will only be retaliatory, meaning that it would occur after China used nuclear weapons first, it is reasonable to presume that all of Beijing’s mobile missiles (primarily CSS-5s) will be flushed from their peacetime locations and dispersed to their wartime hides as part of normal preparation for nuclear combat. India’s military forces lack, both currently and prospectively, the ability to detect, track, and target any of these mobile missiles, while those weapons maintained in fixed hardened silos (some CSS-3s) or stored in caves or tunnels (primarily CSS-2s and some CSS-3s) would be invulnerable even to direct nuclear attack because the small yields of India’s weapons would simply be unable to generate the overpressures necessary to neutralize these protected assets. Thus, even if India could somehow reach the missile deployment sites, launch control centers, or weapon storage facilities either by aircraft or by ballistic missile, it would most likely be unable to eliminate China’s strategic nuclear reserves even with the standard two-on-one attacks that were commonly assumed during the Cold War. This is because aircraft delivery bequeaths greater accuracy, but penetrativity is uncertain, and the

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229 By way of comparison, during the high tide of the Cold War, both the United States and the Soviet Union assigned weapon systems with relatively high yields and accuracies to the hard-target counterforce role. The principal U.S. missile systems allocated for this mission were equipped with warheads that had yields in the hundreds of kilotons and were capable of accuracies down to a few hundred feet. Soviet missiles too had more or less comparable accuracies and were equipped with warheads that often had yields going up to several megatons. In contrast, a 3500-km Indian Agni armed with New Delhi’s primary fission design would be able to muster yields roughly similar to that of a Nagasaki-class nuclear weapon (~20 kt) with an accuracy that would probably run close to many hundreds of feet—if the accuracy of the missile was presumed to be simply 0.1 percent of its range. Details about U.S. and Soviet nuclear weapons and missiles can be found in Thomas B. Cochran, William M. Arkin, and Milton M. Hoenig, U.S. Nuclear Forces and Capabilities, Nuclear Weapons Databook, Volume 1 (Cambridge: Ballinger Publishing Company, 1984), and Thomas B. Cochran, William M. Arkin, and Milton M. Hoenig, Soviet Nuclear Weapons, Nuclear Weapons Databook, Vol. 4 (Cambridge, MA: Ballinger Publishing Company, 1989).
yields of India’s air-dropped weapons would at any rate be rather small, whereas missile delivery solves the penetrativity problem but would be additionally limited by the relatively poor accuracy of the system. What complicates matters finally is the small current and projected size of the Indian nuclear stockpile relative to the number of Chinese counterforce targets.

Where counterforce attacks are concerned, the effectiveness against hard targets appears to be more sensitive to accuracy than to yield by a ratio of approximately 5:1.\textsuperscript{230} This implies that India’s intermediate-range missile force, if and when deployed, would have to be extraordinarily accurate even at relatively long distances, and attaining such accuracies would not only require Global Positioning System (GPS)-aided inertial guidance systems—which India will probably obtain—but also advanced (not strapdown) inertial guidance capabilities, which are likely to lie beyond India’s reach for some time to come.\textsuperscript{231} In any event, if missiles or advanced strike aircraft are intended to be the systems of choice for counterforce targeting, all successful attacks would likely require much larger weapon yields than those assumed above and possibly earth-penetrating warheads as well in order to exploit the superior coupling effects offered by the latter to achieve at least “mission kills” that neutralize Chinese missile silos and storage caves, weapon storage bunkers, and launch control centers. Since India has all but eschewed further nuclear testing, however, it is unlikely that such capabilities can be developed, and thus, by implication, significant hard-target counterforce kill capability will remain beyond New Delhi’s reach.\textsuperscript{232}


\textsuperscript{232}If India resumes nuclear testing, however, and such testing results in the successful validation of its advanced nuclear designs—boosted fission or thermonuclear weapons—New Delhi could move somewhat in the direction of acquiring
This conclusion holds equally if India attempted to attack other fixed targets, such as submarine bases or airfields: Neither kind of target would suffer significant damage even if India’s small nuclear weapons were accurately delivered by aircraft, for example, unless it was presumed that New Delhi would be willing to expend nontrivial numbers of multiple weapons per target. The large number of potential targets in this set, however, implies that the total number of weapons India would have to allocate to prosecuting such missions could easily exceed the size of its entire nuclear stockpile—and consequently the strategic wisdom of planning such attacks for purposes of retaliation remains an open question. In any case, there is no guarantee that China’s nuclear submarines and nuclear-capable aircraft would actually be destroyed by such attacks, since these platforms could be rapidly relocated during a crisis; and even if some of these capabilities were destroyed, the small size of the Indian nuclear inventory makes such attacks a relatively wasteful proposition since they would not result in great and unacceptable damage to the Chinese state. Interdicting Chinese counterforce targets is therefore a losing proposition because there are probably more such targets than there will be Indian nuclear weapons; because China’s relatively hardened systems could survive an Indian counterforce strike, while its softer mobile systems would simply be beyond the reach of Indian targeting capabilities; and, finally, because modest counterforce attacks would be strategically irrelevant either for true damage limitation or for effective retribution. The same judgment holds to an even greater extent where countermilitary targeting is concerned because the target set here consists of literally thousands of aim points that are clearly orders of magnitude larger than Indian nuclear capabilities would ever be. Even if many of these systems could be successfully destroyed, it is not clear whether their destruction would constitute adequate punishment for China’s prior use of nuclear weapons against India.

modest counterforce capabilities. In the final analysis, however, success here would be contingent on India’s ability to improve the accuracies of its missiles through the incorporation of advanced guidance systems and vastly increasing the number of nuclear weapons deployed in its stockpile. Because the former is likely to be easier than the latter, it is possible that significant counterforce capabilities, at least vis-à-vis China, will continue to elude New Delhi. Because of India’s larger nuclear doctrine and the other components of its operational policy, this lack of counterforce capabilities is unlikely to become very troublesome to New Delhi.
Given these considerations, countervalue targeting alone holds promise of inflicting "destruction and punishment that the adversary will find unacceptable"\textsuperscript{233} for any nuclear transgressions committed against India—at least in the context of an all-out war.\textsuperscript{234} If China’s vital centers—understood primarily as the cities that host significant fractions of its population, industry, and economic life—are treated as the principal foci of this countervalue targeting doctrine, it is easy to see why India’s nuclear capabilities stand some chance of being both useful and effective instruments of punitive retaliation. To begin with, urban centers are generally soft targets that can be readily pulverized by overpressures as low as 5 psi. These levels of overpressure will kill large numbers of people while also contributing to additional casualties caused by the synergistic effects of blast, thermal radiation, nuclear fallout, and electromagnetic pulsation. Cities are also large targets, which makes them less sensitive to the accuracy constraints of India’s present and future delivery systems. This implies that they can be held at risk even by relatively small and inaccurate weapons so long as these are employed in multiple numbers with the designated ground zeros adequately spaced in relation to the target perimeter—and even multiple weapon allocations may be unnecessary if the primary objective is simply to inflict significant numbers of casualties rather than attempting to destroy the city itself. Further, urban centers are fixed targets: They are easy to find using primitive methods of navigation and thus lend themselves to attack by a variety of delivery systems, including unconventional technologies in an emergency. Finally, and perhaps most important, urban centers offer maximum “bang for the buck” in that they represent concentrated targets hosting large fractions of several kinds of national resources, all located within a relatively compressed geographic locale. Even a cursory glance, for example, at China’s five most heavily populated metropolitan complexes—Beijing, Shanghai, Hong Kong, Tianjin, and Shenyang—suggests that these cities represent principal concentrations of China’s industrial capabilities, con-


tribute disproportionately to its national income, and remain dense hubs for transport and communications.\textsuperscript{235}

Successful nuclear attacks on such centers, therefore, would certainly constitute significant punishment in terms of the casualties suffered, and even the ensuing damage, though likely modest, would probably be far greater than the value of the objectives China presumably sought to obtain through its nuclear first use against India. This, at any rate, remains the judgment of some of India’s most respected strategic thinkers, including K. Subrahmanyan and the late General Sundarji,\textsuperscript{236} and it is therefore reasonable to suppose that India’s targeting strategy vis-à-vis China would consist primarily of countervalue attacks aimed heavily at its vital centers in order to inflict massive casualties with the smallest possible expenditure of nuclear fires in case of any all-out war. While such punishment would certainly not destroy the Chinese polity—given the relative balance of power in the Sino-Indian case, no punishment that India could apply ever would—the strategic objective of such all-out attacks would nonetheless be to inflict such penalties as would threaten "to generate dangerous imbalances between that country and her primary adversaries [like the United States and Russia] and to seriously retard her economic growth to further aggravate [the postwar] global imbalances"\textsuperscript{237} of power in the international system. This logic is highly reminiscent of British and French targeting doctrine vis-à-vis the Soviet Union during the Cold War, as defense planners in London and Paris would insistently suggest that the postwar "world geopolitical context"\textsuperscript{238} always remained relevant to their nuclear strategy because "the adversary [would have to] consider the situation in which he would find himself after having suffered the destruction of a non-negligible part of his cities, of his industrial and administrative means, and of his communications, when the other great

\textsuperscript{235}For details, see \textit{The National Economic Atlas of China} (New York: Oxford University Press, 1994).

\textsuperscript{236}Subrahmanyan, "Nuclear Defence Philosophy: Not a Numbers Game Anymore," and "India and the Nuclear Question: An Interview with General K. Sundarji, PVSM (Retd.)," pp. 45–56.

\textsuperscript{237}Nair, \textit{Nuclear India}, p. 145.

\textsuperscript{238}Yost, "French Nuclear Targeting," p. 134.
nuclear powers would retain the economic and military potential intact.239

Indian strategists who reiterate such arguments certainly exaggerate the geopolitical effects that New Delhi’s relatively small nuclear strikes would have on China, but their understanding of why countervalue targeting is sensible for countries with small nuclear arsenals is reasonable. As early as 1947, when nuclear weapons were still limited in number and small in effect, U.S. strategists recognized that countervalue targeting would have significant deterrent effects because even small devices of the sort used on Hiroshima and Nagasaki could inflict significant casualties in highly compressed time frames and, as a result,

would create a condition of chaos and extreme confusion. Not least of this would be an increased element of hopelessness and shock resulting from the magnitude of destruction; the fear of the unknown; the actual lingering physical after effect of atomic explosions; the psychological effect arising from the necessity to evacuate large densely populated areas; and the attendant psychological state which these factors create.240

A deeper appreciation of these consequences have subsequently led all the smaller nuclear powers to emphasize targeting cities per se as part of their ultimate punishment strategies because, as one French spokesman noted at the height of the Cold War,

these targets are easy to reach, without great accuracy in the missiles required, and especially because one can thus cause important damage with a limited number of weapons. . . . It is only in the framework of an antities strategy that the desirable level of damage can be guaranteed with the means that remain in proportion to the scientific, industrial, and economic possibilities of France. Any other strategy would necessitate much more important

239 Ibid.

means, without doubt beyond our reach, and could not but weaken deterrence.\textsuperscript{241}

Because the smaller nuclear powers like France, the United Kingdom, and China possessed both a larger number of nuclear weapons and weapons that produced much higher yields in comparison to India’s current and prospective strategic holdings, they could pursue true countervalue targeting strategies that focused on physically obliterating an adversary’s principal conurbations. India’s modest nuclear capabilities cannot be directed toward achieving identical effects, however, and to that degree the analogy with French nuclear doctrine vis-à-vis the Soviet Union breaks down because Paris, for all its weaknesses, had many more high-yield nuclear weapons than India would probably possess eventually. These capabilities made the French threats of inflicting real countervalue punishment much more credible against the Soviet Union than India’s threats would be against China. Even in the French case, however, the analytical consensus was that Paris’ deterrent threats were in practice quite incredible, and they obtained whatever efficacy they did, in the final analysis, only because of the positive externalities arising from the massive American deterrence of the Soviet Union.\textsuperscript{242} Positive externalities of this sort may not be available in the Sino-Indian case, as Beijing could prosecute a war limited to India alone without involving any other potential nuclear adversaries—and consequently New Delhi, so long as it pursues an independent foreign policy, may not be able to always “free ride” under the deterrence umbrellas that may otherwise exist between the United States or Russia and China.

Recognizing all these facts, strategic thinkers like Subrahmanyam and Sundarji—reflecting the judgments of India’s strategic managers on this issue—have argued not for an antities strategy in the strict sense of the term but rather for an antipopulation strategy focusing on inflicting a high level of demographic damage relative to their estimation of the benefits an adversary could gain by nuclear use against India. Consequently, both Subrahmanyam and Sundarji con-


\textsuperscript{242} Yost, “French Nuclear Targeting,” pp. 154–156.
stantly refer to the high costs of Hiroshima and Nagasaki in their writings, noting that "we know the results"\textsuperscript{243} of even such limited nuclear use. This conclusion appears reasonable, however, only because it is explicitly based on the presumption that there are few benefits any adversary could gain through the use of nuclear weapons against India to begin with and, consequently, that even the high casualties caused by small nuclear attacks on civilian centers—at least relative to the historical norm in South Asia—would more than suffice to achieve effective deterrence. Other Indian analysts, however—not convinced either by this logic or by the deterrence value of such a targeting strategy—argue for true anticity capabilities instead and, accordingly, urge their government to induct high-yield nuclear weapons into the country's evolving stockpile.\textsuperscript{244} One analyst summarized these demands succinctly by arguing that "the first requirement . . . for an effective and credible nuclear deterrent is the need for the Indian nuclear arsenal to be based on high yield thermonuclear weapons. . . . The second requirement, for an effective Indian nuclear deterrent force . . . is to accelerate the missile development programme, especially the development of ICBMs."\textsuperscript{245} Demands such as these, however, are so fundamentally at odds with India's currently demonstrated capabilities that they are likely to remain simply exhortations emanating from yet another interest group in New Delhi, since India's security managers thus far appear to be satisfied that an antidemographic strategy—with the high costs it would impose on India's adversaries relative to the goals they might seek in their struggles with New Delhi—suffices to procure the kind of deterrence that would safeguard India's vital interests in all the feasible "unlimited" conflicts that can be imagined with Beijing and Islamabad.

The technical reasons India would continue to pursue a counter-value strategy of this sort vis-à-vis China also apply in the case of Pakistan, which has even fewer vital centers. The most populous

\textsuperscript{243}"India and the Nuclear Question: An Interview with General K. Sundarji, PVSM (Retd.)," p. 51, and Subrahmanyan, "Nuclear Defence Philosophy: Not a Numbers Game Anymore."

\textsuperscript{244}See, by way of example, Nair, \textit{Nuclear India}, p. 181; Karnad, "A Thermonuclear Deterrent," pp. 128-149; and Balachandran, "Nuclear Weaponization in India," pp. 47-48.

\textsuperscript{245}Balachandran, "Nuclear Weaponization in India," pp. 47-48.
urban concentrations, such as Karachi, Lahore, Faisalabad, Rawalpindi, and Hyderabad, are also critical centers for heavy and light industry and for the processing of agricultural goods.\footnote{Surveyor General of Pakistan, \textit{Atlas of Pakistan} (Rawalpindi, Pakistan: Survey of Pakistan, 1990), pp. 60–64 and 67–90.} Any attacks on these cities would thus devastate both the economic fabric and the ideational embodiment of Pakistan. While it is logical, therefore, for India to systematically target these vital centers, the potentially larger size of New Delhi’s nuclear inventory vis-à-vis Islamabad—at least eventually—and Pakistan’s narrow geographic depth and high strategic vulnerabilities all interact to allow India to prosecute a wider range of countervalue options besides simply anticity targeting. This, at any rate, seems to be the judgment of Indian analysts like Nair and perhaps Karnad as well.\footnote{This issue is explored in some detail in Nair, \textit{Nuclear India}, pp. 137–142, and elliptically in Karnad, “A Thermonuclear Deterrent,” pp. 135–143.} Pakistan’s irrigation and water control systems in the Punjab and its main rail hubs in the central and southern portion of the country at Bahawalpur, Dera Ghazi Khan, and Hyderabad stand out as tempting targets in that attacks on the former would result in substantial damage to the heartland of the Pakistan state, whereas attacks on the latter would destroy the connectivity between the northern and southern portions of the country.\footnote{Nair, \textit{Nuclear India}, pp. 137–142.} Many of these targets, however, are extraordinarily hard and, often requiring more than one weapon per aim point, become attractive magnets for interdiction if and only if India builds up a large enough arsenal that enables coverage of even marginal targets once its primary antidemographic orientation is satisfied.\footnote{See the discussion in Balachandran, “Nuclear Weaponization in India,” pp. 42–47.} If an inventory of such size is created, it is possible for New Delhi to consider even some countermilitary targeting vis-à-vis Islamabad. This requirement, however, is unlikely to acquire any priority—except in the case of a limited war—because countermilitary targeting can quickly degenerate into a bottomless sink in which a disproportionately large number of nuclear weapons must be expended in exchange for potentially meager operational results.\footnote{For a brief description of the number of U.S. and Soviet weapons assigned to this role during the Cold War, see Salman et al., “Analysis or Propaganda? Measuring}
Counterforce targeting is likely to receive even less attention from India simply because Pakistan's nuclear forces, which are steadily migrating to mobile ballistic missiles, will be largely undetectable in a conflict. India may slowly acquire the ability to detect and identify Pakistan's fixed nuclear storage sites over time, but attacking such sites—or the airfields thought to host nuclear-capable aircraft, for that matter—would be irrelevant in the context of a retaliatory response. If India were to use its nuclear weapons first and in a preemptive strike mode, counterforce attacks—assuming these could be executed flawlessly—might make some sense, but even these would require many more nuclear weapons than India might eventually possess, particularly if it seeks to comprehensively interdict the entire range of suspected targets with the intent of achieving damage limitation. The Indian commitment to delayed retaliation, however, implies that attacking these facilities in the aftermath of absorbing a first strike is tantamount to closing the barn well after the horse has escaped. A doctrine of delayed retaliation effectively makes counterforce strikes anachronistic, and as long as Pakistan has minimal strategic warning, it is likely to rapidly disperse its nuclear forces to their wartime hides so as to frustrate any Indian temptation at launching a counterforce attack. It is important to recognize that India currently has no capabilities whatsoever to detect critical mobile targets and it is unlikely to acquire such detection capabilities for many decades to come—and it will take just as long, if not longer, for India to develop the force architecture that enables it to success-

\[\text{American Strategic Nuclear Capability, 1969-88,}\] pp. 260–261. Even this description does not capture the 7000-odd theater and tactical nuclear warheads that NATO had judged to be essential for successfully interdicting Soviet theater nuclear forces and other military targets.

\[\text{251} \text{Thus, for example, Indian analysts themselves note that attacking a single Pakistani air base with 20-ktof weapons, assuming relatively small circular error probabilities (CEPs) of about 200 meters, would require the use of approximately four nuclear weapons in order to be assured a damage expectancy of 90 percent. See Balachandran,}\] "\text{Nuclear Weaponization in India,}\" p. 44. Based on this calculation, attacks on the 26 Pakistani facilities supposedly capable of handling jet aircraft in 1988—see Eric Arnett, "\text{Conventional Arms Transfers and Nuclear Stability in South Asia,}\" in Eric Arnett (ed.), \text{Nuclear Weapons and Arms Control in South Asia After the Test Ban (Oxford, UK: Oxford University Press, 1998), p. 81—would alone require at least 104 weapons or, equivalently, more than what is believed to be the entire Indian nuclear stockpile today.}\]

\[\text{252} \text{Arnett,}\] "\text{Conventional Arms Transfers and Nuclear Stability in South Asia,}\" p. 84.
fully interdict such targets. Even when it does acquire such capabilities, these will be relatively more useful for attrition in the context of a protracted war than for executing damage-limiting strategies or increasing the effectiveness of Indian retaliation. This latter objective can be fulfilled productively only by countervalue targeting (which does not require a sophisticated C3I system to begin with), and given India’s overriding objective of avoiding nuclear attack, its targeting strategy will focus predominantly on inflicting punishment through strikes on Islamabad’s vital centers even though it will have other marginal options vis-à-vis Pakistan. The strategic objective of any all-out Indian retribution in the case of Pakistan, however—unlike China—would be to simply destroy the state of Pakistan once and for all, as Vijay Nair put it more delicately, “to inflict damage to the extent of degrading that country’s capability of continuing as a socioeconomic entity.”

Since Indian targeting of Pakistan and China, and Pakistani and Chinese targeting of India in return, all ultimately rely on the ability to punish an assailant by holding at risk his most precious and vulnerable societal assets—populations residing in cities—the dominant nuclear strategy in South Asia is likely to remain one of mutual assured vulnerability. This is emphatically true in the case of India, which, by both design and circumstances, is wedded to a strategy of “delayed—but assured—retaliation” emphasizing varying levels of punishment. Whether this punishment is applied proportionately or massively, in graduated form or in a single spasm, will be determined only by the actual circumstances of conflict, even though India’s prewar doctrine is likely to allude to the prospect of massive punishment executed “in one fell swoop telescoping mass and time.”

To be sure, the Indian arsenal is not and never will be large enough to inflict comprehensive societal destruction on China, although it may be able to attain some analog of this outcome against Pakistan. Pakistan, in contrast, may not be able to inflict comprehensive societal destruction on India, although China would certainly be able to

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administer some facsimile of such punishment on India were it to allocate vastly larger numbers of its nuclear assets for this purpose than it presumably does today. The net result is that some version of mutual assured vulnerability, perhaps best described as "MAD Lite," will eventually obtain in the greater South Asian region even if it is not exactly defined in such terms either by India or by its other competitors.

This slow and gradual emergence of pervasive mutual vulnerability—a condition engendered as much by Indian operational policies as by those of its adversaries—not only represents a new strategic situation in Southern Asia but also heralds a transformation in India’s own traditional attitude toward the morality of conflict. As many Indians are proudly wont to point out, “The region has [had] a record of responsibly conducted wars,” since during all previous conflicts in Southern Asia, New Delhi, Islamabad, and Beijing “have displayed enormous restraint in willfully targeting civilians, industry or economic infrastructure, which is more than many in the West have done.” Such claims often overlook the fact that, historically, none of these three contestants ever possessed the technical wherewithal to prosecute such attacks—even on a smaller scale in comparison to, say, the Allied air campaigns over Germany and Japan during the Second World War—in the face of the competing demands made by other war-fighting missions. Nor were these adversaries ever locked into any “absolute” conflicts that required them to pursue war aims involving the kind of destruction that was inflicted, for example, during the Iraqi occupation of Kuwait, the Coalition’s air offensive over Iraq, or the Allied bombing of Serbia over Kosovo. The presence of nuclear weapons in Southern Asia nonetheless promises to alter the traditional restraints with respect to all the just in bello conditions elaborated by just-war theory insofar as New Delhi’s operational strategy (and presumably those of its antagonists) would deliberately kill individuals instead of merely restraining them; attack noncombatants as a direct object of state policy; inflict wanton destruction and great suffering indiscriminately;

and perhaps violate the principles of proportionality depending on the kinds of strategic responses unleashed in the face of an adversary's attack.\textsuperscript{257}

Thoughtful Indians who have confronted this issue have attempted to defang the moral implications inherent in any counter-value targeting strategy by suggesting that India will seek ways to circumvent population attacks and may actually be compelled to do so because of peculiar problems associated with geographical proximity, uncertain meteorological factors, and cross-national kinship ties in the subcontinent.\textsuperscript{258} However valid these arguments may be in the Indo-Pakistani context, they certainly do not carry over to a Sino-Indian conflict. Even so, they are not particularly persuasive because the technical quality and numerical limitations that define India's emerging nuclear capabilities (and Pakistan's, for that matter) leave New Delhi no alternative—for all the reasons described earlier—but to focus resolutely on population targeting as the ultimate guarantee of regional deterrence stability. To be sure, all political entities in Southern Asia could focus on using their nuclear weapons solely for countermilitary targeting in an effort to avoid the many moral conundrums arising from anticity or antipopulation targeting strategies. In India's case, however, such a solution is unlikely to be viewed as particularly efficacious either for bolstering deterrence or for inflicting retribution, and consequently New Delhi will most likely be compelled to emphasize counter-value targeting strategies as part of its retaliatory response in the context of an all-out subcontinental war. Thanks to the presence of nuclear weapons, India will consequently be faced—for the first time—with the burden of planning a military strategy that runs counter probably to its own instincts and certainly to its own history. Not surprisingly, then, a military officer like Sundarji, when addressing the question of the morality of Indian nuclear strategy, could do little more than rationalize its benefits by arguing that "however morally repugnant it might be, there is no choice but to target cities in the hope that these plans would never

\textsuperscript{257}For more on these conditions see James F. Childress, "Just-War Criteria," in Thomas A. Shannon, \textit{War or Peace? The Search for New Answers} (New York: Orbis Books, 1980), pp. 40–58.

\textsuperscript{258}Chellaney, "South Asia's Passage to Nuclear Power," pp. 68–69.
need to be executed.”\textsuperscript{259} In reiterating this argument, he and other Indian security managers, who would argue similarly, clearly indicate that nuclear weapons will cause New Delhi to move away from its own traditional moral preferences and closer to the Western justification, which affirms the permissibility of nuclear threats directed at civilians by arguing, in the words of Michael Novak, that “those who intend to prevent the use of nuclear weapons by maintaining a system of deterrence in readiness for use do intend to use such weapons, but only in order not to use them, and do threaten to use them, but only in order to deter their use.”\textsuperscript{260}

When all is said and done, however, it is important to recognize that the countervalue targeting doctrine described above refers only to the peacetime preferences of policymakers in New Delhi. What exactly may occur under conditions of deterrence breakdown is anyone’s guess. As James Schlesinger once noted, “Doctrines control the minds of men only in periods of non-emergency. They do not necessarily control the minds of men during periods of emergency. In the moment of truth, when the possibility of major devastation occurs, one is likely to discover sudden changes in doctrine.”\textsuperscript{261} It should not be surprising, therefore, to find that under conditions of actual war, Indian policymakers may behave quite differently than their prewar doctrines suggest. In all likelihood, though, such deviation would occur in the direction of reducing the quantum of punishment applied initially, not increasing it—particularly if New Delhi were to suffer a less-than-all-out attack at the hands of a superior power. Even if discrete attacks were to be undertaken by a weaker power like Pakistan, it is not at all clear whether India would in fact respond

\textsuperscript{259}Sundarji, “Changing Military Equations in Asia: The Role of Nuclear Weapons,” p. 136.


“massively” so long as the constraining conditions described earlier continue to hold. On those rare occasions where they might actually choose to address such matters, however, Indian policymakers will most likely continue to harp on the prospect of massive punishment whenever delivered. This declamatory position is logical given India’s strong desire to prevent any breach of the existing breakwaters that restrain nuclear weapon use.\textsuperscript{262}

As their nuclear arsenal matures over time, however, Indian policymakers—like their U.S. counterparts during the Cold War—will most likely formally develop some modest options that seek to preserve targeting flexibility. These options will not take the same form as they did in the case of the United States, where enormous resources were poured into developing varied Selective, Limited, and Regional Nuclear Options, together with gigantic investments in strategic connectivity, designed for the conduct of a protracted nuclear war.\textsuperscript{263} Targeting flexibility in India’s case will most likely involve the ability to execute discrete, possibly graduated responses that allow for something other than immediate anticity targeting so that Indian security managers will have options that enable them to equalize damage if need be while simultaneously signaling their resolve to escalate to even higher levels of violence in order to bring about a rapid termination of conflict.\textsuperscript{264}

This does not imply the need for any specialized tactical weapons, however, and Jaswant Singh in particular has explicitly ruled out the acquisition of all such devices by asserting, “Regarding tactical nuclear weapons, let me remind you that we do not see nuclear

\textsuperscript{262} For a good survey of Indian views on this issue, see Kanwal, “Nuclear Targeting Philosophy for India,” pp. 459–473.


weapons as weapons of warfighting." Therefore, if India finally ends up possessing some "tactical" weapons, they will be owed more to the emerging pressures of bureaucratic politics and to the determination of India's "strategic enclaves" to prove their worth than to any coherent national strategy demanding such devices as necessary to sustain a strategy of proportionate retaliation. What is in fact more likely is that if India sought to respond to a limited attack proportionately, it would seek to use its existing fission weapons in controlled but operationally creative ways with the intention of forcing speedy war termination. Jasjit Singh corroborated this when he argued that specialized tactical weapons are unnecessary for India because "in reality, it is the effect of the use of [nuclear] weapons that must determine the definition of whether they are tactical or strategic." Sundarji addressed this problem as well by noting that even if a limited nuclear attack does occur at a tactical level, India's standard fission devices of 10- to 20-kiloton yield would suffice for a limited counterresponse: As he framed the issue, if deterrence fails because an adversary has used its weapons in a limited way to secure either some symbolic or battlefield advantages, "the second strike [may] not be on tactical point targets but on tactical area targets that abound in the combat zone. Most of these are optimally attacked by weapons of yields of 10-20 kts fired as low air bursts (producing hardly any fallout). Hence, there is no need to produce unique tactical nuclear weapons." What is most significant about Singh's and Sundarji's position, in the final analysis, is that even at the tactical level the philosophy is not nuclear war fighting in the event of nuclear deterrence breakdown but rather the application of that minimal level of force—using only the standard weapons already possessed by New Delhi—to permit a restoration of the prior condition of nuclear deterrence leading up to conflict termination. As Sundarji phrased it simply, "at the tactical level also, the philosophy is nuclear deterrence."

265 "India Not to Engage in a N-Arms Race: Jaswant."
On balance, therefore, these arguments suggest that if restricted Indian retaliatory responses are required in the face of limited attacks for purposes of enforcing intrawar deterrence, Indian policymakers could find appropriate solutions within the constraints of their existing nuclear inventory. And since the possibility of limited attacks on India cannot be ruled out—these kinds of attacks being, in fact, the most probable, according to Indian readings of the threat—\textsuperscript{269} it is likely that New Delhi will formalize a variety of strategic plans over time that enable it to respond proportionately both to maintain the credibility of its retaliatory threats—"the power to hurt [which] is most successful when held in reserve"\textsuperscript{270}—and to minimize the extent of damage India could suffer in the event that deterrence breaks down. Even as they develop such solutions in private, however, Indian policymakers will strive to avoid conveying any impression that they are contemplating nuclear war-fighting strategies involving the discrete use of their strategic weaponry. Thus, the mental images underlying all their public discussions will continue to insinuate that any nuclear use against India would invoke massive and catastrophic counterattacks, irrespective of when they were delivered. This emphasis on large-scale retaliation in the face of any nuclear attack, reminiscent of French nuclear doctrine during the Cold War, is obviously designed primarily to shore up deterrence and avert the prospect that India will fall victim to any kind of nuclear threat. While such an emphasis is understandable, it is unlikely to be useful in the context of deterrence breakdown that results in any actual nuclear use—especially low levels of use—by a superior or an equal adversary.\textsuperscript{271}

In such circumstances, New Delhi's primary objective may consist of inflicting retribution, but this objective will have to be balanced against what it takes to achieve speedy war termination at minimal cost to India. This issue will certainly remain most relevant vis-à-vis


\textsuperscript{270} Schelling, \textit{Arms and Influence}, p. 3.

\textsuperscript{271} K. Subrahmanyam, in fact, argues that limited attacks alone remain the only serious possibilities that India ought to plan for and contend against. See Subrahmanyam, "A Credible Deterrent." See also Singh, "Why Nuclear Weapons?" and Singh, "A Nuclear Strategy for India," pp. 9–25 and 309–324.
China but will rapidly become relevant vis-à-vis Pakistan as well, as Islamabad continues to accumulate the nuclear weapons required to comprehensively target more and more Indian urban centers deep within the subcontinental landmass. In such circumstances, responding to limited nuclear attacks with “massive retaliation” will only precipitate strategically meaningless forms of mutual devastation. Given these considerations, it is reasonable to expect that India’s nuclear doctrine will eventually incorporate something akin to a “countervalue plus” targeting orientation that still presupposes mutual assured vulnerability at bottom but integrates the capacity for more flexible responses in order to ensure that punishment, whenever inflicted, can be proportionate and lead eventually to speedy conflict termination at the most minimal cost to India. This capability obviously inheres in India’s nuclear reserves even today, but it will only become more salient in the country’s strategic planning as India’s nuclear doctrine and force structure mature over time.

FASHIONING A DETERRENT: THE LOGIC AND STRUCTURE OF THE EVOLVING FORCE-IN-BEING

The character of India’s nuclear doctrine, explored in the last section, clearly suggests why the traditional alternative of “maintaining the option”—Alternative III described in Chapter Three—cannot be a destination to which New Delhi will return in the aftermath of its May 1998 tests. This alternative, by eschewing the development of an arsenal of any sort, simply renders the doctrine elaborated above irrelevant and consequently will not be pursued, since New Delhi has already determined that a real nuclear capability is essential for its security. Alternative IV—the “recessed deterrent”—will be rejected as well, since its emphasis on supporting capabilities to the exclusion of producing nuclear weapons and delivery systems prevents the development of those critical components that India’s larger doctrine requires. In contrast, Alternative V—a “robust and ready arsenal”—clearly enables New Delhi to pursue the strategy encoded by its nuclear doctrine but, by being too expensive, violating its desire for strict civilian control, and possibly being subversive of crisis stability, represents a posture that is much too extravagant to suit India’s deterrence needs.
The idea of a nuclear “force-in-being”\textsuperscript{272} as a middling option between Alternatives IV and V—illustrated in Figure 3—is therefore particularly attractive to New Delhi because it bequeaths to India a deterrent capability against strategic coercion and blackmail without all the attendant problems of exorbitant cost and diluted civilian control. These advantages accrue directly from the character of a nuclear arsenal maintained as a force-in-being: The weapons and delivery systems are developed and produced, with key subcomponents maintained under civilian custody, but these assets as a whole 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.

This distributed posture can be maintained indefinitely, with the various parts never reconstituted to form a true war-fighting force except in the aftermath of a nuclear attack against India. This specific posture, exemplifying the “base case” that defines the routine disposition of India’s nuclear assets, allows for several variations that will be discussed in greater detail later. But the key idea encompassed by the notion of a force-in-being is that the entire “arsenal,” understood as the sum of its component parts, functions as a strategic reserve that is neither fully visible nor operationally ready habitually yet is nonetheless present and available for employment—after some preparation—when strategic necessity so dictates. Such a force, by definition, will not be maintained regularly on high levels of alert. Indeed, it may hardly ever be reconstituted in peacetime in its entirety except for purposes of an exercise, and when such activity occurs, it would in all probability take place without any notice or fanfare un-

\textsuperscript{272}The phrase “force-in-being” occurs in passing and only once in Nair, Nuclear India, p. 96, but the concept is not developed and has no analytical significance in his work. The concept of the force-in-being elaborated here, however, is compatible with many of Nair’s ideas and comports broadly with the notions of deterrence sufficiency held by most of the “pragmatists” in the Indian strategic debate, whence it has migrated into the official depiction of India’s nuclear posture as elaborated both in public statements and in high-level talks carried out with the United States.
less it is consciously intended to be an effort at "deliberate capability revelation."\textsuperscript{273}

Its key distinguishing characteristic, therefore, is quiescence at the operational level—which does not, however, translate into inactivity at the strategic level of politics. A force-in-being is indeed highly active at the grand strategic levels of diplomacy and political choice, but this activity is manifested not so much by its tempo as by its effects. Its very existence as a potentially complete—but dormant—capability serves as a deterrent to possible adventurism by an adversary: It constantly hovers in an adversary’s consciousness, commands its attention, keeps it at bay, and prevents it from attempting anything that would result in risk and hazard to itself while constantly obliging it to think of nothing but being on guard against the terrible attack that would follow in retaliation against any of its provocations.\textsuperscript{274}

The nuclear force-in-being is therefore a deterrent whose effectiveness derives from its ability to be constituted into a viable retaliatory instrument under conditions of supreme emergency—usually, but not invariably, understood to mean after a nuclear attack on India has occurred. And because it is recognized that such reconstitution could occur in hours to days rather than in months to years—and would embody fairly unacceptable levels of destruction relative to the political goals sought to be secured by force—it can serve to deny even stronger or more ready adversaries the freedom to exploit the fruits of their nuclear threats or use. A robust and ready arsenal would obviously achieve these goals just as effectively as a force-in-being, but it would do so at a much higher cost to India. A recessed deterrent, in contrast, would be highly inadequate because the time required to generate the retaliatory response could take months or perhaps even years and, as such, would allow a potential adversary to discount the penalties of long-postponed retaliation and embark on a course of action that promised to yield relatively painless rewards in the near term. A nuclear force-in-being strikes a convenient mid-

\textsuperscript{273} For more on this, see Kevin N. Lewis, \textit{Getting More Deterrence Out of Deliberate Capability Revelation}, N-2873-AF (Santa Monica: RAND, 1989).

dle ground: It avoids interminable delays in retribution, thus solving the "discounting problem" associated with a recessed deterrent, while escaping all the financial costs and political burdens that arise from the demand for prompt punishment, which necessarily requires a robust and ready arsenal.

Not surprisingly, a deterrence posture modeled on the notion of a force-in-being also seems to function as the template governing the disposition of other Indian strategic assets. Two examples are particularly relevant here for the light they shed on the problem of how India’s nuclear forces are deployed today and how they would be deployed in the future. The first example pertains to the manner in which New Delhi acquired and deployed its chemical weaponry. India covertly pursued a large chemical weapon research, development, and production program for almost two decades prior to the conclusion of the CWC, which banned all such weapons universally. Although this effort was tracked by the American intelligence community and was even identified by knowledgeable public sources in the United States, the Indian government consistently denied the existence of a chemical weapon program in the early years of the negotiations leading up to the CWC. The research, development,

\[275\] The discounting problem arises as a result of the belief that because rational actors prefer benefits in the present rather than in the future, they are more likely to choose courses of action that generate benefits "today" if the costs of such actions can be deferred until "tomorrow." This process of "discounting" future costs or penalties often lies at the root of many pathologies of rationality, and any good deterrence strategy has to find ways of minimizing these discounted future costs if it is to be effective in the present. For more on the discounting problem at a theoretical level, see Robert Sugden and Alan Williams, The Principles of Practical Cost-Benefit Analysis (Oxford, UK: Oxford University Press, 1978).


\[278\] The Federation of American Scientists notes that "when the Third UN Disarmament Conference, held in 1986, decided that the next logical step in the disarmament process would be measures to halt production of chemical weapons, Indian diplomats responded by claiming that India had no chemical weapons. Foreign Minister K. Natwar Singh repeated this claim in 1989 in the Paris Conference of the State Parties to the Geneva Protocol of 1925, as did Minister of State Eduardo Faleiro . . . at the January 1993 Paris Conference CWC signing ceremony." See "India: Chemical Weapons," available at http://www.fas.org/nuke/guide/india/cw/, which remains the best summary description of India’s chemical weapon program.
and production activities associated with this effort were conducted exclusively at civilian facilities owned and operated by the DRDO, and one Indian source has identified the Defence Research Development Establishment (DRDE) in Gwalior as the principal center for “research on physical and medical protection against chemical weapons.”\textsuperscript{279} The Indian military, which presumably would have been the end user of these weapons in an emergency, was largely in the dark about the character and the extent of these capabilities and was never tasked with the obligation of integrating these weapons into existing contingency plans. This led one serving officer to erroneously conclude in 1989 that “India has very patently no chemical warfare capability and no design whatsoever to acquire such weapons.”\textsuperscript{280} In any event, instead of being distributed to the end users in peacetime, India’s chemical weapons—which included artillery shells—were treated as strategic national assets, maintained completely under the control of the civilian Ministry of Defence and intended for transfer to the uniformed military only when its security managers in New Delhi determined that these weapons were to be used as part of a retaliatory response in the aftermath of a chemical attack on India.\textsuperscript{281}

Since the defense services had neither the information nor the control or custody of these weapons, they could not be used in the conduct of routine military operations. Their use was reserved instead for retaliatory purposes only, and the necessity and circumstances of such use were to be determined solely by India’s civilian security managers at the highest reaches of the government. It is most likely that New Delhi’s chemical weapon program would never have become public knowledge had it not been for India’s accession to the CWC. As part of the ratification process institutionalized by this convention, India was required to identify its chemical weapon production facilities and storage sites, and only when it did so did information about New Delhi’s chemical capabilities become news.

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both to the rank and file of India’s military and to the country at large.²⁸²

The Indian government’s handling of its chemical weaponry illustrates the kind of response that is likely to mark its handling of the nuclear arsenal as well. Obviously, there are important differences with respect to the latter: Here, the quest for a deterrent of some sort and the fact that India is already known to possess nuclear weapons in some form are extremely relevant. In contrast, India’s desire for and ownership of chemical weapons was a state secret unknown to all but a few in India and in the United States. Consequently, India’s chemical weaponry could not serve as a force-in-being in the same way that its nuclear weapons actually will in the future. This critical difference, however, should not be allowed to obscure the important similarities that the two cases share, especially with respect to New Delhi’s continuing determination to provide minimal information about its capabilities while exercising maximal control over its weaponry. The example of India’s chemical weapon program in fact remains a good baseline for describing India’s future approach to and control over its nuclear force-in-being, for as one Indian commentator noted, it makes “the telling point that notwithstanding the deception, which was in any case in the national interest, the declared possession of chemical weapons will be a deterrent to those who think India’s posture on such issues is all a bluff. No one, least of all the prime minister, wants to talk about nuclear weapons. But the implications are obvious.”²⁸³

Another example that is relevant to understanding how India’s nuclear force-in-being may eventually be configured derives from its handling of its SRBMs, notably the land-based versions of the Prithvi. The Prithvi SRBM is intended to be a conventional deep attack system that will eventually be available in three different range variants with five alternative types of conventional warheads.²⁸⁴ Although these systems were originally envisaged to be mere corps-level assets

²⁸³Ibid.
²⁸⁴The history of the Prithvi program is recounted in Sidhu, The Development of an Indian Nuclear Doctrine Since 1980, pp. 246–268.
similar to the Advanced Tactical Missile (ATACM) system deployed by the U.S. Army, fears about the Prithvi’s nuclear potential, raised by both Pakistan and the United States, led India to treat its Prithvi force as if it were a strategic asset held in inert reserve. The Indian Army’s missile inventory, for example, is not deployed in the accepted sense of the term—that is, maintained by its controlling units in their designated area of operation. The unit slated to operate the missiles, the 333rd Missile Group, is in fact based in Secunderabad in South India, far from its wartime operating location, while the missiles themselves are secured in storage bunkers—unfueled—close to the Indo-Pakistani border. This separation of the operating units from their weaponry—and the storage of the weapons themselves in dormant status—creates together a force-in-being. This missile force is certainly not ready for prompt operations: The operating unit would require a few days to arrive at the front line from its peacetime locations in southern India, and many hours would then be needed to recover the weapons from storage, mate them with the launch equipment, test the reconstituted systems, and disperse to various presurveyed firing locations, followed by a few more hours to fuel the missiles and actually launch them. The Prithvi force therefore remains a good example of a weapon system held in operational reserve. Even as it exists in a dormant state, however, the missiles are strategically active in that they serve as visible, recognized reminders of India’s capability to inflict punishment and, to that degree, presumably contribute to maintaining stable deterrence in South Asia.

Both the chemical weapon program and the Prithvi SRBM force highlight two separate but related characteristics of the future Indian nuclear force-in-being. The former example suggests that the nuclear arsenal will be highly opaque, with great deception, denial, conceal-

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ment, and mobility used to hide the location of critical assets like weapons, delivery systems, assembly sites, and wartime command posts. Information about all the details pertaining to these assets will be hidden from most, including the rank and file of the Indian military, whose senior officers will be told primarily what they need to know in order to develop contingency plans relating to retaliation in the aftermath of a nuclear attack. In this context, the leadership and the senior staff of the new unified command—which may be created to oversee the delivery systems earmarked for nuclear missions—and the senior leadership of the three Indian armed services (together with their staffs) would be the most likely agents entrusted with the information necessary to plan the conduct of nuclear operations. The latter example suggests that the nuclear arsenal will be distributed with weapons, and possibly even parts of weapons, kept separate both from one another and from the delivery systems. While the delivery vehicles will remain in military custody because they are war-fighting instruments per se, their final organizational disposition is as yet unclear. The delivery vehicles may be routinely maintained by their parent services and earmarked for reallocation to the prospective unified command in the event of deterrence breakdown, or, albeit less probably, they may be sequestered, maintained, and deployed routinely by the new command that may be created to oversee India’s strategic assets. The resolution of this issue will no doubt be conditioned substantially by the kinds of delivery systems in question: Dual-capable aircraft of the sort currently in the Indian inventory will likely be retained by the Indian Air Force both in peacetime and in war, with some units earmarked for allocation to the unified command in the event that nuclear operations become necessary. In contrast, the dedicated nuclear missile systems of the sort not yet present in the Indian inventory are likely to be procured and routinely maintained by the new unified command for use in the event of a nuclear deterrence breakdown. Irrespective of which organizational model is followed in the details, India’s dedicated nuclear delivery systems are in general likely to be deployed primarily in standby condition (except for combat aircraft, which, almost by definition, are dual-capable systems) at locations that will be neither openly acknowledged nor perhaps close to the borders with Pakistan and China. Only when these systems are required in moments of supreme emergency would the various component parts of the deterrent writ large be brought together, integrated, and formally
released to the end user—the uniformed military—with the objective of executing the acts of vengeance demanded by India’s retaliatory response.288

Both of these examples therefore serve to limn the future shape of India’s nuclear deterrent, which may be summarily described as a force-in-being that will be limited in size, separated in disposition, and centralized in control. Each of these variables will be analyzed further in some detail. Before that investigation is undertaken, however, one important inference ought to be underscored. The Indian decision to develop a force-in-being implies that New Delhi’s post-1998 nuclear posture—despite all the contrary rhetoric and expectations aired in New Delhi, Islamabad, and elsewhere in the world—will not be radically different from that which has been in place since 1992–1994. The biggest difference, of course, is that India today is a declared nuclear weapon power, and as such its national leadership can openly discuss its nuclear capabilities both in Parliament and with external interlocutors if they so choose. The myriad research-and-development efforts pertaining to India’s emerging nuclear capabilities can also be carried out without the pervasive subterfuge of the past, and planning for strategic nuclear operations (including completing the organizational changes mandated by these efforts) can similarly be pursued far more systematically and without hesitation, embarrassment, or dissembling. Although these differences are not trivial, they will for all practical purposes define the outer limits of change that are likely to become manifest with India’s new declaration of nuclear status. On all other matters, however, the continuities between India’s post-1992–1994 variant of “maintaining the option” and its post-1998 posture of developing a force-in-being will be far greater and much more significant than most public commentators in India, Pakistan, and the United States often seem to recognize.

Limited in Size

All Indian discussions about their future force posture uniformly emphasize one element: that the desired nuclear deterrent will be

limited in size. Prime Minister Atal Bihari Vajpayee, using language that is by now fairly common among the country’s strategic community, authoritatively staked out this position in Parliament when he asserted that India would not seek more than a “minimum, but credible, nuclear deterrent.” A senior government official, believed to be National Security Adviser Brajesh Mishra, elaborated on this location by observing that a minimum deterrent implied “a defensive orientation for India’s nuclear forces and a commitment to avoid a nuclear arms race.” Leading strategic analysts have amplified this leitmotif, with K. Subrahmanyam, for example, arguing that India is now “in a position to avoid all the disastrous mistakes of the nuclear theologians and to think through [its] own strategy in the light of recent nuclear strategic wisdom.” This strategy, he avers, is centered “on minimum deterrence combined with no-first use.” Jasjit Singh, corroborating this argument, has asserted that “even in the worst case scenario, the maximum capability that India would ever need is that of minimum deterrence. There is, thus, virtually no risk of an open-ended arms race in the subcontinent.”

Very rarely, some commentators have given vent to dissenting views on this question. Brigadier V. P. Naib, for example, asserted that

Security depends upon assuming the worst possible case and developing the ability to cope with it. We must be able to absorb the total weight of a nuclear attack on our nuclear stockpiles and installations, on our air ground and naval capacity to make war, our vital industrial complexes, oil installations, on our cities and on our people. We can only do this by having in readiness a reliable ability to inflict unacceptable damage at any time during the strategic exchange, or as Mr. McNamara termed it, “an assured destruction capability.” This is the true meaning of deterrence, and it cannot be achieved by the so-called minimum deterrence nor by the govern-

291 Subrahmanyam, “Educate India in Nuclear Strategy.”
292 Ibid.
293 Singh, “South Asian Nuclear Scene.”
ment’s bland assurances that “it will be able to retaliate at short notice, when the need arises” [italics added].

In a similar vein, one of India’s most prominent civilian hawks, Bharat Karnad, chastised the Indian government for pursuing “policy constructs found in the ‘lamplight’ of ‘minimum deterrence’ [when] other, more effective, solutions lie shimmering in the broad ‘daylight’ of deterrence history.” These more effective solutions are personified by what Karnad calls a “maximally strategic” deterrence posture built around multiple kinds of high-yield nuclear weapons and numerous diverse delivery systems that, taken together, would create the “full and robust deterrent” deemed essential for the success of India’s national purpose.

Such arguments, however, constitute the outer limits of the Indian strategic debate and do not appear to command a strong following among the civilian leadership at the political and the bureaucratic levels, the higher leadership of the armed services, or the more numerous retired service officers who have written on this subject. Among this last group, a more typical example is represented by Major General (retired) Ashok Mehta, who noted that “minimum deterrence and an NFU [no-first-use] policy allow for the maintenance of a limited nuclear arsenal—warheads and delivery systems—and a small, not-too-elaborate command and control structure. This makes the strategic deterrent affordable and prevents a nuclear arms race.” In a similar but even more relaxed vein, former Indian Chief of Army Staff General V. P. Malik seemed to suggest that India’s May 1998 nuclear tests themselves functioned as some sort of limited deterrent, since they demonstrated the country’s nuclear weapon capability and in so doing “had fulfilled a long-standing demand of the armed forces.”

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296 Ibid., p. 135.
297 Ibid., p. 133.
While the general consensus in India, both among civilian commentators and within the armed services, thus seems to converge on the desirability of a “minimum deterrent,” it is not surprising to find that Indian “defence experts . . . seem to be divided over . . . what constitutes a minimum deterrent.”³⁰⁰ This should not be startling because the concept of minimum deterrence—having been borrowed from Western debates on the subject—has been controversial from the very beginning of its history. The simplest conceptions of minimum deterrence have defined it as a “nuclear strategy in which a nation (or nations) maintains the minimum number of nuclear weapons necessary to inflict unacceptable damage on its adversary even after it has suffered a nuclear attack.”³⁰¹ Intuitively, this definition suggests that such a nuclear force would be oriented toward countervalue targeting, since the small number of weapons presumably implied by the qualifier “minimum” ultimately requires “city-busting” strategies if the necessity for “unacceptable damage” is to be adequately satisfied. This predicate of minimum deterrence, however, left many theorists dissatisfied on both moral and prudential grounds, and consequently a number of alternatives ranging from “finite counterforce” to “limited nuclear options” were advanced to allow for the possibility of limiting damage and controlling escalation if deterrence were ever to fail.³⁰² Each of these alternatives, however, brought new problems in their wake, none of which was satisfactorily resolved during the Cold War. Not surprisingly, then, the notion of “minimum deterrence,” defined as “a secure second-strike force of sufficient size to make threats of AD [assured destruction] credible,”³⁰³ came to be seen more as an ideal type that was valuable because it provided an eidos that contrasted strongly with its polar opposite, “maximum deterrence,” which, defined as a posture


“capable of fighting, and in some sense winning, nuclear wars across a spectrum of contingencies,”\(^{304}\) was thought to better define the orientation of both U.S. and Soviet nuclear forces during the high point of superpower competition.

Since the notion of minimum deterrence did not (and could not) define any unique force size or structure, it was compatible with numerous nuclear architectures ranging from a few dozen warheads through a few hundred to perhaps even a few thousand weapons, all depending on the strength, resilience, and risk-taking propensities of the adversary. Irrespective of the number of weapons deemed to be dictated by this conception, however, what was most conspicuous about Western views on minimum deterrence was the unifying belief that “the main challenge [was how] to achieve [stability] at lower nuclear force levels,”\(^{305}\) since managing the system of nuclear deterrence remained the key concern of high politics, particularly among the great powers. The specific problem, then, consisted of appreciating the limits of “successive build-down”\(^{306}\)—in other words, the floor beyond which progressively deeper cuts in the number of nuclear weapons could not be safely undertaken because there was an “expectation of a critical threshold below which strategic stability would be uncertain.”\(^{307}\) In contrast to such Western concerns, the Indian approach toward minimum deterrence involves the opposite problem. Although most Indian strategists would readily admit, in the words of Uday Bhaskar, that minimum deterrence is a “relative term” and that “every country has to have its own minimum deterrent based on an empirical analysis of [the] regional strategic scenario and the enemy’s potential,”\(^{308}\) the specific challenge facing New Delhi today is that of a build-up—not a drawdown—of its nuclear forces, given that its strategic deterrent hitherto has been largely latent, symbolic, and nominal. This challenge of finding an appropriate ceiling to bound India’s nuclear capabilities, however, generates a question similar to that engendered by the Western de-

\(^{304}\)Ibid., p. 194.  
\(^{305}\)Karp, in Sur (ed.), *Nuclear Deterrence: Problems and Perspectives in the 1990s*, p. 122.  
\(^{306}\)Ibid., p. 123.  
\(^{307}\)Ibid.  
\(^{308}\)India: Defense Experts Differ on Nuclear Deterrence.
bated—namely, how much is enough for purposes of both deterrence and stability.

This question exercised Western strategists greatly during the Cold War, and a variety of sophisticated analytical techniques were developed in efforts to satisfactorily address it. And while a consensus solution proved elusive despite these labors, at least the framework governing the solution became clear: The number of nuclear weapons deemed to be sufficient was seen to be a complex function of the type, yield, and reliability of the weapons themselves and the number of targets needed to be held at risk, with this last variable being affected in turn by the number, types, and reliability of the weapons the adversary possessed and the nuclear strategy it was expected to pursue. Because U.S. and Soviet nuclear strategy quickly took a turn in the direction of war fighting, the requirements of sufficiency came to be steadily defined by the challenges of counterforce and countermilitary targeting, and the various debates that followed about the “bomber gap,” the “missile gap,” and “ICBM vulnerability” have now become part of Cold War lore. Although Indian nuclear strategy will not be similarly saddled by the need to accommodate constantly changing counterforce and countermilitary requirements, it will still have to address the central problem pertaining to the relationship between the number of weapons possessed or sought to be procured by India and the number of adversary targets these weapons are expected to interdict. This relationship will in turn be critically influenced by the yields of India’s nuclear weapon designs, the expected reliability and survivability of the deterrent force as a whole, and the damage criteria sought to be satisfied with respect to the designated target.

309 The history of this search to define nuclear sufficiency, together with a review of all the intellectual innovations it produced, is reviewed in Fred Kaplan, The Wizards of Armageddon (New York: Simon and Schuster, 1983).

set. This last variable, by itself, can dramatically alter the terms of "minimum deterrence" because for any given reliability and yield combination—particularly at the lower end—the number of nuclear weapons required, for example, to physically obliterate a city could be very different from, say, attempting to destroy that city as a functioning entity or, to take the simplest objective, simply seeking to kill large numbers of people in the shortest possible time frame. The requirements of sufficiency, even as far as relatively simple nuclear strategies centered on countervalue targeting are concerned, thus turn out to be inordinately contingent not only on the technical characteristics of one's own nuclear forces and those of the adversary but also on the precise operational objectives these forces are expected to service in the event of deterrence breakdown.\footnote{The failure to accommodate the distinctions relating to operational objectives often results in analyses reaching opposite conclusions. Thus, for example, Jordan Seng argues that minor nuclear powers will invariably be satisfied with modest nuclear arsenals—less than 100 20-kiloton weapons—because it is assumed that maximizing population casualties will suffice as the goal of any countervalue targeting strategy. G. Balachandran, in contrast, concludes that India, for example, would require more than 800 20-kiloton weapons to interdict a small set of some 24 assorted targets because it is presumed, \textit{inter alia}, that stable deterrence in this instance requires the physical obliteration of each of these targets. See Jordan Seng, \textit{Strategy for Pandora's Children: Stable Nuclear Proliferation Among Minor States}, unpublished doctoral dissertation, University of Chicago, 1998, pp. 1–104, and Balachandran, "Nuclear Weaponization in India," pp. 42–47.}
that Indian policymakers believe is important for successful deterrence among weaker powers—and consequently they have shied away from providing any authoritative indication about the numbers and types of weapons predicated by their vision of “minimum, but credible, deterrence.” Thus, while the upper and lower bounds of India’s strategic requirements are unknown, what is clear is that New Delhi believes that successful deterrence “is not dependent on matching weapon to weapon, but [rather hinges] on the ability to retaliate with a residual capability.”\textsuperscript{312} Indian Prime Minister Vajpayee, when faced with insistent U.S. demands that India quantify its minimum deterrent, in fact carried this otherwise sensible notion to an extreme by stating in Parliament that minimum deterrence “is not a question of numbers”\textsuperscript{313} but represents instead a force posture that “implies [the] deployment of [nuclear] assets in a manner that ensures survivability and [the] capacity [for] an adequate response.”\textsuperscript{314}

This position is obviously borrowed from the writings of K. Subrahmanyam, who had earlier argued, also in response to U.S. demands for a quantification of India’s deterrent, that both

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  \item those against India being a nuclear weapon state and those conditioned by U.S. nuclear strategic theology…raise the question of what minimum nuclear deterrent the Indian Government has adopted as its declaratory policy. [This] is an arcane question and cannot be answered in precise numerical terms like 30, 300, 3,000 or 30,000. The very idea that there must be a precise numerical value to the deterrent arsenal is part of the sedulously fostered nuclear theology of former U.S. defence secretary Robert McNamara, who has now abjured it. However, his legacy lives on…. Minimum deterrence is not a numerical definition but a strategic approach. If a country is in a position to have a survivable arsenal, which is seen as capable of exacting an unacceptable penalty in retaliation, it has a minimum deterrence [as] opposed to an open-ended one aimed at
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\textsuperscript{312}Singh, “Nukes Have No Prestige Value.”


\textsuperscript{314}“Deterrence to Be Evaluated Time to Time: Govt,” \textit{Economic Times}, December 17, 1998.
matching the adversary's arsenals in numerical terms [italics added]. 315

This notion that minimum deterrence is a strategic approach and hence beyond quantification has been criticized vehemently by other Indian analysts, who note that "for deterrence to be credible, it has, ultimately to be based on numbers." 316 Any other conception is "even worse than it looks. This is not deterrence, but a joke." 317

Such criticisms overlook the subtlety of the official Indian position, which is based on Subrahmanyan’s writings. Clearly, both Subrahmanyan and India’s security managers amply recognize that deterrence, in the final analysis, is about numbers: the number of weapons that India possesses, the number of weapons that can survive a first strike, the numbers of weapons that could be successfully carried to and detonated on target, and the number of weapons required to wreak unacceptable damage on an adversary who threatens Indian security. All these facts are readily understood by policymakers in New Delhi. Therefore, what the policymakers are attempting to suggest through their claims that deterrence is not about numbers is merely that the number of nuclear weapons judged to be essential to Indian security is not something they are willing to disclose to their own body politic, to their adversaries, or to any other interested interlocutors, including the United States. In part, this response is influenced by the fact that Indian policymakers cannot be certain today what their eventual stockpile of fissile materials and the quality of their future nuclear weapon designs—the two crucial variables that will determine the size of the Indian deterrent—will be. The accumulation of fissile materials could, for example, be constrained by technical failures or by continued inefficiency within the Indian nuclear estate as well as by changes in the international nuclear regime—primarily those relating to the obligations that may be imposed on India by the successful conclusion of an FMCT in the fu-

316 Sibal, “Toy Gun Security: Flaws in India’s Nuclear Deterrence.”
317 Ibid.
The quality of India’s future nuclear weapon designs and the amount of fissile materials these designs require may also change dramatically if India were to resume nuclear testing at some point or, more remotely, if its weapon designers were to make the risky switch from their basic fission design to some other kind of device without benefit of further hot testing. All these contingencies imply that India’s security managers today simply cannot be confident about what their nuclear weapon inventory will look like a decade or so from now, and even though they probably have a good idea where they would prefer to end up, they are unlikely to reveal this information—for reasons relating both to the exigencies of public diplomacy and to the requirements of deterrence stability—to anyone who might have the temerity to ask.

Indeed, even when sorely pressed on this question, Indian policymakers have traditionally responded in a very bland and uninformative fashion, stressing that their “approach is not expansive or aggressive” and that it would be limited to acquiring “the means to deter present and future threats.” In their public statements, they have continued to emphasize that the relative number of nuclear weapons India possesses vis-à-vis its adversaries is less important than the fact that even a few surviving weapons would cause more pain than any of the objectives sought by the latter is worth. In some instances, going even further, they have explicitly affirmed that India is in fact content to accept nuclear inferiority vis-à-vis China, in terms of both numbers and qualitative capability because such inferiority in no way prejudices their ability to preserve India’s security and autonomy. Whether a similar position would be maintained vis-à-vis Pakistan is unclear despite Jaswant Singh’s insistence that “the question of an arsenal larger than that of country X or Y [is] a

\[\text{318} \text{For a general survey of what the FMCT obligations might entail, see Frank N. von Hippel, "The FMCT and Cuts in Fissile Material Stockpiles," Disarmament Forum, 2 (1999), pp. 35-44.}\]

\[\text{319} \text{The relationship between weapon designs and fissile-material stockpiles is examined in Balachandran, "Nuclear Weaponization in India," pp. 42-47.}\]

\[\text{320} \text{"Deterrence to Be Evaluated Time to Time: Govt."}\]

\[\text{321} \text{Joshi, "India Must Have Survivable N-Arsenal."}\]
non-question." This issue does not seem to have received much attention in New Delhi because it is presumed that India already possesses nuclear superiority over Pakistan in both number and qualitative capability—and even if this is untrue by some criteria today, it remains almost an article of faith among Indian policymakers that India will enjoy such superiority over Pakistan eventually.

Whether New Delhi’s position on the irrelevance of nuclear superiority would change if Pakistan gained nuclear superiority in the future is therefore an interesting question, but one that cannot be answered with any certainty today. The only thing worth stating on this matter is that Indian security managers have always believed that New Delhi’s strategic preeminence vis-à-vis Islamabad was not simply a fact of life but an operating condition that had to be assiduously maintained because of their view of Pakistan as a risk-acceptant, if not an irresponsible, state. This view was most clearly articulated by Indian Defence Minister George Fernandes when he argued that “Pakistan is an irresponsible country ... [that] has lost ... three conflicts with India, and in case of a fourth conflict, [it] could be tempted to push the nuclear button.” Given such views, India’s security managers have gone to great lengths—especially in their discussions with the United States—to implicitly justify their supposed nuclear superiority over Pakistan by asserting that a view of these capabilities which pushed them “below [their] security requirements and limit[ed] them to a purely Indo-Pak context is unacceptable.”

On the assumption that India continues to enjoy nuclear superiority over Pakistan even as it remains inferior to China by many comparable measures, New Delhi has therefore repeatedly affirmed that the very notions of superiority and inferiority are politically irrelevant so long as the residual capability to devastate a certain fraction of the adversary’s assets always remains inviolate even amid the carnage of

322“India Not to Engage in a N-Arms Race: Jaswant.”
324Mohan, “India Committed to Minimum N-Deterrence.”
war. Although influenced in part by the confidence that they already possess nuclear superiority over Pakistan, this affirmation also draws sustenance from a variety of larger beliefs held in India about the gradual decay in the efficacy of nuclear threats since the beginning of the nuclear era; the strong presumption already held against any nuclear use; and the progressively declining thresholds that define unacceptable damage as societies continue to modernize economically. All these perspectives combine to suggest that New Delhi would finally settle for a relatively small nuclear force that, even if numerically and qualitatively inferior to those of an adversary like China, remains sufficient to insure India against blackmail, coercion, and the threat of exploitative use emerging from both Beijing and Islamabad. Even a modest number of nuclear weapons is deemed to be adequate for this purpose because no disputes requiring the extensive use of Chinese nuclear weapons against India are seen to exist, while India’s strategic inferiority vis-à-vis China is believed to remain sufficient in itself for strategic superiority over Pakistan.

Irrespective of whether this expectation turns out to be correct, however, it must still be translated into a weapon inventory that is consistent with the overarching concept of minimum deterrence, and Vijai Nair, one of India’s most widely read commentators on nuclear matters, has attempted to provide just such a numerical estimate of how the country’s evolving deterrent ought to be sized. Nair estimates that with regard to Pakistan, a nominally weaker nuclear adversary, India should acquire the ability to target

six metropolitan centers including port facilities; one corps-sized offensive formation in its concentration area; three sets of bottlenecks in the strategic communications network; five nuclear-capable military airfields; two hydroelectric water storage dams. A total of 17 nuclear engagements.

With regard to China, a superior nuclear adversary, Nair argues that India ought to focus not on discrete attacks but on large punishing strikes that would retard postwar Chinese capabilities relative to its other adversaries. This implies that

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325 "India Not to Engage in a N-Arms Race: Jaswant."
326 Nair, Nuclear India, p. 170.
Initially, India needs to create a weapons capability to pull out five to six major industrial centers plus two ports to service China’s SSBN [nuclear-propelled ballistic missile submarine] fleet. This makes a total of eight nuclear strikes.\textsuperscript{327}

Against such a target array, Nair argues that

the ideal configuration of warhead numbers and yield would be: two strikes of one megaton each for metropolitan centres and port facilities; two strikes of 15 kt each for battlefield targets; one strike with a yield of between 200 and 500 kt each for dams; one strike of 20 to 50 kt each for military airfields; and one strike each of 15 kt for strategic communication centres.\textsuperscript{328}

After reliability parameters are factored in at the rate of two weapons for each autonomous strike, with 20 percent of the entire force structure maintained as a postwar reserve, the 25 designated targets in China and Pakistan are calculated as requiring an overall Indian arsenal of 132 weapons of varying size and yield.\textsuperscript{329} Nair’s accounting, summarized above, represents the most detailed example of an Indian effort to justify a nuclear force structure on the basis of some idealized sufficiency requirements.

Other commentators have offered similar albeit sometimes less detailed assessments. General K. Sundarji, for example, concluded that against a small country like Pakistan “up to 1 MTE [megaton equivalent] (say, 50 × 20 kt weapons) might do. Even for deterring a large country, one is most unlikely to require more than 4 MTE.”\textsuperscript{330}

\textsuperscript{327} ibid.
\textsuperscript{328} ibid., pp. 170–171.
\textsuperscript{329} ibid., p. 181. As Balachandran’s analysis points out, however, these small inventory sizes are crucially dependent on India’s possession of the high-yield weapons called for in Nair’s calculations. Absent such weapons, the number of nuclear weapons required to obliterates these targets immediately goes up from the few tens in Nair’s analysis to many hundreds—or, more precisely, from 132 weapons of varying yields to upwards of 800 20-kt-size weapons. See Balachandran, “Nuclear Weaponization in India,” pp. 42–47.
\textsuperscript{330} K. Sundarji. “Nuclear Deterrence: Doctrine for India—Part 1,” \textit{Trishul}, 5:2 (December 1992), p. 48. In later writings, Sundarji reduced these requirements even further, arguing that “all that is needed to deter a small to medium-sized country would be about 20 weapons of about 20 kiloton yield each [0.4 MTE], and about 50
These totals are difficult to translate into specific numbers of weapons because the design yields of India’s nuclear weaponry are not publicly known. Sundarji suggests, however, that targeting 15 conurbations in both Pakistan (5) and China (10) should suffice for minimum deterrence: Each of these targets could be attacked with “three fission warheads of 20 kt each, detonated as low airbursts,” and from this requirement he deduces that India “would need 45 warheads (and their delivery means) to survive an adversary first strike”—numbers that are explicitly based on weapon designs producing nominal yields in the 20-kt range. After factoring in reliability parameters and possible losses to an adversary’s first strike, Sundarji concludes that “a low estimate of 90 weapons and an upper estimate of 135 weapons would be reasonable” because, given basing modes that exploit opacity and mobility, “adequate numbers [of weapons] would survive” any of the expected attacks emanating from either China or Pakistan. K. Subrahmanyam, too, argues for a comparable class of numbers: In 1994 he declared that India needed only “sixty deliverable warheads”—which in practice probably meant some larger number if the reliability quotient and the possible attrition of these assets are taken into account. These weapons were presumably still 20-kt-class fission weapons, since Subrahmanyam not only rejected the need for both megaton-range thermonuclear weapons and neutron bombs but also argued that India’s standard design, which was tested in 1974, did not need any further tests and could, if needed, “be boosted with some addition of thermonuclear materials.” Other observers have expressed different yet comparable views about Indian requirements. General V. N. Sharma, a former Indian Army Chief of Staff, for example, asserted that “around 50 bombs should do” but called for “going the whole hog” in delivery

333Ibid.
335Ibid., p. 190.
systems.\textsuperscript{336} In sharp contrast to these more moderate estimates, Bharat Karnad has argued that strategic sufficiency for India cannot consist of anything less than the ability to interdict some 60 primary and secondary targets in China and Pakistan, thereby necessitating a nuclear force of well over 300 weapons by the year 2030—most of which must be high-yield thermonuclear devices.\textsuperscript{337}

Although the size of India’s weapon inventory has thus received considerable attention, the number of desired delivery systems has not yet been specified in comparable detail. In part, this is because deducing the minimal number of delivery vehicles necessary requires complex operations research and analysis as well as prior knowledge of several parametric variables, including basing modes, relative hardness and mobility, and estimates of success accruing to deception and denial. The kind of delivery system chosen also affects the final force size: While ballistic and cruise missiles, which are single-use vehicles, would correlate with their nuclear payloads in a one-to-one relationship, strike aircraft, being reusable, do not lend themselves to such a simple force-sizing metric. The lower penetrativity of aircraft, on the other hand, can increase the gross numbers required, and complex planning tools are therefore necessary if good estimates of operational requirements are to be derived—even if issues like procurement and operational and life-cycle costs are not treated as constraints \textit{a priori}. Given the lack of access to such planning tools and the information required to use them effectively, however, it is not surprising that various Indian commentators have advanced different estimates of the delivery systems required to carry their preferred inventory. In 1994, for example, K. Subrahmanyanam argued that his force of about 60 nuclear weapons be carried on 20 Prithvi SRBMs and 20 Agni IRBMs and the rest on strike aircraft.\textsuperscript{338} Two years later, Sundarji, in contrast, argued for a force of some 150 warheads carried on 45 Prithvi SRBMs and 90 Agni IRBMs, with the balance carried by aircraft.\textsuperscript{339} Vijal Nair has argued for at


\textsuperscript{337} Karnad, “A Thermonuclear Deterrent,” p. 143.


\textsuperscript{339} Joshi, “Marginal Costing,” pp. 22–23.
least five SSBNs in order to maintain 48 sea-launched ballistic missiles (SLBMs) ready at all times for use against China and Pakistan, in addition to 36 SRBMs and IRBMs and various other unspecified numbers of manned aircraft. And in the most expansive version of all, Bharat Karnad has argued for a force of four SSBNs contributing a total of 48 SLBMs, 25 ICBMs, 40 IRBMs, and 70 manned aircraft, all to be complemented by another 70 air-to-surface missiles and 25 atomic demolition munitions. The exact nature of the calculations leading up to these force architectures is not known and in all probability represent either “back-of-the-envelope” computations or simply wild to educated guesses about what seems to be strategically desirable and politically feasible in the Indian milieu.

To be sure, differences also exist among all the conceptions of sufficiency proffered in Indian discussions. Some, for example, require thermonuclear weapons while others do not presume their availability; some emphasize a larger numbers of weapons while others stress a smaller inventory; and some emphasize the need for more long-range missiles while others maintain that fewer will suffice. What is more interesting, however, are the similarities of these conceptions. All, for example, posit essentially finite arsenals—that is, weapon inventories and delivery systems that do not inexorably grow in size once the ability to service certain destruction requirements is assured, this finitude obviously being conditioned by the requirements of both ensuring survivability in the face of adversaries’ force levels and guaranteeing penetrativity in the face of technological change. Further, the level of destruction thought to be sufficient for successful deterrence is relatively small, generally centering on the ability to destroy 8 to 15 target complexes in China and Pakistan. What is regarded as constituting destruction, however, may vary from analyst to analyst. Many accept a certain redundancy in capabilities to allow for reliability constraints, attrition as a result of first strikes, and delivery failures, yet none argues for a force posture that is in any way automatically or consistently keyed to the size and character of the

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340Nair, Nuclear India, pp. 171–172.
342For still another set of desired numbers pertaining to delivery systems, see Kanwal, “India’s Nuclear Force Structure,” pp. 1039–1075.
adversaries’ nuclear capabilities. A few even undertake some sort of systematic analysis to justify the desired stockpile and delivery systems based on their estimate of what it takes to inflict “unacceptable damage” as understood within the geopolitical context of Southern Asia, with some analysts emphasizing the need for thermonuclear weapons if they believe these requirements to be high and others appearing content with small fission devices if they believe that population targeting suffices for the same purpose. These analyses, mostly carried out by retired service officers like Nair, Sundarji, and Menon, reflect the Weberian legal-rational orientation that characterizes the uniformed military’s approach to operational planning, and it is not surprising that most Indian commentators who have seen active service tend to analyze nuclear requirements in the same way they would approach conventional military operations.

The exceptions to this rule remain Bharat Karnad and G. Balachandran. Although both are civilians, Karnad’s accounting of India’s nuclear requirements is driven as much by his understanding of what it takes to effectively deter in the Southern Asian context as it is conditioned by a political desire to promote India’s strategic independence and its standing as a great power. Karnad’s accounting of India’s nuclear requirements, however (and, to some extent, Nair’s and Menon’s as well), remains at substantial variance with the country’s currently demonstrated technical capacity, the history of its resource allocations to defense, the size of its resource base relative to other competing social claims, and its doctrine regarding the utility of nuclear weapons. Of all the Indian analysts who have articulated specific conceptions of what minimum deterrence entails in numerical form, only Subrahmanyam and Sundarji have proffered an accounting of nuclear requirements that comports perfectly with India’s currently demonstrated technical capacity and its larger doctrine about the value of nuclear weaponry.


344 The character of India’s demonstrated technical capabilities will be discussed at greater length in the next chapter.
Several commentators, especially those with military backgrounds, have thus focused on explicating India’s nuclear requirements through use of simple quantitative analysis. It is not clear, however, whether a similar approach has been taken by the atomic energy establishment, the civilian bureaucracy that ultimately manages India’s nuclear weapon program. What is most likely, at least in the near term, is that legal-rational analytical approaches relating to the issue of sufficiency will be pursued independently either by individual analysts in their private capacity outside the government or by small planning cells in the DRDO and in the three service headquarters. Their findings will then be disseminated through both formal and informal means to Indian decisionmakers, including senior political figures and key bureaucrats. These individuals may use such findings for their own ends—to assess funding requirements; to influence the thinking of weapon designers at BARC and within the DRDO; or to define India’s negotiating postures in bilateral discussions with the United States and in various international forums.

Such analytic efforts—whether undertaken by private individuals or by government employees—will therefore play a role in India’s nuclear requirements planning process in the immediate future. In all probability, however, most decisions about the size of India’s nuclear arsenal will ultimately pivot on considerations other than merely operational requirements. It is, in fact, possible that the size of the nuclear weapon stockpile will eventually be defined mainly by the quantum of fissile materials available to India—and not necessarily by the size of the target set defined by India’s numerous security commentators. Similarly, the yield of the nuclear weapons themselves will be determined fundamentally by the designs that Indian scientists have thus far been able to validate or appear to have the greatest preference for—and not necessarily by the demands imposed by the technical characteristics of the target array. On all these matters, India’s nuclear estate traditionally has been highly solipsistic, pursuing its research, development, and production activities mainly in light of the technical and bureaucratic challenges confronting Indian nuclear science rather than by the operational imperatives deriving from the nation’s nuclear strategy.\(^{345}\)

\(^{345}\)On this issue, the classic work remains Perkovich, *India’s Nuclear Bomb*, pp. 444–468. There is also little evidence that suggests things have changed radically since
This implies that the chief constraint on developing an arsenal of the size, shape, and form preferred by analysts like Karnad and Nair may be India’s smaller-than-usually-estimated fissile-material inventory and its poorly validated nuclear weapon design base. If India agrees to a cutoff in the production of fissile materials after a successful conclusion of the FMCT in Geneva, continues with its self-imposed moratorium on nuclear testing indefinitely, and signs and ratifies the CTBT at some point in the future, these policy choices—more than any operational requirements—will define the kind of nuclear arsenal that India would eventually possess.\footnote{India’s May 1998 nuclear tests; see “Pakistan, India ‘Have Not Moved Very Far’ to Field Nukes: Cohen,” \textit{The News International}, May 13, 2000, and P. R. Chari, “India’s Slow-Motion Nuclear Deployment,” \textit{Carnegie Endowment for International Peace Proliferation Brief}, 3:26 (September 7, 2000). It should be recognized, however, that the judgments of the uniformed military, as expressed both privately and through interfacing mechanisms like the DRDO, have steadily grown in relevance as far as designing the structure and quality of India’s prospective nuclear arsenal and its managerial institutions are concerned. As is usually the case, however, the uniformed military’s contributions on this subject are absorbed mainly through informal channels in great secrecy, involving a minuscule number of individuals.} \footnote{This is well recognized by many Indian analysts, who have therefore argued that the Indian government ought not to sign the CTBT even as they berate it for enabling the FMCT negotiations to begin in the Conference on Disarmament. See Brahma Chellaney, “Caution on CTBT,” \textit{Hindustan Times}, November 3, 1999; Karnad, “Policy on CTBT”; Balachandran, “A Consensus or a Sell-Off”; Rajesh Rajagopal, “The Question of More Tests,” \textit{The Hindu}, December 17, 1999; Bharat Karnad, “A Sucker’s Payoff,” \textit{Seminar}, 485 (January 2000), pp. 45–50; Chellaney, “How Pokhran II Has Bombed”; and Chellaney, “India’s Trial by Atom.”} 

India’s delivery systems may not be similarly constrained, but the strategic consequences of this freedom are ambiguous. There is no reason, for example, why India cannot in time develop and produce a class of reasonably effective SRBMs and IRBMs; continue to purchase the best advanced combat aircraft available on the international market; and eventually even acquire a nuclear-powered missile submarine. All these vehicles may even be procured in significant numbers, since there are only economic but effectively no physical constraints on their acquisition in the long run. These systems will, however, be limited in potency, since they will carry only a small number of possibly low-yield nuclear weapons. This is because the number of weapons will be constrained by the fact that at some point in the foreseeable future India might have to terminate the production of fissile materials (or at least account for future production, de-
pending on what a final negotiated text of the FMCT requires,\textsuperscript{347} while the yield of the weapons will be constrained by the fact that India’s prospective decision to formalize its moratorium on nuclear testing would leave it with high confidence mainly in a set of simple fission designs.\textsuperscript{348} Thus, even if India mounts higher-yield (or more sophisticated) weapons on these delivery vehicles over time, the quality of these weapons will not have been fully validated, since they will not have been hot tested as such. Consequently, the deterrent effects that flow from the acknowledged possession of such weapons will not accrue to India, since it will not be clear to India’s adversaries that New Delhi in fact possesses sophisticated nuclear weapons that would inflict catastrophic and possibly fatal damage in the event of war. On balance, then, India will possess a nuclear deterrent, but this deterrent—at least as far as outsiders are concerned—will consist mainly of small numbers of relatively simple nuclear weapons.

This conclusion, however, should not be misconstrued. India’s political leadership is not seeking to create a large and complex nuclear arsenal, even if its scientific community seeks to push the envelope with respect to increasingly sophisticated weapon designs. Even when India ceases to produce fissile materials and “freezes” its existing weapon designs, policymakers in New Delhi believe that India will still have sufficient nuclear capabilities to immunize it against the threats of blackmail and potential use emanating from China and Pakistan. This is because the principal criterion for strategic adequacy in India’s eyes is not that the damage inflicted by its weapons be greater than that which can be inflicted by an adversary but only that the costs resulting from Indian retaliation be greater than any political benefits accruing to the adversary as a result of its nuclear threats or first use. The requirements for effective deterrence in the Indian context are thus truly low because state managers in New Delhi have already concluded that few political benefits could be secured by any adversary through aggression—with or without nuclear


weapons—against India. Those that could be secured subsist entirely in the psychic realms of coercion and blackmail, but the acknowledged possession of nuclear weapons by India—irrespective of their numbers or quality—should more than suffice to neutral such threats.\textsuperscript{349} Outside of these psycho-political contingencies, no real and lasting benefits are perceived to accrue from any active aggression against India. Strategists in New Delhi would thus assert that even the loss of a single Chinese or Pakistani city like Chengdu or Lahore would not be worth the benefits of war, since in every conceivable scenario the predicted benefits are invariably less than the price that might have to be paid if the offensive involves a first use of nuclear weapons against India.\textsuperscript{350}

Given this generally modest criterion of strategic adequacy, even small numbers of relatively low-yield fission bombs could suffice to provide India with the deterrence it desires—or so Indian policymakers argue \textit{sotto voce}. In fact, Karnad’s estimate of requirements, centering on a few hundred thermonuclear weapons, actually constitutes the \textit{maximal} variant of sufficiency yet advanced in the Indian debate, and it is entirely plausible that New Delhi would be satisfied with a much lower number of nuclear weapons, most of which may have yields that barely rise above the smallest devices that analysts like Karnad (or Nair, Balachandran, and Menon, for that matter) consider to be absolutely necessary. As Jasjit Singh phrased this expectation, “It is difficult to visualise an arsenal with anything more than a double-digit quantum of warheads” over the next few years, and “it may [actually] be prudent to even plan on the basis of a lower end figure of say 2–3 dozen nuclear warheads by the end of 10–15 years . . . [since] with the passage of time, deterrence decay factors will lead to the requirements of a smaller arsenal rather than a larger one.”\textsuperscript{351} Where types of weapons are concerned, Sundarji, for ex-


\textsuperscript{350} Subrahmanyam, “Nuclear Defence Philosophy: Not a Numbers Game Anymore.”

\textsuperscript{351} Singh, “A Nuclear Strategy for India,” p. 315. Such beliefs also suggest how closely Indian requirements mirror, however imperfectly, the expectations of other smaller nuclear powers during the Cold War. Referring to British nuclear requirements, for example, Colonel Jonathan Allard argued that “there was no real need . . . to increase the capability, as defined in terms of the number of targets in the Soviet
ample (and Subrahmanyan as well), has consistently argued that "there is no need for fusion (hydrogen bomb) or enhanced-yield fission (tritium) warheads," since even allocating three simple fission warheads of 20 kt each per city has been deemed to be adequate for purposes of deterrence. India already possesses this class of capabilities, however, and consequently Indian policymakers will seek as best they can to avoid succumbing to various domestic pressures to enhance their strategic capabilities through what would be seen abroad as provocative political acts like resuming nuclear testing, accelerating the missile development program, and overtly inducting nuclear weapons alongside its conventional defense capabilities.

Therefore, although India's nuclear force may eventually be defined more by technical limitations and political constraints than by strict operational requirements of the sort articulated by Karnad, Nair, Balachandran, and Menon, Indian policymakers today believe that prudence requires that they keep all their options open even if their modest capabilities are currently judged to be sufficient for effective deterrence and even if they now feel less than compelled to pursue the kinds of technologies favored by the most zealous domestic advocates of advanced nuclear weaponry. On this issue, both the Indian government and security elites within the country at large appear to be of one mind. Both groups are agreed that India's strategic policies with respect to matters affecting the size and quality of its future deterrent ought to have three components.

- First, don't foreclose any possibilities unless the payoffs from foreclosure incontroversitely exceed the costs. In practical terms, this implies that India will be loath to make good on its commitment to quickly sign and ratify the CTBT and assist the FMCT nego-

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353 The real problem here, of course, may be India's scientists, who in their zeal for the fanciest devices imaginable may fail to produce even simple devices that are reliable, consistent in quality and yield, and operationally adequate.
tions to a speedy and successful conclusion because surrendering the benefits embodied by such actions would occur only if there were some prospect of securing suitable political blandishments that would compensate for whatever technical weaknesses may all the emerging Indian nuclear deterrent.

- **Second, don’t make any formal commitments to limit the upper bounds of strategic capability.** In practical terms, this implies that Indian security managers will not provide any binding assurances either to the United States or to the international community that their desired force-in-being will not exceed certain quantitative or qualitative thresholds even if in practice they do convey some such understandings tacitly and informally.

- **Third, don’t restrain domestic research, development, and production activities relating to nuclear weapons, fissile materials, and delivery systems.** In practical terms, this implies that India will press ahead with its existing efforts in all three arenas. And while these efforts may be accelerated in some areas (e.g., the production of fissile materials) while remaining more or less constant in others (e.g., the development of delivery systems), this will not extend to reducing the quantum of effort applied overall no matter what pressures may emerge from the international community.

This threefold strategy is clearly intended on the one hand to minimize the extent of the formal obligations restraining India’s emerging strategic capabilities while on the other hand to produce the largest and most effective deterrent force possible within the limits of India’s current capabilities. The objective of producing the largest and most effective deterrent force, in turn, is not simply to expand the size of the nuclear weapon inventory for its own sake but rather to increase the extent of the residual fraction that would survive a nuclear strike that might be mounted by its adversaries. The “Draft Report of [the] National Security Advisory Board on Indian Nuclear Doctrine” captured this requirement succinctly when it noted that India’s operational policy of “retaliation only” makes “the

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354 The entire nuclear infrastructure is detailed in Perkovich, *India’s Nuclear Bomb*, pp. 469–472, and the portions relevant to the nuclear weapon production program are briefly described in Joshi, “India’s Nuclear Estate.”
survivability of our arsenal . . . critical."\textsuperscript{355} Further, it stated that survivability—and, by implication, the size of the arsenal—constituted a "dynamic concept related to the strategic environment, technological imperatives, and the needs of national security."\textsuperscript{356} The report consequently concluded that "the actual size, components, deployment and employment of nuclear forces [ought to] be decided in the light of these factors."\textsuperscript{357} In point of fact, the Advisory Board may well have exaggerated how much flexibility India possesses with respect to increasing the survivability of its nuclear forces—at least insofar as this survivability can be manipulated through increases in the number of nuclear weapons given both the technical status of the country’s nuclear production infrastructure and its commitment to adhering to a fissile-material cutoff if such a treaty is successfully concluded in the future. It did point out quite accurately, however, that the size of India’s nuclear force would eventually be influenced by many variables, including the capability and disposition of the nuclear forces maintained by India’s adversaries (the "strategic environment"); the demands levied on penetrativity in the face of incipient transformations in the present offense-dominant global nuclear regime ("technological imperatives"); and the state of political relations between India and its immediate adversaries, among those adversaries themselves, and between India and other key powers in the global system (the "needs of national security").

A recognition of these factors led the Advisory Board to insinuate that the size of India’s emerging nuclear force could not be fixed \textit{a priori} but would have to be sufficiently variable to ensure survivability in light of the changes that could occur in the issue areas noted above.\textsuperscript{358} The prospect of such variability, however, cannot imply that the size of India’s nuclear force would by definition be open-ended. Even though some of the Advisory Board’s original members

\textsuperscript{356}Ibid.
\textsuperscript{357}Ibid.
\textsuperscript{358}This has also been affirmed by Indian security managers like Jaswant Singh, who noted that “this ‘minimum’ . . . cannot be a fixed physical quantification.” See "India Not to Engage in a N-Arms Race: Jaswant.” See also Prime Minister Vajpayee’s statement in "Deterrence to Be Evaluated Time to Time: Govt."
would in fact prefer just such an interpretation and would consequently argue that India ought not to participate in the FMCT negotiations currently occurring in Geneva,\(^{359}\) most Indian security managers recognize that at some point in the future an FMCT, if successfully concluded, would compel them to either terminate the production of weapon-usable materials or at least transparently account for all their future inventories.\(^{360}\) This fact, coupled with the constraints imposed by the parlous state of India’s nuclear infrastructure, sets a ceiling on the size of India’s future nuclear arsenal that cannot be negotiated away unless the country is willing to make a massive investment in new nuclear production facilities right away in the hope that it can dramatically distend its potential arsenal before the decade is out (i.e., when the constraints emerging from an FMCT could conceivably kick in).\(^{361}\) There is no empirical evidence thus far that India is willing to make such investments, although it is reasonable to assume that it would bend over backwards to increase the efficiency of its fissile-material production cycle, supplemented by increased reliance on its civilian nuclear power infrastructure to support its weapon needs and perhaps complemented by a few discrete investments in new plants and equipment at critical points in the weapon production process—all in order to build up its strategic

\(^{359}\) See, for example, the position affirmed early on in Brahma Chellaney, “India’s Crucial Role,” *Indian Express*, April 21, 1995, and Brahma Chellaney, “India’s Wrong Signal on Fissile Cut-Off,” *Indian Express*, April 22, 1995.

\(^{360}\) As Jaswant Singh phrased it, “We have, after the tests last year, announced our readiness to engage in multilateral negotiations in the Conference on Disarmament in Geneva for a nondiscriminatory and verifiable treaty to ban future production of fissile materials for nuclear weapon purposes. *This decision was taken after due consideration, which included an assessment of time frames for negotiations and entry into force of an FMCT.* At this stage, India cannot accept a voluntary moratorium on production of fissile materials. Let me add that FMCT negotiations are a complex exercise. It will be important, therefore, as we go along to constantly monitor the pace, direction and content of these negotiations” (italics added). See “India Not to Engage in a N-Arms Race: Jaswant.”

material inventory to the desired size before it is constrained by emerging changes in the global nuclear regime.362

It is interesting to note that Foreign Minister Jaswant Singh reiterated the Advisory Board’s published position on the variables defining the size of the Indian arsenal virtually word for word in his own redaction of the Draft Report.363 Most knowledgeable strategic commentators, however—including K. Subrahmanya—recognize that for all the homage paid to the principle that “the minimum deterrent cannot be a fixed physical quantification,” there is in fact some sort of outer bound that defines the size of India’s minimum deterrent, at least over the next decade. This judgment has been confirmed by Singh himself, who declared that “[India] shall not . . . pursue an open-ended programme.”364 K. Subrahmanya sought to clarify in concrete terms what the outer limits of the Indian minimum deterrent might be by affirming that the country’s emerging arsenal will probably be pegged at approximately 150 nuclear weapons365—a judgment obviously based on the premise that no FMCT restrictions will be operational for at least another decade and that India can increase its plutonium production for weapon purposes in the interim. If both assumptions fail to hold, however, India’s nuclear inventory could grow larger—or perhaps remain smaller—than the 150 weapons currently forecast, with the odds being that it would stay smaller rather than larger if India’s past

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362 This appears to be corroborated by the recent decision to remove BARC from the purview of the Atomic Energy Regulatory Board in order to provide the former “a free hand in going ahead with its programme of developing nuclear weapons.” See “Atomic Energy Watchdog Won’t Bark at BARC,” Indian Express, June 1, 2000.

363 The relevant portion of Singh’s statement read: “India needs only that strategic minimum which is credible. With the policy of ‘retaliation only,’ survivability becomes critical to ensure credibility. This ‘minimum,’ however, 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.” See “India Not to Engage in a N-Arms Race: Jaswant.”

364 “India Not to Engage in a N-Arms Race: Jaswant.”

365 Subrahmanya, “A Credible Deterrent.”
efforts at accumulating weapons-grade plutonium are any indication. Recognizing this, Subrahmanyam caustically concluded that "today for many Americans who pride themselves in leading their country towards disarmament and who have a lot of admirers among the anti-nuclear lobbyists in India, reducing their stockpile to zero means bringing it down to 200 warheads. On the basis of this standard, perhaps the Indian nuclear deterrent will be less than zero." All this implies that the emerging Indian nuclear deterrent will by the year 2010 be a relatively small force consisting of 150-odd weapons (and possibly even less), most of which will likely be capable of producing comparatively small yields of some 20 kt (if New Delhi persists with its current moratorium on nuclear testing). India will continue to pursue a variety of delivery systems, especially ballistic and cruise missiles, and will acquire as many of these systems as necessary to deliver its nuclear weapons under a wide variety of operational contingencies. Because none of its current missiles is an ideal vehicle for nuclear payloads, however, India will likely continue to develop these systems to reach ranges that will probably not exceed 3500 km, even as it persists in experimenting with a variety of unorthodox basing modes, in efforts to gradually migrate from its current reliance on air-breathing vehicles (which will nonetheless remain the primary carriers of India's nuclear weaponry for some years to come). In any event, the size and configuration of the Indian arsenal writ large and the character of the nuclear weaponry deployed within it will be defined less by operational requirements of the sort adduced by military analysts than by internal and external technical and political constraints—but this fact should not hamper New Delhi's efforts to produce the minimum deterrent that it believes is sufficient for its specific needs. Even though such a force structure—based mainly on a modest number of small nuclear weapons together with their associated delivery systems—will in all probability satisfy Indian security managers, they will resolutely refuse to provide any formal assurances in a bilateral context to the

366For more on this issue, see R. Ramachandran, "Pokhran II: The Scientific Dimensions," in Amitabh Mattoo (ed.), India's Nuclear Deterrent (New Delhi: Har Anand Publications, 1999), pp. 34–38. This question is also discussed in much greater detail in Chapter Five.

367Subrahmanyam, "A Credible Deterrent."
United States (or anyone else, for that matter) that have the effect of limiting their options in the face of future uncertainties.

**Separated in Disposition**

The fact that India will probably settle for a relatively small nuclear arsenal consisting of 150-odd weapons, together with a number of delivery vehicles to carry such an inventory to target—all oriented toward holding between 8 and 15 target sets in China and Pakistan at risk—provides a more concrete image of the Indian version of minimum deterrence. To be sure, such a force does not yet exist and probably will not exist in full form for at least another decade or two. In the interim, there is little evidence that New Delhi is pursuing these capabilities at an accelerated pace across the board, because India believes, despite occasional claims to the contrary, that it is already ahead of Pakistan where nuclear weapons are concerned and does not expect serious strategic competition with China for another 15 to 20 years. At that point China, having completed its economic reform program, may be comfortably enmeshed along the path of self-sustained growth and might have completed its logistical and infrastructure modernization in Tibet. These two developments taken together would allow it—at least theoretically—to mount some kinds of no-notice challenges to India along the disputed border and to that degree could make India’s reliance on its nuclear capabilities for reassurance more necessary. None of these contingencies, however, is likely to materialize before the next two decades—and until then, China’s nuclear arsenal will continue to pose more of a latent than a manifest threat. The slowly developing Indian nuclear capabilities are thus designed, as far as Beijing is concerned, to neutralize any Chinese challenges that may arise over the long term, under-

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stood as 20 to 30 years out, since the nuclear threat from Pakistan is deemed to be manageable thanks to the nuclear capabilities India already possesses.\textsuperscript{371}

Even when the Indian arsenal matures over the next decade, it will, for all the reasons explicated earlier, remain a relatively small force consisting of some seven-score weapons together with their associated delivery systems. By the very fact of its existence, however, it will become a source of threat to both China and Pakistan, which in the event of deterrence breakdown may be forced to contemplate a variety of preemptive damage-limiting strategies purely for defensive reasons.\textsuperscript{372} A nuclear force of any sort inevitably becomes a magnet for such strategies because of the cataclysmic power it represents. A small nuclear force of the kind that would be developed by India (and by Pakistan, for that matter) exemplifies an even greater enticement, however, because it serves to make “splendid first strikes” feasible at least in principle.\textsuperscript{373} An important challenge facing India’s evolving arsenal therefore consists of ensuring its survivability against any first-strike temptations on the part of an adversary, and neutralizing such temptations successfully represents the first key to successful deterrence. This challenge boils down to the question of how a small nuclear force may be preserved inviolate such that a substantial portion of its nuclear assets will survive, ready to be reconstituted for the devastating retribution to follow, even if first strikes are unleashed in extremis.

In general, states that already possess nuclear arsenals have adopted a combination of solutions to ensure survivability. Each of these solutions—“physical hardening, geographic dispersion, mobility, redundancy, secrecy, and the active interdiction of attacking weapons”\textsuperscript{374}—embodies different benefits and costs, and their selection must ultimately be based on the value placed on the purposes

\textsuperscript{372}Jones, From Testing to Deploying Nuclear Forces, pp. 3–4.
\textsuperscript{374}Steinbruner, “Choices and Trade-offs,” p. 546.
they are meant to serve as well as on their overall effect on the nuclear posture. Since India has eschewed the development of a robust and ready arsenal (Alternative V in the previous chapter) in favor of a force-in-being (a middling choice between Alternatives IV and V), it is unlikely to pursue either physical hardening or active interdiction of attacking weapons as its primary means of ensuring survivability.

Physical hardening of India’s nuclear assets, a solution most relevant to the land-based air and missile force and to the physical C³ infrastructure, is an extraordinarily expensive and complex endeavor.³⁷⁵ The complexity of this effort essentially derives from the fact that successful hardening requires that every critical component of a given system be made immune to the damage mechanisms associated with a nuclear detonation: air blast, ground shock, electromagnetic pulse (EMP), radiation, and thermal effects. Coping with each of these mechanisms requires different, specially designed solutions for every kind of component that might be at risk. As far as missile systems go, for example, a missile might have to be physically encased in a special silo that is deliberately hardened to high levels of overpressures through use of advanced materials technology, and within the silo itself the missile, perched in a “rattle space,” will have to be braced by special suspension devices that absorb the violent ground motion accompanying a surface detonation. Sealing to high tolerances would also be required to protect the missile and its integral launch and operational support equipment against thermal effects, while the power supplies, communications, environmental and launch control hardware, and crew and maintenance support equipment would have to be hardened in still others ways against EMP and radiation effects.³⁷⁶ If a mobile missile system is to be made survivable in the event that continuous dispersal or dispersal-on-warning cannot be assured, then the entire missile and its erector-launcher


may have to be buried in some sort of trench system with requirements similar to those noted above. Aircraft, too, may require similarly recessed or semirecessed shelters, while protecting the C3I infrastructure necessitates a different set of hardening techniques in the face of the threats posed by physical destruction, EMP and TRE effects (transient radiation effects on electronics), ionospheric disruption, and jamming. The latter may also require redundancy in the form of multiple links, subject to different failure modes, and the capacity of reconstitution if it is to be effective in the face of a nuclear attack.

Investing in capabilities of this sort not only may lie beyond New Delhi's technical and fiscal capacity but also could be insufficient in the face of the nuclear threats India confronts. Both the kinds of warheads deployed aboard the Chinese missile force and the accuracies that can be attained by Chinese missiles through the use of GPS and differential GPS supplements ensure that Beijing's hard-target interdiction capabilities—which already benefit from high-yield warheads—will improve faster than any Indian advances in hardening technology. The evidence collected by Mark Stokes and others already suggests that China has embarked on a significant missile modernization program that is focused, among other things, on increasing missile accuracy through the exploitation of new onboard and external navigational systems. And while these

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378 These issues are discussed in J. G. Hammer, C. A. Sandoval, and A. Laupa, Installation Hardening Concepts for Manned Bomber Systems, RM-3239-PR (Santa Monica: RAND, 1962); Francis R. Eldridge, Protection of Communications and Electronic Systems, P-1657 (Santa Monica: RAND, 1959); and J. Bower and P. A. Goldberg, British Directions in Hardening Missile Bases Against Electromagnetic Effects from Nuclear Explosions, D-7226 (Santa Monica: RAND, 1960).

379 China's nuclear interdiction capabilities vis-à-vis certain classes of hard targets such as airfields is usefully assessed in Bruce Bennett, "The Emerging Ballistic Missile Threat: Global and Regional Implications," in Natalie W. Crawford and Chung-In Moon (eds.), Emerging Threats, Force Structures, and the Role of Air Power in Korea, CF-152-AF (Santa Monica: RAND, 2000), pp. 181–217.

initiatives do not by any means portend a shift in the direction of nuclear warfare on the part of Beijing, they do suggest that China could gradually acquire the capability for at least some limited kinds of nuclear counterforce attacks against weaker competitors like India.\textsuperscript{381}

In this context, it is also not clear whether the interdiction of attacking weapons through active defenses in the form of both long-and short-range terminal intercept systems would be the best mechanisms for ensuring the survivability of New Delhi's emerging nuclear deterrent, as has been suggested by some Indian analysts.\textsuperscript{382} During the Cold War, a variety of high- and low-altitude ballistic missile defense systems were investigated—and, in some instances, even deployed—as a means of enhancing the survivability of land-based nuclear assets. These systems were attractive in many situations where the assets to be defended were either small, hard, and fixed or mobile only over certain narrow and predefined swaths of territory. When the targets had such characteristics—the former, for example, describing the Minuteman missile bases at Grand Forks, North Dakota, and the latter describing the multiple protective shelters concept suggested for the Peacekeeper missile—both the Safeguard and the Low Altitude Defense Systems had some utility.\textsuperscript{383}

It is not clear, however, whether active defense systems of these kinds would offer similar benefits in the case of India. To be sure, there are some kinds of assets—such as nuclear production facilities, command bunkers, airfields for nuclear-capable aircraft, and peace-


\textsuperscript{381} Bennett demonstrates this clearly in the context of air base attacks, for example, in Bennett, "The Emerging Ballistic Missile Threat: Global and Regional Implications," pp. 181–217.


time missile garrisons—that would benefit from effective missile defenses if such were to be available. Their availability, however, is precisely what is at issue, because although New Delhi—seeking to indigenize an advanced IAD network to provide secondary protection against tactical ballistic missiles—\textsuperscript{384} has attempted to procure the Russian S-300 system, it is unclear whether these systems will be acquired with the most sophisticated detection and tracking radars available for reasons of both high cost and constrained access. It is also unclear whether such systems—even if acquired in their best available variant—would suffice to protect Indian assets against the high reentry speeds of many Chinese ballistic missiles (and possibly some future Pakistani systems as well).\textsuperscript{385} The acquisition of active defenses designed specifically to cope with strategic ballistic missiles has not received much attention in India primarily because of concerns about cost, availability, and technical value—even the best Russian technologies here, such as the ABM-3 system incorporating the SI-04 and -08 missiles, are now several decades old—and their effectiveness, at any rate, is suspect if the acquisition of such systems is not predicated on the creation of a larger “overlay” defense architecture integrating different kinds of exoatmospheric sensors and components.\textsuperscript{386} What complicates matters further is that even good terminal missile defenses, however effective they may be against substrategic ballistic missiles, could actually subvert the goal of protecting some kinds of Indian nuclear assets, such as command facilities that might rely primarily on concealment and deception for their survivability—and they could simultaneously remain ineffective in protecting the large dispersal areas in which India’s rail- and road-mobile missile systems would necessarily operate once they were flushed from their peacetime garrisons upon receipt of strategic warning. Active defenses, in any event, are extraordinarily expensive,


could be defeated by relatively simple countermeasures, and would function more as symbols of reassurance in the context of domestic politics than as effective operational antidotes to the kinds of weapons that China possesses today and that Pakistan may possess tomorrow.  

Not surprisingly, then, Indian security managers will likely avoid most of the onerous hardening and active defense solutions that some security analysts in New Delhi have proposed. Their preferred solution, heavily emphasizing concealment, deception, and mobility, will focus instead on configuring the force-in-being in such a way as to feature pervasively distributed capabilities in order that no completed strategic systems actually exist routinely as transparent targets for potential interdiction. This does not imply, of course, that hardening and active defenses will have no place whatsoever in India's evolving nuclear architecture. Various components of that architecture—C³I networks and storage facilities, for example—will be progressively hardened as required, and some kinds of active defenses will also be incorporated whenever appropriate. Neither of these two solutions, however, will define the structuring orientation of the deterrent as a whole. Instead, this orientation will be defined primarily by the emphasis on distributed capabilities—and it is this feature that not only makes the Indian deterrent a force-in-being as opposed to, say, a robust and ready arsenal but also broadly contributes to resolving its problems of survivability, at least in principle. Both the National Security Advisory Board and India's security managers have implicitly affirmed that distributed capabilities of one sort or another will characterize the emerging Indian force-in-being. The draft doctrine released by the Board obliquely referred to this idea when it drew a distinction between normal "peacetime deployment" and "fully employable forces" that would be required in times of either crisis or war.  

Jaswant Singh

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also affirmed this distinction more directly when, in response to a question about whether it "would . . . be correct to deduce that India will follow different peacetime and wartime deployment/postures," he answered in the affirmative, emphasizing that different "operating procedures will ensure the transition from peacetime deployment modes to a higher state of readiness when required."^390

The concept of distributed capabilities, which lies at the heart of the idea of a force-in-being, implies that the normal peacetime posture of India's nuclear deterrent will consist of deliberately separated components maintained under conditions of great secrecy. For purposes of analysis, these components may be treated as encompassing the weapon's core, which consists of some kind of fissile material and is usually referred to as the "pit"; the weapon assembly, which consists of all the other nonnuclear elements of the device, including the SAFS subsystems; and the delivery platform, be it aircraft or missile. If the delivery platform is a missile, there are, strictly speaking, two components—the missile itself and the launch system—and the technical characteristics of the latter will vary depending on whether the missile is designed for road or rail mobility or if it is intended for basing on a surface or a subsurface platform. Irrespective of the precise basing mode, however, the distinction between the missile and the launch system—which is analogous to the gravity bomb-strike aircraft combination—is relevant for purposes of understanding the concept of distributed capabilities as the central organizing principle underlying India's current and prospective peacetime nuclear posture.

In a conceptual sense, the notion of distributed capabilities implies that all the distinct and separate components identified above will be stored independently and with the highest level of secrecy consistent with the character of each.\(^{391}\) The exact extent of separation that will be operationalized in practice, however, is unknown

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^390-"India Not to Engage in a N-Arms Race: Jaswant."

^391-For a good description that provides a flavor of how this system has been operationalized in the past, see Chengappa, *Weapons of Peace*. The logic of such a system for purposes of deterrence received its fullest articulation first in the writings of Sundarji; for a good summation, see Sundarji, "Indian Nuclear Doctrine—I: Notions of Deterrence," and K. Sundarji, "Indian Nuclear Doctrine—II: Sino-Indo-Pak Triangle," *Indian Express*, November 26, 1994.