The Impact of US Ballistic Missile Defenses on Southern Asia

Michael Krepon and Chris Gagné, editors

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About the Project

The Henry L. Stimson Center has been working to promote regional security in South Asia since 1991. The project focuses heavily on nuclear risk reduction, confidence building, and Kashmir.

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Contributors' Notes

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Chris Gagné is the Research Associate for the Regional Security in South Asia Project at the Stimson Center. Chris joined the project in 1999 after working at Stimson as a Herbert Scoville Jr. Peace Fellow. He graduated from Dickinson College in 1998 with a BA in Anthropology and Policy Studies and a concentration in International Policy. He has studied in southern India, and returned to the region after graduation as assistant to the director of the South India Term Abroad (SITA) program. He also interned as a research assistant to a professor of national security at the Army War College where he compiled and analyzed information about weapons transactions and security concerns in Southeast Asia and gathered information for a project on confidence-building measures in terminating conflict.

Michael Krepon served as Founding President and CEO of the Henry L. Stimson Center from 1989 to 2000. He is the author of *Strategic Stalemate, Nuclear Weapons and Arms Control in American Politics* (1984), *Arms Control in the Reagan Administration* (1989), and co-editor of *Verification and Compliance, A Problem-Solving Approach* (1988), *Commercial Observation Satellites and International Security* (1990), *The Politics of Arms Control Treaty Ratification* (1991), *Open Skies, Arms Control and Cooperative Security* (1992), *Crisis Prevention, Confidence Building, and Reconciliation in South Asia* (1995), and *Global Confidence-Building: New Tools for Troubled Regions* (2000). His newest book, *Cooperative Threat Reduction, Missile Defense, and the Nuclear Future*, will be published in the fall of 2002.

Arvind Kumar received his MA in International Politics and his MPhil in American and West European Studies from Jawaharlal Nehru University in New Delhi. He is currently working on his PhD thesis entitled "Redesigning Defense: U.S. National Security Strategies and Interests in the 1980s." He has taught graduate level classes in Political Science, Comparative Politics, Political Theory, and International Politics at the University of Delhi. Mr. Kumar has previously worked as a Research Analyst at IDSA and was a Visiting Fellow at the Stimson Center in the spring of 2000. He is a Research Associate at the National Institute of Advanced Studies in Bangalore and a Visiting Scholar at the Cooperative Monitoring Center of Sandia National Laboratories until September 2002.

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Preface

Dear Colleague,

I am pleased to present the latest publication from the South Asia project at The Henry L. Stimson Center. This report, *The Impact of US Ballistic Missile Defenses on Southern Asia*, examines the regional repercussions of current US missile defense policies, bringing together in one volume the views of individual experts from India, Pakistan, and the United States. It is our hope that this set of essays will add understanding and will contribute to the debate on this critical security issue for the new century.

The essays are a fascinating reminder that security issues must take into account complex political and historical factors, as well as the technical and military dimensions. Each of the essays places different weight on the various considerations and reaches quite different conclusions about how missile defense may affect the security and political interests of the states in southern Asia.

We are pleased that the authors from South Asia were all resident fellows at the Stimson Center in the past. The experience of working in Washington, D.C. on security studies has clearly not made them all approach missile defense issues in the same way, but the authors share the value that the Stimson Center embodies: to contribute to greater international security through an open and honest debate over the key questions of the day.

I hope you will find this study of use. My colleagues and I will welcome any comments you may have.

Sincerely,

Ellen Laipson
President
The Henry L. Stimson Center
Washington, D.C.
May 2002

Introduction

Michael Krepon and Chris Gagné

The repercussions of President George W. Bush's decision to abrogate the Anti-Ballistic Missile Treaty will be felt most strongly around the periphery of Asia. This Stimson Center report provides the first serious analytical effort by a group of Indian, Pakistani, and US analysts to weigh the possible consequences of prospective US deployments of theater and national ballistic missile defenses. The authors arrive at very different conclusions as to the benefits, risks, and likely consequences of missile defense deployments for triangular interactions among New Delhi, Islamabad, and Beijing.

This should not be surprising, given the fluidity and relative newness of nuclear-tinged interactions between India and Pakistan, China and India, and China and Pakistan. All three states have embraced the concept of minimal, credible nuclear deterrence, but none can configure this concept in a vacuum. Instead, Chinese, Indian, and Pakistani nuclear requirements will be derived from an iterative set of conditions that are subject to change based on domestic and external factors. Prospective missile defense deployments add one more external factor to this mix.

Formal restraints on nuclear requirements in southern Asia are hard to conceive, in part because none of these states is willing to codify inequality or a regional hierarchy. Nor are India, Pakistan, and China willing to accept the degree of transparency necessary for codified restraint. Consequently, restraint in dampening nuclear requirements must necessarily be informal in nature. All three countries have good reasons to define requirements in minimal terms, but all three have additional reasons to seek added insurance against neighboring dangers. The two competing dyads in this region consist of states with unequal ambitions and strategic potential. They make for a triangle of three unequal sides – an inherently unstable geometric form. No wonder that a wide range of outcomes is possible from the introduction of missile defenses.

Our first essay, by Rajesh Basrur of the Center for Global Studies in Mumbai, observes that "the Reaganite view that nuclear weapons are inherently evil…strikes a powerful chord in Indian thinking." He argues that it makes sense for India to support US missile defense and to aspire for a limited defense of its own. Basrur argues that US missile defense plans are unlikely to provoke a major arms buildup by China because deployed defenses are unlikely to significantly undercut deterrence. "The utility of missile defense being limited, its fate will eventually be decided by politics and the cost factor…. The likelihood of a domino effect on India and, in turn, Pakistan is very low." Moreover, even if China does build more missiles, "India has long accepted the nuclear 'gap' between itself and China. The widening of the 'gap'

will not make much difference. China will still be vulnerable to an Indian strike as and when Indian capacity develops. The number and relative sophistication of Chinese forces do not matter." Basrur makes the case for a limited Indian missile defense, asserting: "[I]t is incumbent upon the government to take at least some steps to protect its citizens against the small risk of deterrence failure by error, accident, or twisted design. A limited missile defense to protect major targets (cities, nuclear facilities) is desirable for this purpose."

In contrast, Mutahir Ahmed of the University of Karachi argues that "a transition from nuclear offense to missile defense is both unlikely and very destabilizing." According to Ahmed, "Many Pakistanis view Washington's pursuit of missile defense as serving the wider purpose of assuring US military and political dominance." Furthermore, Pakistan sees India's interest in missile defense "as an indicator of Indian designs and ambitions to acquire absolute regional superiority in the nuclear domain." He warns that "Pakistan would be compelled to respond to Indian ambitions by increasing military cooperation with China and keeping its nuclear option open as the last resort in a war against India." Moreover, "New Delhi's deployment of missile defenses could jeopardize improved relations between India and China" and "make the resolution of the Kashmir dispute more remote."

Arvind Kumar of the National Institute of Advanced Studies in Bangalore focuses on Beijing's possible responses to US missile defenses, and on New Delhi's likely reactions. Kumar argues that China's nuclear and ballistic missile programs have a momentum of their own, but that US plans for missile defenses could accelerate these efforts. According to Kumar, Chinese programs might well prompt New Delhi to improve its command and control of nuclear forces and to mate nuclear weapons to platforms in order to ensure a credible Indian nuclear deterrent. In Kumar's estimation, India would need a nuclear force "in the low hundreds" to make its deterrent credible vis-à-vis China. He sees no need for India to develop and deploy intercontinental ballistic missiles, as intermediate-range missiles would suffice to reach Beijing and other major Chinese cities. Kumar asserts that "India is not reassured by China's no-first-use guarantee, or its claims that its nuclear arsenal is purely defensive and not on hair-trigger alert, because of the lack of transparency in China and the absence of reliable warning systems in India." The proliferation of missile technology by China to Pakistan produces further anxiety. In light of this, "India needs a better sense of Chinese behavior and intentions, which would in turn help India in shaping its strategies and planning for its force structure."

Lawrence Prabhakar of the Madras Christian College in Chennai concludes that "While India has embraced the concept of minimal, credible nuclear deterrence, the size and scope of the Indian nuclear deterrent are not fixed." Furthermore, "India's commitment to nuclear minimalism could be challenged by developments in China and Pakistan, as well as by prospective US missile defense deployments." Prabhakar predicts that China, India, and Pakistan "are likely to conclude that increases in missile capabilities makes more sense than spending resources to acquire and deploy national missile defenses."

In making its nuclear deterrent appear credible alongside a growing Chinese missile arsenal, Prabhakar notes that "India would have to be somewhat in step with China with regard to China's new missile buildup, though it would not be wise to match China system for system."

Our last essay, by Michael Krepon of the Stimson Center, argues that "The deployment or transfer of theater missile defenses by the United States could have positive as well as negative repercussions. In contrast, prospective US deployments of national missile defenses overwhelmingly point to negative repercussions and downside risks, especially in Asia." According to Krepon, "US missile defense deployments and transfers could prompt cascading military requirements in China and around the periphery of Asia…[including] accelerated growth in nuclear stockpiles, missile inventories, and conventional military capabilities." In this view, "A trickle-down effect on South Asia is already underway, but it has yet to become a cascade. The extent of acceleration will depend, in the first instance, on decisions taken in Washington and Beijing."

The editors hope that this collection of essays will spark additional analysis within the region about the likely ramifications of Washington's decision to abrogate the Anti-Ballistic Missile Treaty and to proceed expeditiously with missile defense deployments. This complex of issues needs to be explored in greater depth within and between the countries likely to be most affected by the Bush administration's decisions. We also hope that this publication will generate more thought in Washington about how US missile defense decisions are likely to reverberate in Asia. We are extremely proud that all of the contributors to this report from South Asia are former Stimson Center Visiting Fellows. We hope our readers will agree that the time these visiting fellows spent in Washington immersed in these issues has been most useful.

This publication and other Stimson Center reports would not have been possible without generous grant support from the Carnegie Corporation of New York and the William and Flora Hewlett Foundation. Our sincere thanks go to David Speedie and Melanie Greenberg for their continued interest in South Asian security issues and the Stimson Center's work in this region. We also wish to thank George Perkovich for his extended interest in the Stimson Center's well being. Finally, our appreciation goes to Claudine McCarthy, Jeff Thompson, Kim Dorazio, Gail Cowan, Sarah Parkinson, and Lorraine Graham for their assistance in editing the report.

Missile Defense and South Asia: An Indian Perspective

Rajesh M. Basrur[1]

On 1 May 2001, President George W. Bush announced a strategic initiative that sought to effect a radical break with the past by supplementing offensive capability with missile defense as the centerpiece of American national security strategy. The Government of India reacted with remarkable alacrity in shedding its earlier doubts and expressing its warm appreciation of the President's speech. The response surprised almost everyone, partly because it was a significant departure from the Government's misgivings about American proposals for a national missile defense (NMD), and partly because of the rapidity with which it came. The public debate that followed was conducted with the vigor displayed earlier over important national security decisions on the Comprehensive Test Ban Treaty (CTBT) and over the nuclear tests of May 1998. In fact, the debate was a little late in coming. NMD had entered the US strategic agenda much earlier during the Clinton Administration, but Indians gave it little attention at the time. Besides, India's own interest in missile defense goes back several years. While much (though not all) of the current global attention has focused on US NMD, Indian interest has for several years revolved around developments relating to missile defense in its own strategic context. Both kinds of missile defense are relevant to India's national security, but in different ways. US NMD has an indirect bearing on Indian security, while a more limited missile defense has a direct one.

In this essay, I attempt to gauge the appropriate posture that India should take with respect to both kinds of missile defense. The issue is an evolving and open-ended one. Will the US NMD be "robust" or limited? How will the United States attempt to shape Russian and Chinese reactions, and how will they actually react? What they, and China in particular, will do may have a bearing on the strategic posture of India and, in turn, Pakistan, though here again there is no certainty as to how either will respond. Equally, how will the United States deploy Theater Missile Defense (TMD)? Will Taiwan be a recipient and, if so, how will China respond? Will India incorporate some form of missile defense into its defense apparatus, and, if it does, what will Pakistan do about it? I raise these questions because I find the participants in the discourse tend to display little nuance and often speak with a certainty that does not rest on a careful consideration of the range of possibilities. In particular, there is scarcely any thoroughgoing argument for or against missile defense based on an adequate discussion of its relation to the fundamentals of deterrence.

[1] The author would like to thank Sunil Dasgupta, Christopher Gagné, Stephen P. Cohen, Brian Woo, Šumit Ganguly, Michael Krepon, and George Quester for their comments on a draft version of this paper. Needless to say, they are only responsible for its strengths.

To start with, the concept of missile defense needs some clarification. In the American strategic lexicon, NMD is generally understood as a response to the threat posed to the US homeland by long-range missiles, while TMD is aimed at countering theater missile threats to US interests overseas. The definition needs flexibility. For instance, if the continental United States were to be attacked by a ship-borne short-range missile, the appropriate defense would be from a so-called TMD system. In short, a TMD system may well play a role in NMD. This is particularly true of India, which faces threats to its homeland from short-range and intermediate-range missiles. Thus, the Indian interest in anti-missile defensive systems is aimed at a limited *national* defense even though the specific systems may be designated as TMD systems in the United States and elsewhere. The distinction is further blurred by the fact that military and civilian targets overlap extensively: most cantonments and nuclear facilities are adjacent to urban centers. To avoid confusion, I will simply use the term "missile defense" in the Indian context.

Below, I first examine the official Indian response to the Bush initiative and explain the reasons for India's shift from doubtful distancing to politically astute applause. I next analyze in some detail the response of the Indian strategic community to the Government of India's position. Thereafter, I present a case for supporting NMD on basic doctrinal grounds. I then extend the line of reasoning and argue in favor of a limited Indian missile defense for the purpose of protecting Indian assets.

INDIA'S OFFICIAL RESPONSE TO MISSILE DEFENSE

Much has been made of the remarkable shift in India's attitude toward the Bush initiative of May 2001. In fact, earlier criticism of the American interest in NMD had been perfunctory and, considering India's own interest in TMD, contradictory as well. In early July 2000, Defense Minister George Fernandes, when questioned about NMD, said that "the US should give up this whole exercise as it will lead to far too many problems than [sic] we can visualize now."[2] Less than a week later, Fernandes was ambivalent. While expressing some concern that American NMD might alter the global nuclear balance and start a new arms race, he also noted that it would dismantle "mutual assured destruction" (MAD) and, more importantly, would not affect India's nuclear program.[3] Similarly, External Affairs Minister Jaswant Singh observed that India was against the militarization of outer space, but expressed his satisfaction with the talks he had held with his counterpart, Madeleine Albright, and her deputy, Strobe

[2] "India Asks US to Give Up Missile Testing," *Hindu* (Chennai), 4 July 2000, cited in Michael J. Green and Toby F. Dalton, "Asian Reactions to US Missile Defense," *NBR Analysis* Vol. 11, no. 3 (November 2000): 35.

[3] "US Missile Test Won't Affect Indian Nuclear Plans," *Hindu* (Chennai), 10 July 2000, 1.

Talbott.[4] The cursory interest displayed by senior members of the Indian cabinet may have been due to India's "reluctance to contradict its number one trading partner, its number one source of direct investment and technology, and its number one potential ally in its rivalry with China and Pakistan."[5] But it certainly was not the result of a lack of interest in missile defense as an issue. As will be shown below, Indian interest in missile defense dated back several years, though the main focus was—and still is—on TMD. Hence, it is hardly surprising that, while expressing some reservations, India never took a strongly critical position on NMD.

Nevertheless, the Vajpayee government's warm reaction to Bush's May 2001 speech was unexpected. The Ministry of External Affairs, in an official statement, applauded the President's effort to dismantle the "adversarial legacy of the Cold War" and his desire to "make a clean break from the past" by "stepping away from a world that is held hostage by the doctrine of MAD."[6] After the initial surprise, some commentators took a second look at the Indian position and discovered nuances. Nicholas Berry pointed out that India had not endorsed NMD at all, but had only expressed enthusiasm for that portion of the Bush speech, which underlined arms control.[7] The point was expressly conveyed by Indian officials to senior Russian and Chinese leaders, though not to the satisfaction of either.[8] Indian policymakers, caught between the United States on one hand and Russia and China on the other, had to engage in a fair bit of tightrope walking. The inducement held out by the Russians—transfer of missile defense technology (space-tracking radar and anti-tactical ballistic missile (ATBM) rockets) in addition to other military hardware—was considerable.[9] Still, as a senior Russian journalist admitted, winning India over to the Russian point of view had "proven difficult."[10] At a joint press conference with the visiting Russian Foreign Minister, Igor Ivanov, just three days after the Bush speech, Singh called on the United

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[4] "Talks with Albright, Talbott Fruitful, Says Jaswant," *Hindu* (Chennai), 30 July 2000, Internet: http://www.hinduonnet.com/thehindu/2000/07/30/stories/01300003.htm.

[5] Nicholas Berry, "US National Missile Defense: Views from Asia," N*ational Missile Defense: What Does It All Mean?* (Washington, DC: Center for Defense Information, September 2000), 28.

[6] C. Raja Mohan, "India Welcomes Bush Plan for Cuts in N-arsenals," *Hindu* (Chennai), 3 May 2001, Internet: http://www.hinduonnet.com/thehindu/2001/05/03/stories/01030001.htm; Pramit Pal Chaudhuri, "India Endorses Nuke Strategy Shift," *Hindustan Times* (New Delhi), 3 May 2001, Internet: http://www.hindustantimes.com/nonfram/030501/detfro02.asp.

[7] Nicholas Berry, "Did India Endorse Missile Defense? Not Exactly," Center for Defense Information Asia Forum (29 May 2001), Internet: http://www.cdi.org/asia/fa052901.html.

[8] J. N. Dixit, "'India's Response to NMD was Hasty,'" *Indiaabroaddaily.com*, 19 May 2001.

[9] Fred Weir, "Russia Offers NMD System to India," *Hindustan Times* (New Delhi), 7 June 2001, Internet: http://www.hindustantimes.com/nonfram/070601/detFOR06.asp.

[10] Ibid.

States not to abrogate the ABM Treaty unilaterally, but to "engage Russia in dialogue," which was a fair distance from saying that the preservation of the Treaty was a serious concern to India.[11] Singh also explicitly welcomed the Bush initiative, declaring that "[b]etween mutually agreed decisions and mutually assured destruction, the former is preferable."[12]

Notwithstanding the careful choice of words, the fact remains that, taken as a whole, India's response to the Bush speech was very supportive. What were India's motives? According to one commentator, India wanted to obtain from the United States military and technical assistance as well as support for its drive for a permanent seat in the United Nations Security Council—"a good way to grease the wheel of India's rise to superpower status."[13] A more immediate objective, it appears, was the desire to gain access to US surveillance data, especially on Chinese and Pakistani missile sites.[14] A possible consideration was a strategic tie-up with the United States against China.[15] But these explanations are not enough. They do not explain why an India long committed to global disarmament should have been willing to countenance the abandonment of the centerpiece of the existing structure of arms control: the ABM Treaty. Furthermore, why, despite their constant concern with the Chinese threat, were Indian leaders unperturbed by the possibility of a Chinese buildup in response to NMD? The answer lies in the character of Indian strategic culture, more specifically, Indian strategic culture with respect to nuclear weapons.[16]

Indian thinking about nuclear weapons has always been a mix of power-oriented realism and idealistic restraint. While the realist element has been attracted to the possibilities offered by nuclear deterrence, the idealist element has found nuclear weapons morally abhorrent and hence sought to undo their potential effects through global disarmament. This latter aspect of Indian nuclear-strategic thought

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[11] C. Raja Mohan, "Indian Support to NMD Not at Russian Cost," *Hindu* (Chennai), 5 May 2001, Internet: http://www.hinduonnet.com/thehindu/2001/05/05/stories/01050002.htm.

[12] "USA, Russia Should Discus NMD: India," *Statesman* (Kolkata), 5 May 2001.

[13] Steve LaMontagne, "NMD Will Slow India's Rise," *Hindu* (Chennai), 14 June 2001, Internet: http://www.hinduonnet.com/thehindu/2001/06/14/stories/0514134a.htm.

[14] Atul Aneja, "Defense Ministry Debating Deal with US over NMD," *Hindu* (Chennai), 13 May 2001, Internet: http://www.hinduonnet.com/thehindu/2001/05/13/stories/0113000c.htm.

[15] View expressed by Bharat Karnad in Ramananda Sengupta, "Why India Embraced NMD," *Rediff.com* (New Delhi), 10 May 2001, Internet: http://www.rediff.com/news/2001/may/10nmd.htm.

[16] For a detailed analysis, see Rajesh M. Basrur, "Nuclear Weapons and Indian Strategic Culture," *Journal of Peace Research* Vol. 38, no. 2 (March 2001): 181–198.

would find missile defense conceptually appealing. It is not surprising that the Indian response to the Bush initiative should have focused largely on the shift away from MAD and the space this creates for significant arms reductions. That the capacity to defend against missiles is taken seriously by the Government of India is evident from its long-standing interest, dating back to a time when the Bharatiya Janata Party (BJP) was not in power, in developing its own missile defense capacity. Indian equanimity vis-à-vis the possible upgrading of China's arsenal is also explained by its nuclear-strategic culture. India has never been particularly anxious about its vulnerability to a qualitative and quantitative gap between China's nuclear inventory and its own. While some Indian strategists have been wont to focus on typically American concerns relating to vulnerability to preemption, the fact that the pace of India's nuclearization has been leisurely at best is indicative of a distinct lack of enthusiasm for the operational minutiae of nuclear possession. Indian political leaders have often been accused of an overly political approach to nuclear weapons. That, I suggest, is one of their strengths. It is an understanding that underlies their commitment to existential deterrence—an acutely insightful perception of the essentially political character of nuclear weapons, which explains their acceptance of the imbalances and anomalies that preoccupy professional deterrence theorists. In light of this, the BJP-led government's relaxed acceptance of missile defense and their obvious intent—to extract the fullest advantage from a policy they are intrinsically comfortable with—is understandable.

INDIA'S MISSILE DEFENSE DEBATE

The debate over missile defense has been somewhat different from similar debates in the past. Earlier, public discussions on the CTBT (which India rejected in 1996) and on the 1998 nuclear tests demarcated fairly clearly the dividing line between those who thought nuclear weapons to be a boon and those who deemed them to be a curse. This time, however, opposition to the government's position has come not only from the generally left-leaning peace constituency, but also from staunch nationalists on the other side of the ideological divide. Not only that, the new strategic bedfellows use the same language to oppose the government and its supporters, which is not a little ironic, since the left critics harbor a strong antipathy toward nuclear weapons, whereas the nationalists are at a minimum comfortable with a nuclear option.

The chief objection of the critics is that missile defense would have a destabilizing domino effect reaching all the way from the United States to South Asia.[17] The American program would cause China

[17] Deepanshu Bagchee and Mathew C. J. Rudolph, "Misguided Missiles," *Hindu* (Chennai), 5 May 2001, Internet: http://www.hinduonnet.com/thehindu/2001/05/05/stories/05051349.htm; Arpit Rajain, "The US National Missile Defense and South Asia," Article no. 395 (New Delhi: Institute for Peace and Conflict Studies, 30 July 2000), Internet: http://www.ipcs.org/issues/articles/395-ndi-arpit.html; Mandavi Mehta, "Looking Beyond the Subcontinent," *Newspaper Today* (New Delhi), 14 May 2001, Internet: http://www.thenewspapertoday.com; Muchkund Dubey, "Missile Defense and India," *Hindu* (Chennai), 9 May 2001, Internet: http://www.hinduonnet.com/thehindu/2001/05/09/stories/05092523.htm; Achin Vanaik,

to embark on a qualitative and quantitative buildup. This would likely entail an expanded arsenal, multiple-warhead (MIRVed missiles), and the adoption of an alert posture. In India, the change would be perceived as threatening, the balance between moderates and hawks would tilt in favor of the latter, and a buildup would commence, followed by a like response from Pakistan. The result would be rising regional instability, raising the dire prospect of an already unstable India–Pakistan relationship sliding into war. American critics, including former Secretary of State Madeleine Albright, echo this view.[18] Indians also fear that a China antagonized by American missile defense may draw even closer to Pakistan and accelerate strategic cooperation with it.[19] This is an emotive issue. Indians have long complained about the China–Pakistan nuclear and missile nexus as the central component of China's efforts to "contain" and "encircle" India.

Another criticism is that NMD will have a disequilibrating effect on the global structure of arms control.[20] The United States' rejection of the ABM Treaty is seen as the first step toward this.[21] It will not only present a difficult roadblock to further reductions, but also enhance tensions everywhere through the revival of arms racing. Ongoing efforts to agree on a fissile material control treaty (FMCT) would be

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"Ballistic Missile Defense: Consequences for South Asia," Nuclear Age Peace Foundation, 2002, Internet: http://www.wagingpeace.org/articles/bmd/vanaik_consequences_for_south_asia.html; Gaurav Kampani, "How a US National Missile Defense Will Affect South Asia," *CNS Reports* (Monterey, CA: Center for Nonproliferation Studies, Monterey Institute of International Studies, May 2000), Internet: http://cns.miis.edu/pubs/reports/usmslsa.htm. In fairness, I must acknowledge this was my view as well. See Rajesh M. Basrur, "Missile Defense; An Indian Perspective," Nuclear Age Peace Foundation, 2001, Internet: http://www.napf.org/articles/bmd/basrurindianperspective.html. However, as will be evident from this paper, I have revised my opinion on this specific point.

[18] "'Bush's Security Team Can Destabilize South Asia,'" *Hindustan Times* (New Delhi), 12 January 2001, Internet: http://www.hindustantimes.com/nonfram/120101/detFOR05.asp. For a more qualified assessment, see Timothy D. Hoyt, "South Asia," in James J. Wirtz and Jeffrey A. Larsen, eds., *Rockets' Red Glare: Missile Defenses and the Future of World Politics* (Boulder, CO: Westview Press, 2001). See also Brad Roberts, "US Ballistic Missile Defenses: Implications for Asia," Paper presented at the Second Collaborative Workshop on East Asia Regional Security Futures, Nautilus Institute and Center for American Studies, Fudan University, at Shanghai (3–4 March 2001), Internet: http://www.nautilus.org/nukepolicy/workshops/shanghai%2D01/robertspaper.txt; and Green and Dalton, "Asian Reactions to US Missile Defense."

[19] Bagchee and Rudolph, "Misguided Missiles"; and Kampani, "How a National Missile Defense Will Affect South Asia." See also the views of the opposition Congress Party in C. Raja Mohan, "Cong. [sic] Against Antagonizing China on NMD," *Hindu* (Chennai), 8 May 2001, Internet: http://www.hinduonnet.com/thehindu/2001/05/08/stories/01080004.htm.

[20] Bagchee and Rudolph, "Misguided Missiles;" Vanaik, "Ballistic Missile Defense;" Rajain, "The US National Defense and South Asia;" Kampani, "How a US Missile Defense Will Affect South Asia;" and V. R. Raghavan, "Missile Defense and Strategic Stability," *Hindu* (Chennai), 17 May 2001, Internet: http://www.hinduonnet.com/thehindu/2001/05/17/stories/05172523.htm.

[21] "A New Arms Race?" *The Hindustan Times* (New Delhi), 12 December 2001, Internet: http://www.hindustantimes.com/nonfram/151201/detedi02.asp; "Offensive Defence," *Times of India* (New Delhi), 18 December 2001; and Manpreet Sethi, "A Goodbye to Global Security?" *Indian Express* (Mumbai), 19 December 2001, Internet: http://www.indian-express.com/ie20011219/ed4.html.

adversely affected, particularly if India and Pakistan seek to stockpile larger quantities of fissile materials in order to build more bombs. One critic observes that missile defense is not a truly defensive system, but is in fact a "means for bolstering offense" with no design for disarmament, and Indian support for it shows that "[w]e have now deflected sharply from the elimination goalpost and are now adrift in the uncertain and dangerous course of a new weapon system."[22] The offensive capabilities said to be inherent in missile defense are a source of discomfort for several critics. They are troubled by the prospect of a United States made less vulnerable by NMD becoming an aggressive power.[23] This brings to the fore an image that has not quite faded from the Indian strategic worldview: the fear of being pushed around by a hegemonic power.[24]

On the other side, a number of analysts have found merit in India's stance. First, the domino theory is rejected. One argument, made before the Bush speech of May 2001, is that China will not react aggressively to a US NMD because it will have no need to: it will have adequate recourse to countermeasures, which are easier and cheaper to acquire than sophisticated weapons.[25] Another—also expressed early—is that it does not really matter because India has long accepted an India–China disparity anyway: "What India is looking for is credible nuclear deterrence and not nuclear parity."[26] Furthermore, simple pragmatism backs the Indian position. Since the United States will go ahead with missile defense regardless of what others say, why not hop aboard the bandwagon and try to extract the

[22] Dubey, "Missile Defense and India."

[23] Achin Vanaik, "India's Response to the NMD," *Hindu* (Chennai), 25 May 2001, Internet: http://www.hinduonnet.com/thehindu/2001/05/25/stories/05252524.htm; Amulya Ganguli, "America Rules, Okay?" *Hindustan Times* (New Delhi), 14 May 2001, Internet: http://www.hindustantimes.com/nonfram/140501/bigidea.asp; Inder Malhotra, "Long On Flowery Rhetoric, Short On Realism," *Hindu* (Chennai), 10 May 2001, Internet: http://www.hinduonnet.com/thehindu/2001/05/10/stories/0510134a.htm; and Dubey, "Missile Defense and India."

[24] "Offensive Defence."

[25] C. Raja Mohan, "Indo–US Dialogue On NMD?" *Hindu* (Chennai), 14 March 2001, Internet: http://www.hinduonnet.com/thehindu/2001/03/14/stories/05142523.htm.

[26] S. Chandrasekharan, "NMD, TMD and India: Let Not Our Imagination Run Riot," Paper no. 140 (Noida, India: South Asia Analysis Group, 30 August 2000), Internet: http://www.saag.org/papers2/paper140.html. This view has also found support in the US. See O'Hanlon and Lindsay, *Defending America*, 137–139.

maximum advantage?[27] It is, moreover, a "wily political decision" since it lauds the US statement on arms cuts without supporting NMD directly.[28]

Another argument in favor of supporting the United States goes a little further. It sees NMD as providing an opportunity for India to engineer a breakthrough in its relationship with the United States. The American shift from established "nuclear theology" to missile defense opens the door for a fruitful arms control dialogue between the two countries.[29] The result would be an improved strategic understanding between them. Finally, the Bush initiative is seen more broadly as heralding the "demise of the old nuclear order," which rested on the twin pillars of MAD and the NPT, both anathema to India's strategic thinking and interests.[30] It follows that India should be supportive of it.

The arguments outlined above are cast in political-strategic as well as military-strategic terms, but the latter are the basis for the former. Opposition to NMD and to India's stance on it rests fundamentally on the understanding that its military consequences are undesirable: NMD will alter the operational calculus of the nuclear players, and their resultant actions and reactions will have an adverse impact on Indian security. Supporters of the Indian position hold generally that operational effects do not matter or are of little consequence. The real significance of NMD is *political*: it provides the basis for a paradigm change, whether with regard to the global nuclear order and the prospects for arms control or, more narrowly, with respect to Indo–US relations. I find the latter case more persuasive. However, it needs to be argued at greater length since it is far from self-evident that the military implications of missile defense are not as undesirable as critics hold. I will attempt below a more thorough consideration of the military and political aspects of missile defense from the Indian perspective than is evident in the literature.

To begin with, there are some important difficulties in the opponents' position that need to be addressed. First of all, they take as axiomatic that any disequilibrium in military "balances" will lead to arms racing. This, as I will show below, is based on an overly simplified understanding of the phenomenon of arms racing and the variable dynamics that underlie it. Not all changes in the balance of forces result in arms racing, and not all arms racing is the consequence of changes in the balance of

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[27] Interview with Rear Admiral Raja Menon (retd), *The Newspaper Today* (New Delhi), 7 August 2001, Internet: http://www.thenewspapertoday.com/interview/index.phtml?INTERVIEW=INT_RAJA. See also "Shield for a Sword," *Telegraph* (Kolkata), 7 May 2001, Internet: http://www.telegraphindia.com/archive/1010507/index.htm.

[28] P. R. Chari, "Posers on the NMD," *Hindu* (Chennai), 6 June 2001, Internet: http://www.hinduonnet.com/thehindu/2001/06/06/stories/05062523.htm.

[29] Raja Mohan, "Indo–US Dialogue on NMD?"

[30] C. Raja Mohan, "In Praise of Diplomatic Exuberance," *Hindu* (Chennai), 7 May 2001, Internet: http://www.hinduonnet.com/thehindu/2001/05/07/stories/05071348.htm.

forces. Mitigating factors and policy choices are important in determining the relationship between them. Critics are also off the mark when they express disappointment that the positive direction taken by developments in arms control after the end of the Cold War is being adversely affected by missile defense. The reality is that, after the flurry of arms control initiatives that marked the closing stages of the Cold War and its immediate aftermath, the momentum of arms control has actually *slowed down* significantly. The optimism of the early post-Cold War phase—the hope that nuclear weapons could now be delegitimized and eventually done away with—has receded. Despite the absence of serious nuclear threats for a decade, the major nuclear powers have done little to retreat from their overkill postures. It is in this context that, perhaps, a paradigm shift in the fundamentals of doctrine can be seen as a small ray of hope.

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That having been said, I offer below arguments that are supportive of the basic stand taken by the Indian government on missile defense. I present doctrinal arguments to show that both NMD and TMD are acceptable (with qualifications) because they will, at worst, do little harm to Indian security, and, at best, augment it to an appreciable degree.

WHY NMD IS ACCEPTABLE

I begin with a simple assertion: deterrence is really not about weapons inventories and their operational capabilities. It is at heart about the willingness, or lack of it, to accept immense damage to one's society in relation to one's objectives.[31] It is hard to think of any objective that justifies the risk, even a small risk, of cataclysmic damage to one's society. Hence, those who are even minimally threatened by the possibility of nuclear weapons being used against them are invariably compelled to restrain themselves. In short, states that possess nuclear weapons (hereafter, for the sake of brevity, I use the term "nuclear states") do not attack other states that have the same capability. Whether or not a nuclear state possesses missile defense capability, it will not be subject to nuclear attack because it possesses some capacity to retaliate with its own nuclear weapons.[32]

[31] The essence of this argument is drawn from Kenneth Waltz, "Nuclear Myths and Political Realities," *American Political Science Review* Vol. 84, no. 3 (September 1990): 731–745.

[32] This may not entirely preclude conflict below the level of full-scale conventional conflict. In this respect, there is some debate over the implications of the Kargil conflict (1999) between India and Pakistan. For divergent viewpoints, see Michael Krepon and Chris Gagné, eds., *The Stability–Instability Paradox: Nuclear Weapons and Brinkmanship in South Asia*, Report no. 38 (Washington, DC: The Henry L. Stimson Center, June 2001) and Rajesh M. Basrur, "Nuclear Confidence-Building in the Post-Kargil Scenario," in Moonis Ahmar, ed., *The Challenge of Confidence-Building in South Asia* (New Delhi: Har-Anand, 2001).

Even the most robust missile defense does not meaningfully augment deterrence by undermining an adversary's capacity to threaten it. The possessor of a robust NMD will always be vulnerable to some unknown quantum of risk from an adversary's first or second strike. No defensive system, no matter how sophisticated, can be known in advance to be 100 percent effective. That being the case, even the best of NMD systems cannot guarantee a total defense, not even from an adversary who possesses a handful of weapons. This means that the possessor of a highly developed NMD *cannot* use it as a cover to launch a first strike in the anticipation that there will be no counterstrike. A small risk with very large potential consequences will remain. What possible objective can justify the taking of such a risk? Once an adversary has nuclear weapons, it has deterrent capability; and one's possession of missile defense has only a notional—not a real—effect on that deterrence capability. In effect, a small nuclear power has no good reason to be afraid of an adversary, large or small, possessing NMD. From the standpoint of the possessor of NMD, its defensive capability will not be a disincentive to proliferation. Nor will NMD give it an "edge" in its relationship with a small nuclear power.

This, however, does not mean NMD is without value. It does have some value: it can limit damage to oneself in the event deterrence fails (or, if you prefer, does not work). There are three ways in which deterrence might not work: if there is an accidental launch, if there is an unauthorized "renegade" launch, and if an undeterrable adversary engages in a suicidal launch. Given the extensive precautions and safety measures surrounding nuclear weapons, the probability of any of these events occurring is extremely low. Before "Black Tuesday," the last would have been considered by most of us, prone as we are to clothe deterrence in rationality, as unthinkable. Today, it cannot be ruled out. It follows that, notwithstanding all the perfectly sensible objections to missile defense—that it is technologically questionable, that it is too expensive, and that it is unlikely to work very well—its legitimacy lies in its capacity, regardless of the level of its sophistication and its operational effectiveness, to enable a significant number of people to survive an intended or unintended nuclear strike. To put it differently, the weight of risk works the other way here: the small risk that remains has to be countered to the extent possible. It may be viewed as a form of "catastrophe insurance."[33] There is a moral obligation on the part of the state to do so. There can, in principle, be no argument against saving *some* lives in the event of a

There can, in principle, be no argument against saving* some *lives in the event of a nuclear strike.

[33] William J. Perry, "Preparing for the Next Attack," *Foreign Affairs* Vol. 80, no. 6 (November/December 2001): 31–45. The metaphor may not be entirely appropriate, since missile defense is a form of prevention and not compensation, but the argument is nevertheless sound.

nuclear strike. How an actual system of defense is conceived of is a matter of the tradeoff expected between costs and risks.

The argument against NMD is couched in quite different terms. It is an argument that leans on numerical balances and on the understanding that the *certainty* of very large-scale destruction underpins deterrence. But, in practice, it is not one's own certainty of raining untold destruction upon the other that deters; rather, it is the other's *uncertainty* about *preventing* such destruction that deters. The argument against NMD, then, reveals a logic resting on weak foundations. NMD has no fundamental effect on nuclear weapons.

But there is still a major difficulty. Even notional capabilities such as NMD or overly large arsenals evoke insecurity. In the anarchic system that is international politics, the mere possession of significant military capability by a state is a source of some discomfort to other states. The extent of that discomfort varies with the overall character of relationships: the greater the cooperation, the less the discomfort. In relationships characterized by uncertainty or tension, even if there are no powerful sources of hostility, the numbers game starts to assume significance. Thus, even as the United States and China move toward greater cooperation through steadily increasing trade and investment relations, the politics of military numbers is reduced, but not eliminated. This is particularly true of the politics relating to nuclear weapons since the potential consequences of their use, however unlikely, are so great. In consequence, such relationships function at two levels. At the primary level, there is mutually reinforcing economic cooperation and interdependence. At the secondary level, there is a game of move and counter-move dictated in large part by the distribution of notional capability, and by changes in that distribution.

If one does not make this distinction, it is arguable that belief in the potential effects of NMD is sufficient to generate behavior that is self-fulfilling: the *belief* that NMD is dangerous might be sufficient to create the adverse reaction of arms racing and set in motion a destabilizing process. But once a more discriminating view is taken, different outcomes are possible. Since the dangers associated with NMD are not primary, it becomes possible to mitigate the perceptions that make it appear as an object of fear and tension. This can be accomplished by means of a strategy of reassurance. This has been evident for some time, though in a limited way, by the perceptible shift in the Russian response to NMD, from outright rejection to a willingness to listen, discuss, and negotiate. That President Putin should have departed significantly from his position on NATO expansion, to which Russian opposition has been even stronger than to NMD, is indicative of the possibilities.

US–Russian cooperation over the past decade has been at the primary level, involving a sharp decline in mutual threat perceptions, collaboration on military-strategic issues (the Gulf, Russian nuclear safety and stability), and growing levels of economic interaction. Hiccups on issues where their views have been divergent, such as US interventions in Bosnia and Kosovo or Russia's handling of the Chechen

rebellion, have been secondary. Differences over NMD and the Bush Administration's stated objective of dismantling the ABM Treaty fall in the latter category. The divergence over this issue has appeared significant because of the extent of the Bush program's departure from established consensus between the two countries. Should the gulf be narrowed, the problem will become less serious. There are already signs that this may happen. The scope for a reassurance-driven approach to NMD is increasing. Despite the disagreement on the ABM Treaty, the United States and Russia remain committed to arms control and, more importantly, to a closer Russian relationship with NATO. The same applies to the US–China relationship. The United States has conveyed its acceptance of Chinese strategic modernization and shown an interest in engaging China on missile defense. One must also bear in mind that an arms race is precisely what both Russia and China do not want at a time when their preoccupations revolve more around economic growth and stability than anything else. Not surprisingly, neither Russia nor China has reacted strongly to the American rejection of the ABM Treaty.

A US–China arms race is certainly not inevitable. In this connection, Bruno Tertrais's distinction between two types of arms race is useful.[34] Type-I arms races are basically strategic races, whereas Type-II arms races are driven by symbols and politics. While I am not at one with Tertrais in the example he chooses to describe them, the conceptual difference is important. I will attempt my own definition. Where arms races are related to actual capabilities on the field of battle, such that they would affect actual outcomes, they may be classified as Type-I or strategic arms races. Where arms races have little relevance to actual outcomes on the battlefield or to the employment of capabilities, they may be characterized as Type-II or symbolic arms races. Further, the two types of arms races relate differently to the types of political relationship I have described above. In a relationship of hostility at the primary level, an arms race may be either Type-I or Type-II. Where the relationship is one of cooperation at the primary level and tension is restricted to the secondary level, the arms race must by definition be Type-II or symbolic. While symbolic politics may in a sense be as "real" as strategic politics—the eye of the beholder being a major determinant—it is nonetheless far more amenable to reassurance than is strategic politics. As such, notwithstanding the many differences between them, it is well within the realm of possibility that the United States and China could come to an understanding that prevents an arms race from the deployment of an American NMD. Some of the possibilities for reassurance that the United States can offer include a very limited and "non-threatening" NMD

Some of the possibilities for reassurance that the United States can offer [China] include a very limited and "non-threatening" NMD deployment, enhanced political and economic cooperation on a range of issues, and prudence on Taiwan.

[34] Bruno Tertrais, "Do Arms Races Matter?" *Washington Quarterly* Vol. 24, no. 4 (Autumn 2001): 123–133.

deployment, enhanced political and economic cooperation on a range of issues, and prudence on Taiwan. Again, it is worth pointing out that an expansionary response is not the most cost-effective one for China, which would not like to divert precious funds from its main goal of economic development.[35]

In light of this discussion, it is unlikely that there would be cause for anxiety in India about China's reaction to a US NMD. Such nuclear expansion as it does undertake will not in any case reduce India's deterrence capacity in the sense that I have explained above. India has long accepted the nuclear "gap" between itself and China. The widening of the "gap" will not make much difference. China will still be vulnerable to an Indian strike as and when Indian capacity develops. The number and relative sophistication of Chinese forces do not matter. Once Chinese targets are targeted by even a small number of Indian missiles, it is immaterial whether China has a hundred or two hundred weapons targeting India. No Chinese leader can risk even a single Indian missile hitting a Chinese city. There is no rationally conceivable objective that China can hope to attain that would justify such a risk. It need scarcely be added that, with China very unlikely to respond in a big way to a US NMD, and with India equally unlikely to expand its capabilities, Pakistan too will not be affected by the putative domino effect of missile defense.

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Once the alleged adverse effects of NMD are disposed of, it makes sense to support missile defense because it attempts, to whatever degree, to save human lives. Indeed, it is a moral imperative. Moreover, the argument that missile defense has intrinsic merit because it marks a radical departure from a static nuclear order also carries considerable weight. The Reaganite view that nuclear weapons are inherently evil, which underlies SDI and propels the present missile defense program, strikes a powerful chord in Indian thinking, which has always rejected the idea that the security of nations can be maximized by an unbridled threat to destroy one another. The rejection of the moral validity of nuclear weapons provides a much sounder basis for arms control than does the Cold War conception of stability based on assured destruction. Indeed, the weakening of MAD and the consequent fillip to arms reduction may turn out to be the primary contribution of the missile defense program.[36]

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[35] On Chinese nuclear policy and options, see Robert A. Manning, Ronald Montaperto and Brad Roberts, *China, Nuclear Weapons and Arms Control: A Preliminary Assessment* (New York, NY: Council on Foreign Relations, 2000); Philip C. Saunders and Jing-dong Yuan, "China's Strategic Force Modernization: Issues and Implications for the United States," in Michael Barletta, ed., *Proliferation Challenges and Nonproliferation opportunities for New Administrations* (Monterey, CA: Center for Nonproliferation Studies, Monterey Institute for International Studies, September 2000); and Li Bin, "The Impact of US NMD on Chinese Nuclear Modernization," Pugwash Online (April 2001), Internet: http://pugwash.org/reports/rc/rc8e.htm.

[36] On the significance and desirability of a shift from MAD, see Michael Krepon, "Moving Away from MAD," *Survival* Vol. 43, no. 2 (Summer 2001): 81–95.

THE CASE FOR A LIMITED MISSILE DEFENSE

For the United States, defense against theater missile threats has been a long-standing concern. The extensive use of missiles by other states in strategically important areas, notably during the Iran–Iraq War and the Soviet war in Afghanistan, created a growing concern about a new "generic threat" to US forces.[37] The most significant direct threat came during the Gulf war, in which the largest single instance of American casualties resulted from an Iraqi Scud missile attack. TMD became an "Asian issue" only after China's missile launches in the Taiwan Strait (1995, 1996) and the North Korean launch of a Taepodong missile (1998). These events also created a serious interest in TMD among American allies—notably Japan, South Korea, and Taiwan—who were (and are) relatively indifferent to NMD.[38] While none of this impacted directly on India, it certainly enhanced awareness of the problem. Though less concerned about US NMD, India had a more long-standing interest in missile threats related to missile defense.[39] Its attention to this was attracted by the Arab–Israeli War of 1973, the Iran–Iraq War, the Soviet war in Afghanistan, and Operation Desert Storm. American use of Tomahawk missiles in Afghanistan (1998) and Kosovo (1999) added to a general sense of unease. The concern became more serious following reports about the transfer of Chinese M-11 missiles to Pakistan and the deployment of Chinese nuclear missiles in Tibet. Since the mid-1990s, the growth of Pakistani nuclear and missile capabilities has underlined the seriousness of the problem.

The range of missiles developed under the Integrated Guided Missile Development Program inaugurated by Prime Minister Indira Gandhi in 1983 included not only offensive missiles such as the nuclear-capable Prithvi and Agni, but also the Akash surface-to-air missile, which has TMD potential. Indian scientists have developed the Rajendra phased array radar and negotiated with Russia for its S-300 anti-tactical ballistic missile (ATBM) system, and also with Israel for the Arrow ATBM and the Phalcon airborne early warning (AEW) platform.[40] While the cost factor is a serious constraint (the S-300 is believed to cost from $55 million to $160 million depending on the exact type), Indian interest has been sustained. A recent report says India is negotiating with Israel to integrate the technology of Akash and

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[37] David M. Finkelstein, "Theater Missile Defense in Asia," paper presented at the Second Collaborative Workshop on East Asia Regional Security Futures, Nautilus Institute and Center for American Studies, Fudan University, at Shanghai (3–4 March 2001), Internet: http://www.nautilus.org/nukepolicy/workshops/shanghai-01/finkelsteinpaper.html.

[38] Berry, "US National Missile Defense."

[39] Waheguru Pal Singh Siddhu, "Regional Perspective: South Asia," in *International Perspectives on Missile Proliferation and Defenses*, Occasional Paper no. 5 (Monterey, CA: Center for Nonproliferation Studies, Monterey Institute of International Studies, March 2001).

[40] Gregory Koblentz, "Theater Missile Defense and South Asia: A Volatile Mix," *Nonproliferation Review* Vol. 4, no. 3 (Spring–Summer 1997): 54–62.

the Arrow-2, and also the Rajendra radar with the Arrow-2's Greenpine radar, which can track a missile from a distance of 300 km.[41]

How have India's nuclear adversaries reacted? China does not consider India a serious nuclear threat because of the limited reach of Indian weapons. There is some concern, though, about Indo–Russian and Indo–Israeli cooperation and where it might lead in the long run.[42] But the Chinese approach to missile defense has been more political than military, as David Finkelstein has shown.[43] Notwithstanding the tension arising from the border dispute and the Sino–Pakistani nuclear and missile nexus, the China–India relationship remains stable. Trade is on the rise and there is a tacit understanding that differences should not stand in the way of cooperation.

The same is not the case with the India–Pakistan relationship. Here, military tensions have been high. While the two have not been at war since 1971, there has been intense acrimony over Kashmir, an on-going (since the mid-1980s) low-intensity conflict in the Siachen Glacier region, periodic crises over large-scale military exercises and associated threat perceptions (1986–87, 1990), and an armed clash of significant proportions in the Kargil sector of Kashmir (1999). Competitive nuclear testing in 1998 and missile testing before and after that date have heightened the tension. The Pakistani response to American NMD and to the Indian interest in missile defense has been negative. At the UN Conference on Disarmament in Geneva, Foreign Secretary Inamul Haq argued that the creation of "shields" would cause others to improve their "lances," which could "heighten tensions between major powers, jeopardize the global strategic balance and turn back the disarmament clock."[44] Shortly after Bush's May 2001 speech, Pakistan's Chief Executive, General Parvez Musharraf, criticized the NMD program, averring that it could "jeopardize international stability, trigger a new arms race and undermine international efforts aimed at arms control and disarmament."[45] The Pakistani view is in accord with the domino theory on NMD, which springs from a MAD-based perception that one man's missile defense is another's first-strike vulnerability. That, as I have shown, is of dubious merit.

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[41] Atul Aneja, "Indo–Israeli Partnership for A Missile Shield," *Hindu*, 6 September 2001, Internet: http://www.hinduonnet.com/stories/0206000h.htm.

[42] Roberts, "US Ballistic Missile Defenses," 5.

[43] "Theater Missile Defense in Asia," 7–9.

[44] Stephanie Nebehay, "Pakistan Warns on Dangers of US Missile Shield," *Yahoo! News*, 5 January 2001.

[45] B. Murlidhara Reddy, "Musharraf Opposes NMD," *Hindu*, 13 May 2001, Internet: http://www.the-hindu.com/stories/01130003.htm. See also Celia W. Dugger, "US Nurtures Growing Defense Bond with India," *New York Times*, 13 May 2001, Internet: http://www.nytimes.com/2001/05/13/world/13INDI.html.

For Pakistan, an Indian missile defense is more worrying still.[46] Seen from the MAD perspective, Indian missile defense creates a problem of vulnerability and credibility for Pakistan's nuclear deterrent. It nevertheless does not necessitate an arms racing response. As one Pakistani analyst sees it, an arm race is unaffordable. It would be more appropriate to counter an Indian missile defense with hardened and mobile basing, countermeasures, and a small numerical preponderance in relation to Indian defense capability.[47] A South Asian ABM Treaty is also desirable in the reasoning of this analyst.[48] However, a South Asian ABM Treaty is based on the flawed assumptions I have criticized above. The doctrinal case for a limited missile defense is basically the same as that I have made with respect to US NMD, which is that it neither reduces nor augments deterrence; that it is consequently not inherently destabilizing; and that it has the merit of promising some damage limitation in the event, unlikely though that may be, of deterrence failing.

From India's perspective, deterrence failure cannot be ruled out in either of its adversarial nuclear-strategic relationships. But India's strategic planners have particular reason to be concerned about the relationship with Pakistan. Deterrence may not work in two ways: as a result of command and control errors arising from short reaction time resulting in accidental launches, or if Pakistani nuclear weapons fall into the wrong hands. (From their point of view, Pakistani strategists would worry about the same things in reverse.) Strategic defense makes sense if it is not intrinsically destabilizing, which, as I have shown, is the case. Realistically, no matter how strong its missile defense capabilities—and these are bound to be limited because of the sheer magnitude of the task of defending all or even most of its strategic assets—India cannot be certain of defending adequately against a Pakistani strike. To reiterate, Pakistan will not be rendered vulnerable by Indian missile defense because India will still be deterred. No Indian decision-maker can possibly consider acceptable even a small risk of a single Pakistani bomb detonating over an Indian city. By adding more weapons to its inventory, Pakistan will not alter India's strategic calculus. There will be no need to. The purpose of an Indian missile defense can at best be to try and minimize damage after

Deterrence may not work in two ways: as a result of command and control errors arising from short reaction time resulting in accidental launches, or if Pakistani nuclear weapons fall into the wrong hands.

[46] Zafar Nawaz Jaspal, "India's Endorsement of the US BMD: Challenges for Regional Stability," *IPRI Journal* Vol. 1, no. 1 (Islamabad: Islamabad Policy Research Institute, Summer 2001): 28–43.

[47] Ibid., 41–42.

[48] Ibid., 40–41.

deterrence has failed, which is far from saying that it will give an Indian leader the confidence to strike first.

The existing India–Pakistan agreement not to attack each other's nuclear facilities carries a fundamental underlying assumption that is congruent with missile defense. The very notion that nuclear facilities should not be attacked implies that they are not acceptable targets. In that case, the idea of defending them cannot be termed unacceptable. Thus, it is reasonable for India and Pakistan to come to an understanding that extends the agreement and permits the defense of nuclear facilities. This might be later extended to other targets.

The process of coming to such an agreement would obviously involve much discussion and negotiation. The important point is to come to an understanding that, by its very nature, minimum deterrence, to which both countries adhere, does not require the principles of assured destruction to underpin it. A clearly understood and enunciated doctrine of unacceptable damage is not only adequate for deterrence, but also much more conducive to strategic stability. It does not exclude missile defense, for each understands that the other is easily deterred by a small risk of large-scale damage. On the contrary, it accommodates missile defense, in itself a moral obligation for governments, by accepting that a less than absolute capacity to defend against missiles leaves deterrence intact. At the political level, India needs to assuage Pakistani anxieties by means of reassurance initiatives, i.e., unilateral signaling to show its commitment to strategic stability and arms control.[49] While the Kargil episode was a setback, there is still a need—and scope for—reassurance-based efforts toward strategic stability, whether through bilateral or unilateral efforts. These may take the form of nuclear confidence-building measures, regular discussions aimed at building doctrinal bridges, perhaps a mutual commitment, tacit or formal, to eschew deployment, and so on.

A clearly understood and enunciated doctrine of unacceptable damage is not only adequate for deterrence, but also much more conducive [than MAD] to strategic stability.

[49] On reassurance, see Banning Garrett, "The Need for Strategic Reassurance in the 21st Century," *Arms Control Today*, Vol. 31, no. 2 (March 2001), Internet: http://www.armscontrol.org/act/2001_03/garrett.asp; Andrew Kydd, "Trust, Reassurance and Cooperation," *International Organization* Vol. 54, no. 2 (Spring 2000): 325–357; and John Steinbruner, *Principles of Global Security* (Washington, DC: Brookings Institution Press, 2000), 126–132.

CONCLUSION

I have argued above that, on the whole, missile defense has been much misunderstood. Its efficacy is limited. It does not meaningfully alter the fundamentals of deterrence, not even in so-called "asymmetric" nuclear relationships. The preoccupation of established deterrence thinking with numbers and vulnerability is off the mark. Numbers are not important; risk is. Even a small risk of nuclear damage overrides the possible objectives to be attained by accepting that risk. In effect, the only utility of missile defenses is the extent, always limited, to which it can limit damage after deterrence has failed. The utility of missile defense being limited, its fate will eventually be decided by politics and the cost factor. The more extreme American NMD ambitions will be moderated by both. That in turn will limit Russian and Chinese responses. The likelihood of a domino effect on India and in turn Pakistan is very low. Such secondary fears as are evoked by missile defense can be assuaged by active reassurance strategies.

The likelihood of a domino effect on India and, in turn, Pakistan is very low. Such secondary fears as are evoked by missile defense can be assuaged by active reassurance strategies.

Despite its obvious merits, India cannot pursue missile defense in a big way. It is simply unaffordable. Nevertheless, it is incumbent upon the government to take at least some steps to protect its citizens against the small risk of deterrence failure by error, accident, or twisted design. A limited missile defense to protect major targets (cities, nuclear facilities) is desirable for this purpose. To the extent that this evokes fears in Pakistan, a strategy of reassurance may be used to alleviate them.

The primary contribution of missile defense to a better world may be doctrinal. The weakening of MAD and its associated baggage—the requirement of large, sophisticated, and diverse arsenals assuredly capable of inflicting monumental damage—may eventually generate a new momentum for arms control by facilitating deep cuts. That would be a welcome development for all states, nuclear and non-nuclear. From the Indian perspective, as official statements have already acknowledged, the expanded potential for arms reduction offered by missile defense is in accord with India's sustained commitment to reducing the global threat of nuclear weapons. Even if it does not happen, missile defense will do no harm.

Finally, a collaborative approach to missile defense can be a solid basis for strengthening Indo–US relations. Nonalignment was a strategy born of weakness and fear. A stronger and more confident India can afford to move closer to the United States, as indeed it has been doing. For all its periodic proneness to unilateralism, the United States, as a hegemonic power, has learned to work with existing allies and to build coalitions. It has shown this capacity in the Gulf, in the Balkans, and in Afghanistan.

As an "emerging power," India can offer it useful economic, political, and military cooperation.[50] India has much to gain from a stronger relationship with the United States, not least the possibility of augmenting its small missile defense capability. Cooperation on missile defense can be one pillar—an important one—to buttress this growing relationship while simultaneously enhancing India's security.

[50] On India as an "emerging power," see Stephen Philip Cohen, *India: Emerging Power* (Washington, DC: Brookings Institution Press, 2001).

Missile Defense and South Asia: A Pakistani Perspective

Mutahir Ahmed

The issue of ballistic missile defense is now a subject of debate at the national, regional, and global levels. Optimists view missile defense as providing protection from possible missile attacks. Pessimists view missile defense as generating arms competition, insecurity, and opening a Pandora's box of arms proliferation. In Pakistan, there is widespread pessimism about the likely consequences of ballistic missile defense (BMD) deployments. India's interest in missile defense technology and deployment is widely viewed as a very significant development, and as an indicator of Indian designs and ambitions to acquire absolute regional superiority in the nuclear domain. Pakistan would be compelled to respond to Indian ambitions by increasing military cooperation with China and keeping its nuclear option open as the last resort in a war against India.

Pakistan, like Russia and the European Union, was greatly concerned by the Bush administration's abandonment of the Anti-Ballistic Missile (ABM) Treaty. Foreign Minister Abdul Sattar sought to prevent differences over this issue from affecting Pakistan's overall relations with the United States, arguing in more general terms that, "Strategic stability should prevail in the world."[1] Pakistan would look to China for continued support in the event of a changed strategic equation in South Asia resulting from missile defense deployments. As President Pervez Musharraf has stated, "[The] Chinese role will remain vital, especially in changing geo-strategic realities. The end of Cold War led to a change in global equation, leading to emergence of regional hegemons, of countries with hegemonistic tendencies. South Asia is a victim of regional hegemonism. This creates regional imbalance which in turn, threatens peace."[2]

Pakistan's negative views toward missile defense are fully shared by China. Chinese officials have strongly opposed US theater and national missile defenses, asserting that they could upset regional stability and the global strategic balance. China considers the renewed US interest in missile defense as reflective of a Cold War mentality and the US penchant for military solutions and unilateralism. Chinese officials also argue that missile defense deployments would encourage an arms race and missile

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[1] "Stance on US Missile Plan Based on Principle: Zhu's Visit Not to Affect Ties With Donors: Sattar," *Dawn* (Karachi), 16 May 2001.

[2] Syed Talat Hussain, "Chinese Role Key to South Asian Peace: CE Seeks Help to Maintain Deterrence," *Dawn* (Karachi), 16 May 2001."

proliferation, thereby threatening the Non-Proliferation Treaty (NPT) regime.[3] Most analysts view the extent of China's strategic modernization program as linked to the scope of US missile defense deployments.[4] For example, the US National Intelligence Estimate released in December 2001 estimates the number of Chinese warheads on intercontinental ballistic missiles could swell to four times its present size in response to US national missile defense (NMD).[5] One possibility for China would be to equip its nuclear missiles with multiple warheads, a course of action that could require a resumption of nuclear tests. In addition, China is expected to replace its highly vulnerable, liquid-fueled missiles with solid-fueled missiles. Furthermore, China would feel less constrained to follow US preferences regarding technology and missile transfers.[6] China could react by ending its informal commitment to abide by the Missile Technology Control Regime guidelines. US missile defense transfers to Taiwan would be of great concern to Beijing for many reasons, including the possibility that Taiwan could apply missile defense technologies toward developing offensive systems.[7]

In contrast to the Chinese and Pakistani perspectives, India's position toward missile defense has become more accepting for several reasons. First, the pro-missile defense stance of the United States has been accompanied by the US endorsement of deep cuts, which is consistent with Indian declaratory policy that champions nuclear disarmament. Second, a shift in reliance from nuclear offense to missile defense—to the extent this is possible—would be a worthy goal that should be explored before passing judgment. Third, New Delhi might believe that the Chinese reaction to US missile defense deployments would not be a strategic concern for India. Fourth, India may believe that it could benefit from participation with the United States in a missile defense plan, either through technology transfers, co-production agreements, or deployments.[8]

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[3] See Michael Green and Toby Dalton, "Asian Reactions to US Missile Defense," *NRB Analysis* Vol. 11, no.3 (Washington, DC: The National Bureau of Asian Research, 2000).

[4] Brad Roberts, "Appendix A: China and BMD: Perspectives and Likely Reactions," *China-US Nuclear Relations: What Relationship Best Serves US Interests?* Prepared for the Advanced Systems and Concepts Office of the Defense Threat Reduction Agency (August 2001), A20–A27.

[5] U.S. National Intelligence Council, *Foreign Missile Developments and the Ballistic Missile Threat Through 2015* (December 2001), Internet: http://www.odci.gov/nic/pubs/index.htm.

[6] Steve La Mantague, "NMD Will Slow India's Rise," *Hindu* (Chennai), 13 June 2001.

[7] Gaurav Kampani, "How a US National Missile Defense Will Effect South Asia," (Monterey, CA: Center for Non-proliferation Studies, Monterey Institute of International Studies, May 2000), 6.

[8] Achin Vanik, *Hindu* (Chennai), 25 May 2001, Internet: http://www.hinduonnet.com/thehindu/2001/05/25/stories/05252524.htm.

In New Delhi's view, the prospective benefits of not opposing the United States on missile defenses might outweigh the difficulties created by China's missile build up. In addition, India is eager to have US sanctions lifted, and to gain a permanent seat in the United Nations Security Council. These goals might be achieved by entering into a strategic partnership with the United States in the region. Moreover, US–India cooperation on missile defense could serve to deflect pressure away from India on the nuclear issue. Another more salient dimension of a prospective partnership or strategic alliance between the United States and India is the threat of Islamic fundamentalism and terrorism. Israel could become a third partner, providing New Delhi with additional technology and military transfers.[9]

For these reasons, New Delhi has dropped its former opposition to missile defense. Its new stance constitutes an ideological somersault designed to cement an emerging partnership with Washington. New Delhi sees Washington as its main ally and a potential supplier of missile delivery systems against China, which is a common threat for both countries.[10] New Delhi has created space to maneuver its way out of the nuclear quarantine imposed by the Comprehensive Test Ban Treaty (CTBT) and NPT regimes. Indian officials are keen to exploit China–US differences to maximum effect, without falling completely into the US lap.[11] It is too early to determine whether India would acquire a BMD system of its own or whether such a system would be partial or nationwide. For the moment, India has only endorsed the US NMD program, however, India may accord a higher priority to its own NMD in the future.

REGIONAL COMPETITION AND MISSILE DEFENSE DEPLOYMENTS

China has switched from being a "strategic partner" during the Clinton administration to a "strategic competitor" in the Bush administration. The United States appears to be disturbed at the prospect of China becoming the largest economy in the next twenty-five years, if Beijing can maintain high growth rates. For its part, the Chinese government was perturbed by the scale and depth of US military might displayed in the Balkan and Afghan wars, as well as by US defense accords and basing arrangements around its periphery. China also reacted sharply to extended US military assistance to Taiwan. In these changed geopolitical circumstances, China has reason to be concerned over the deployment of US national missile defense and theater missile defense for its allies. China might feel

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[9] Irfan Hussain, "The winds of change," *Dawn* (Karachi), 18 May 2001.

[10] Maqbool Ahmed Bhatti, "New Phase in Pak–China Relations," *Dawn* (Karachi), 25 May 2001.

[11] Imtiaz Alam, "The Strategic Shift," *The News* (Islamabad), 18 May 2001.

compelled to upgrade its nuclear and missile capabilities, which would ultimately generate compensating actions in India and Pakistan, resulting a new arms race with potential repercussions beyond South Asia.

Both India and Pakistan would seek to exploit deteriorating relations between the United States and China. New Delhi would seek closer relations with Washington while maintaining cooperative ties to Beijing; Islamabad would seek to cement ties with China, while maintaining cooperative relations with Washington. However, from Pakistan's perspective, the deterioration of US–China ties would not be welcome; nor is it considered necessary. China is not a warrior state. It is, instead, a trading state, committed to a policy of modernization and the accumulation of trade surpluses to fuel economic growth. China receives $40 billion of foreign direct investment annually, mostly from the United States, and enjoys nearly a $100 billion annual trade surplus with the United States. China's economic interests are paramount; unless sorely provoked, Beijing is not going to engage in warfare with the United States.[12]

New Delhi makes it clear that, "given its size, geographical location and trade links, India's security emolument ranges from the Persian Gulf to the Strait of Malacca across the Indian Ocean, including the Central Asian region in the northwest, China in the northeast, and Southeast Asia."[13] For India to achieve these ambitions, it must do so by diminishing the role of other powers. This, in turn, would require the fulfillment of ambitious plans to extend its naval power. India has conducted naval exercises with Vietnam, Japan, South Korea, Indonesia, and Singapore, all of whom have strong reservations about China. On the other hand, China regards the Asia-Pacific region as vital to its security, and any Indian attempt to intrude into the region will face Chinese resistance.[14]

India, Pakistan, and China are very far from the stabilizing conditions fixed by the superpowers in the Cold War era.[15] All three states share "lines of actual control" instead of international borders. In this scenario, the introduction of missile defenses will play a destabilizing role. India, which seeks to be the beneficiary of the US pursuit of missile defenses, could instead find itself under increased threat from its two immediate neighbors. In response to Indian acquisition of missile defenses, China and Pakistan are likely to engage in nuclear buildups and to continue established patterns of strategic cooperation. Moreover, New Delhi's deployment of missile defenses could jeopardize improved relations between

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[12]Najam Sethi, "Leaf from China," *The Friday Times* (Lahore), 21 May 2001.

[13] Ibid.

[14] See ASEAN Regional Forum, *2nd Volume of the Annual Security Outlook (ASO) 2001* (2001), Internet: http://www.aseansec.org/menu.asp?action=3&content=2.

[15] Michael Krepon, "Nuclear Risk Reduction: Is Cold War Experience Applicable to Southern Asia?" in Michael Krepon and Chris Gagne, eds., *The Stability–Instability Paradox: Nuclear Weapons and Brinkmanship in South Asia* Report no. 38 (Stimson Center: Washington, DC, June 2001), 1–14.

India and China. Pakistan's perception that India seeks to counter its nuclear deterrent could also make the resolution of the Kashmir dispute more remote. In addition, India's social and economic development might be adversely affected if funding for missile defenses is added to military expenditures, which have already risen by double-digit percentages in 2000 and 2001.[16] The deteriorating security environment in South Asia resulting from Pakistani and Chinese reactions to Indian missile defense deployments could also prompt New Delhi to push closer to weaponizing and deploying its nuclear forces.

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Both supporters and opponents of ballistic missile defense in the United States claimed that the events of 11 September 2001 strengthened their case. Supporters argued that the attacks on the World Trade Center and Pentagon demonstrated the need for protection against unexpected but devastating threats, while opponents noted that terrorists do not need ballistic missiles to carry out such attacks; knives and box cutters were sufficient to perpetrate these terrible crimes. If strongly held views in the United States over missile defenses were not changed by the 11 September attacks, it is reasonable to expect that strongly held views in Pakistan on this subject are unlikely to change as a result of reassuring statements emanating from Washington or New Delhi. Many Pakistanis view missile defense advocacy in the United States as an obsession that will detract from higher priority efforts against terrorism, as well as impair US cooperation with Russia and China.

CONCLUSION

Many Pakistanis view Washington's pursuit of missile defense as serving the wider purpose of assuring US military and political dominance. As a consequence of this pursuit of unchallengeable power, Washington risks stimulating an arms race in southern Asia. Just as Russia and China view ballistic missile defense to be directed at them, Pakistan would view the induction of missile defense by

[16] India increased defense spending by 28 percent in FY2000 and again by 13 percent in FY2001. "India Boosts Defence Spending," *BBC News*, 29 February 2000, Internet: http://news.bbc.co.uk/hi/english/world/south_asia/newsid_660000/660225.stm and Rahul Bedi, "India Increases Spending to Replace Old Weapons," *Jane's Defence Weekly* (7 March 2001), Internet: http://www.janes.com/defence/news/jdw/jdw010307_2_n.shtml; The defense budget was increased by 4.8 percent in FY2002. "India Unveils Annual Defence Budget," *BBC News*, 28 February 2002, Internet: http://news.bbc.co.uk/hi/english/world/south_asia/newsid_1845000/1845874.stm.

India as an attempt to neutralize Pakistan's deterrent. The distinction between theater and national missile defense therefore becomes blurred in South Asia.

From Pakistan's perspective, a transition from nuclear offense to missile defense is both unlikely and very destabilizing. It is unlikely because India is not going to give up its nuclear deterrent. It is destabilizing because the addition of missile defenses to India's deterrent force would be viewed in Pakistan as an attempt to nullify Pakistan's deterrent. Therefore, India's interest in missile defenses would upset the strategic balance in South Asia and generate regional instability and nuclear and missile buildups.

These unfortunate repercussions would also take place at the international level. Missile defense deployments are very expensive, making it difficult for other states to follow the example of the United States and its strategic allies. An international environment that is divided between states enjoying the presumed protection of missile defenses and states that are under a greater threat would be inherently unstable.[17] National missile defense deployments by the United States would be viewed by Russia and China as weakening their nuclear deterrents, prompting increased requirements for Russian and Chinese nuclear forces. Russia, which was prepared to give up deployments of multiple, independently targetable reentry vehicles on land-based missiles, would need to reconsider this posture. China, which has abstained from deploying multiple-warhead missiles, would also need to move in this direction. Alternatively, or in addition, the option of increasing missile production rates would be considered. Furthermore, states that have refrained from maintaining nuclear forces at high levels of readiness—or states that wish to take missiles off "hair-trigger" alert—would have to reconsider this posture in light of missile defense deployments.

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In southern Asia, the negative repercussions of ballistic missile defense deployments would be particularly acute. The bulk of China's nuclear arsenal is missile-based, and both India and Pakistan are relying increasingly on missile-based nuclear deterrents, as well. US deployments of missile defenses and transfers of missile defense technology would surely lead to further missile proliferation in China, India,

[17] Dipanker Banerjee, Executive Director, Regional Centre for Strategic Studies (Colombo), interview with author, 20 June 2001.

and Pakistan. US national missile defenses would encourage Beijing to enlarge its nuclear arsenal, which could prompt New Delhi and, in turn, Islamabad, to follow suit.[18]

Missile defense is not a substitute for disarmament. Nor is it a substitute for arrangements for nuclear stability in South Asia. To the contrary, the prospective deployment of missile defenses makes these efforts more difficult. As Lt. Gen. (ret.) Talat Masood has said, "if the United States [decides to deploy] missile defense, then it should *complement* the process of disarmament."[19] This complementary process will be hard to pursue at the global level, and even more difficult to carry out in South Asia.

[18] Waheguru Pal Singh Sindhu, "Regional Perspectives South Asia," *International Missile Proliferation and Defenses* Occasional Paper no. 5 (Monterey CA: Monterey Institute of International Studies, Center for Non Proliferation, March 2001), 61–62.

[19] Lt. Gen. (Retd.) Talat Masood, interview with author (italics added), 24 June 2001.

Missile Defense and Strategic Modernization in Southern Asia

Arvind Kumar[1]

Reactions to US missile defense programs differ among Asia-Pacific nations depending not only on the system to be deployed—i.e. theater missile defense (TMD) or national missile defense (NMD)—but also depending on their relationship with the United States, their specific security situation, and their perceptions of how missile defenses will change the balance of power in the region.[2] It is widely perceived in India that US ballistic missile defense (BMD) is not restricted to rogue states or states of concern, but is intended to tackle the entire range of threats that the United States might face in the future.

Indian perspectives on US ballistic missile defense initiatives are varied and fluid. In an interview on 24 July 2000, Jaswant Singh stated, "We have consistently held a view that opposes the militarization of outer space. The National Missile Defense will adversely influence the larger movement towards disarmament of which India is a staunch advocate. We believe that technological superiority will result in a reaction in other parts of the world, thus reviving the possibility of yet another, and newer arms race. We can not support this development."[3] The tone of this statement was quite different from the Ministry of External Affairs (MEA) press release within twenty-four hours of President Bush's address at the National Defense University on 1 May 2001. The press release stated, "India, particularly, welcomes the announcement of unilateral reductions by the US of nuclear forces, as an example. We also welcome moving away from the hair-trigger alerts associated with prevailing nuclear orthodoxies. India believes there is a strategic and technological inevitability in stepping away from a world that is held hostage by the doctrine of mutual assured destruction to a cooperative, defensive transition that is underpinned by further cuts and a de-alert of nuclear forces."[4] However, if one goes through the MEA press release carefully, it is obvious that India has not supported US intentions to deploy ballistic missile defenses. Media accounts have drawn the erroneous conclusion that India has supported and welcomed BMD because the press release does not specifically criticize it.

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[1] The author wishes to acknowledge his senior colleagues Prof. Roddam Narasimha, Director, National Institute of Advanced Studies (NIAS); Prof. S. Rajagopal, Homi Bhabha Visiting Professor, NIAS, Bangalore; and Prof. Michael Krepon, Founding President, The Henry L. Stimson Center, Washington, DC for their comments and suggestions. Their comments helped in conceptualizing and refining the paper. The author also wishes to thank Chris Gagné, Research Associate, The Henry L. Stimson Center, Washington, D.C. for editing the paper.

[2] Michael J. Green and Toby F. Dalton, "Asian Reactions to US Missile Defense," *NBR Publications: NBR Analysis* Vol. 11, no. 3 (November 2000), Internet: http://www.nbr.org/publications/analysis/vol11no3/index.html.

[3] Interview with *Times of India* (New Delhi), 24 July 2000; also quoted in Indian weekly *Outlook*, May 2001.

[4] Ministry of External Affairs, Press Release, 2 May 2001.

Even though India understands the predicament of the United States, there is a sharp division within the strategic community in India about US BMD deployments. Some think that India should not worry much because BMD has no direct linkage or relevance to India's security structure since India does not pose a strong military threat to US interests in Asia. Others think that US BMD deployments might create imbalances and jeopardize regional security. On the one hand, BMD signals a choice to resolve a defense dilemma by defensive, rather than offensive, means. On the other hand, introducing a defensive system could upset the security balance in ways that offensive systems do not by giving the possessor of missile defense the ability to attack first and then defend against retaliation.

Some in India link the issue of US BMD deployment with the prevailing notion of nuclear deterrence theory. It is generally argued that the notion of nuclear deterrence might become irrelevant once the United States achieves effective missile defenses. For example, China's twenty or more intercontinental ballistic missiles (ICBMs) might be negated because the United States would be able to prevent ICBM warheads from reaching their intended targets and, therefore, a Chinese second strike would not produce the desired result. The possession of NMD technology grants more freedom to attack and freedom from attack. To compensate, there is a high likelihood that China might develop some countermeasures that would help it evade NMD. China would also like to attain NMD technology in the future, which would, in turn, weaken the nuclear deterrent of India.

In the prevailing scenario, US BMD deployment is not meant for either Russia or China. The Bush administration has said that it seeks to deploy a limited NMD system against potential missile threats from rogue states or an unauthorized or accidental launch. China and Russia wonder whether US BMD might instead be directed against them, and have been the strongest opponents. Despite their opposition, the United States has been trying to convince China and Russia otherwise and create an atmosphere of trust and confidence. The rationale behind the need for missile defense deployments has been articulated to Russia and China through a series of dialogues. US–Russia and US–China relations have mostly been driven by economic and commercial interests. China and the United States have some differences, but their common interests are greater.[5] It is commonly understood in China that a major political confrontation with the United States would undermine the broader international environment that is the basis for China's economic modernization.

The linkage between US missile defense deployments and the Anti-Ballistic Missile (ABM) Treaty has become a major issue in the debate in India and abroad on the subject. During the Cold War, the ABM Treaty was a crucial cornerstone in maintaining balance and stability. Now, many fear that US BMD deployments might not contribute to global stability, and instead might trigger an arms race.

[5] Chinese Foreign Ministry Spokesman Sun Yuxi stated this on 8 November 2001.

India believes that the United States would deploy a technically feasible NMD, taking into account its national security requirements, despite global reactions to it in general and from Russia and China in particular. There is a fear that the United States would threaten the whole architecture of nuclear disarmament and non-proliferation by deploying missile defenses. This essay examines the possibilities of such an action-reaction cycle in South Asia.

China would start questioning its deterrent posture vis-à-vis the US once Washington deploys a technically feasible NMD, as its second-strike capability could be rendered obsolete. US NMD deployment could cause China to increase its number of ICBMs. China might also try to acquire or refine technologies to evade limited NMD. An increase in the number of Chinese ICBMs in response to US NMD would likely have at least a limited effect on India's force structure.

CHINA'S STRATEGIC MODERNIZATION

Many members of the strategic community around the world believe that US NMD and TMD deployments would have a series of far-reaching consequences for the international security environment. The US NMD program, for example, would jeopardize the global strategic balance and stability and undermine mutual trust and cooperation among major powers.

The United States, as of now and despite several pronouncements to the contrary, has not slowed down its modernization of nuclear forces. According to the "Nuclear Notebook" in the *Bulletin of the Atomic Scientists*, the modernization of US nuclear forces continues, with upgrades underway to all major nuclear weapon systems.[6] The Minuteman III ICBM is in the middle of a multi-billion dollar modernization program, four Pacific-based strategic submarines are being upgraded from Trident I to the longer-range and more accurate Trident II missiles, a new "modified" Trident II missile is under development, and the air force has begun development of a new strategic bomber. The Notebook discloses that although the B-1 bomber is widely reported to have been converted to a conventional only role, the US Air Force maintains plans under which the aircraft can quickly be returned to nuclear roles. The Notebook also reveals that some of the new Joint Strike Fighters currently under development by the Pentagon will be equipped to deliver nuclear bombs. Finally, after a pause of nearly a decade, the United States has resumed production of new plutonium cores for nuclear warheads.[7]

It seems as if the modernization of US weaponry will never stop, even if it acquires a technically feasible BMD capability. The same logic applies to China. United States BMD is not to blame because

[6] Robert S. Norris and William M. Arkin, "NRDC Nuclear Notebook," *Bulletin of Atomic Scientists* (January/February 2001).

[7] Ibid.

Beijing has not offered a commitment to stop its strategic modernization program if the United States would not deploy BMD.

China has been involved in its strategic modernization program for years. China will be modernizing existing arsenals both in the nuclear and missile field whether or not the United States deploys BMD. Beijing has not offered a commitment to stop its strategic modernization program if the United States would not deploy BMD.

There is a considerable debate in the United States and India about China's current strategy and whether it has moved from minimum deterrence to "limited" deterrence, implying the need for a more substantial operational capability. Its twenty or so nuclear-equipped ICBMs could never compete with the thousands of weapons in the US and Russian inventories. However, China still, in the current context, has the potential to deter both the United States and Russia.

China's decades-long modernization efforts reflect its longstanding concern about the survivability of its nuclear deterrent and retaliatory force. This concern has intensified over the last decade, as the United States has demonstrated a dramatic improvement in conventional, long-range, precision strike capability. China is widely reported to be trying to improve the range, payload, and accuracy of its existing missile forces (See Table 1). There has certainly been an increase in the number of Chinese missiles and in China's deterrent capability against US allies in East Asia, in particular Taiwan and Japan.

China has land-, air-, and sea-based nuclear capabilities, but it is widely reported and believed that its sea- and air-based components have little or no intercontinental capability. China's ballistic missile force consists overwhelmingly of short- and intermediate-range missiles that are either dual-capable or armed with conventional warheads. These missiles are constructed primarily to deal with Chinese security requirements around its periphery.[8] Some analysts believe that China has developed and deployed a wide range of tactical nuclear weapons to support its conventional forces in combat.[9] China continues to modernize its overall inventory of nuclear weapon systems, which now includes over 100 warheads deployed operationally on medium-range ballistic missiles (MRBMs) and ICBMs. China is not

[8] Robert A. Manning, Ronald Montaperto, and Brad Roberts, *China, Nuclear Weapons, and Arms Control: A Preliminary Assessment*, Chairmen's Report of a roundtable jointly sponsored by the Council on Foreign Relations, National Defense University, and the Institute for Defense Analyses (Washington, DC: Council on Foreign Relations Press, 2000), Internet: http://www.cfr.org/public/resource.cgi?pub!3601.

[9] Information on Chinese tactical nuclear weapons is limited and contradictory and there is no confirmation from official sources of their existence. See research by Center for Non-Proliferations Studies available on the Nuclear Threat Initiative website, Internet: http://www.nti.org/e_research/e1_china_1.html; Robert S. Norris and William M. Arkin, "NRDC Nuclear Notebook: Chinese Forces 1999," *Bulletin of Atomic Scientists* Vol. 55, no. 4 (May/June 1999); and You Ji, "Nuclear Power in the Post-Cold War Era," *Comparative Strategy* Vol. 18, no. 3 (July–September 1999): 246–248.

currently believed to be producing fissile material for nuclear weapons, but has a stockpile of fissile material sufficient to increase or improve its nuclear inventory.[10]

With its successful test of the DF-31 missile, China is now moving to deploy a new generation of road-mobile, solid-fueled, long-range ICBMs capable of reaching targets across the US west coast (see Table 1). As a part of its modernization program, China has also been pursuing an effort to develop the capability to deliver multiple warheads to different targets from a single ballistic missile. China's "targetable" program for acquiring multiple independently-targetable reentry vehicle (MIRV) capability dates back to 1970 and received a boost from the Chinese Government in 1983 following US President Ronald Reagan's announcement of the Strategic Defense Initiative.[11] Missile tests undertaken in the mid-1980s may have been intended for the development of multiple-warhead missiles, including one such test for the DF-5 ICBM.[12]

An unclassified version of the September 1999 US National Intelligence Estimate stated: "China has had the technical capability to develop multiple reentry vehicle (MRV) payloads for [twenty] years. If China needed a MRV capability in the near term, Beijing could use a DF-31-type RV to develop and deploy a simple MRV or MIRV for the CSS-4 in a few years."[13] The US Intelligence Community and an independent panel of US experts (the Jeremiah Commission) offered a similar perspective in April 1999 after a detailed investigation into China's capabilities.[14] A US House of Representatives Select Committee, led by Rep. Christopher Cox also issued a report, which stated that the Peoples' Republic of China (PRC) "has demonstrated all of the techniques that are required for developing a MIRV bus," and that "the PRC could develop a MIRV dispensing platform within a short period of time after making a decision to proceed."[15] The Cox Committee report asserts that China has the potential to acquire MIRV capability but the decision in this regard has yet to be taken by the Chinese Government. As of December

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[10] David Albright, Frans Berkhout, and William Walker, "Plutonium and Highly Enriched Uranium 1996: World Inventories, Capabilities and Policies," *SIPRI* (Oxford: Oxford University Press, 1997).

[11] James A. Lamson and Wyn Q. Bowen, "'One Arrow, Three Stars': China's MIRV Programme," *Jane's Review*, (May/June 1997), 216–218, 266–268.

[12] Manning, et al., *China, Nuclear Weapons, and Arms Control*, 24.

[13] U.S. National Intelligence Council, "Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015" (September 1999), Internet: http://www.odci.gov/nic/pubs/index.htm .

[14] U.S. National Intelligence Council, "Key Findings" of *The Intelligence Community Damage Assessment on the Implications of China's Acquisition of U.S. Nuclear Weapons Information on the Development of Future Chinese Weapons* (2 April 1999), Internet: http://www.cia.gov/cia/public_affairs/press_release/archives/1999/0421kf.html.

[15] U.S. House of Representatives Select Committee on US National Security and Military/Commercial Concerns with the People's Republic of China, *US National Security and Military/Commercial Concerns With the People's Republic of China*, Internet: http://www.house.gov/coxreport/.

2001, the US Intelligence community projects that Chinese ballistic missile forces will increase several fold by 2015, although it will remain still well below the number of Russian or US forces. MIRVing and missile defense countermeasures would be factors in the ultimate size of the force. In addition, China would have about twenty-four short-range DF-31 and CSS-3 ICBMS that could reach parts of the United States.[16]

As part of its modernization program, China is developing its submarine capabilities as a sea denial force. A new nuclear submarine (SSN) designated Type 093 is under development, displacing 6,000 tons and capable of carrying torpedoes, anti-ship missiles, and land-attack cruise missiles (LACMs). Based on the Russian Victor III-class boat, the Type 093 will be a substantial improvement in China's anti-submarine warfare and anti-ship capability. China is also developing the Type 094 nuclear-powered ballistic missile submarine (SSBN) as a replacement for its single Xia-class SSBN. These boats will carry the more advanced JL-2 submarine-launched ballistic missile (SLBM), which will be capable of carrying MIRV warheads and have a considerably longer range than the older JL-2.

A comprehensive and correct analysis of China's strategic capabilities and its modernization program is a very difficult task for the simple reason that China maintains military secrecy over virtually all information relating to its national security. The problem lies not only with China's lack of transparency, but also with concealment and deception, which appear to be the hallmark of Chinese policies regarding nuclear weapons and missiles. The analysis and the conclusions here are essentially based on data available in the public domain.

[16] U.S. National Foreign Intelligence Board, "Foreign Missile Developments and the Ballistic Missile Threat Through 2015," Unclassified Summary of a National Intelligence Estimate (2002).

Table 1. China's Ballistic Missile Force[17]

System	IOC[a]	Fuel/Basing	Range (km)	Number Deployed
Short-Range				
DF-15 (CSS-6 Or M-9)	1995	Solid/ TEL[b]	200-600	100+
DF-11 (CSS-X-7 or M-11)	1995	Solid/ TEL	185-300	40+
Medium-Range				
DF-2/2A (CSS-1)	1966	Liquid/ Transportable	1,050-1,250	50 (all retired by 1990)
DF-3/3 A	1971	Liquid/ Transportable	2,650-2,800	50–120
JL-1 (CSS-N-3)	1986	Liquid/ SLBM	1,700	12–24
DF-21/21A (CSS-6)	1986	Solid/ TEL	1,800	10–36+
DF-25	1989	Solid/ TEL	1,700	Canceled?
Intercontinental				
DF-4 (CSS-3)	1980	Liquid / Cave	4,750	20–30
DF-5/5A (CSS-4)	1981	Liquid / Silo	12,000-15,000	7–20+
DF-31 (MIRV Capability 200-300 kt warhead type)	Tested 1999	Solid/ TEL	8,000	Not known
DF-41 (MIRV Capability)	In Development	Solid/ TEL	12,000	0
JL-2 (MIRV)	In Development	Solid/ SLBM	8,000-10,000	0

[a] Initial Operational Capability.
[b] Transporter Erector Launcher.

[17] Source: Federation of American Scientists, "China Nuclear Forces Guide," Internet: www.fas.org.

CHINA'S RESPONSE TO BMD

While there is no dispute that the prospect of US missile defense deployments is deeply troubling to Beijing, China may be using US plans as a justification for its modernization program. As Ambassador Sha Zukang, the former director of the Department of Arms Control and Disarmament in the Foreign Ministry, has argued, NMD "will only poison the atmosphere, undermine the conditions necessary for nuclear disarmament, and also breed a potential danger of an arms race."[18] China has already declared a number of times that it would be increasing its arsenal of ICBMs.[19] From China's point of view, effective US missile defense capabilities pose the prospect of living in a world in which Washington could dictate terms to China anywhere Washington has an interest, whether in the service of Taiwan's independence or human rights in Tibet. Therefore, TMD or NMD deployments by the United States present China with both an operational military challenge and a political threat. Chinese experts also argue that international stability cannot survive for long in a world in which any one power has the means to dictate to the rest. Theater missile defense and national missile defense are seen as part of a strategy of unilateral hegemony, which would allow the United States to intervene anywhere with impunity.

While there is no dispute that the prospect of US missile defense deployments is deeply troubling to Beijing, China may be using US plans as a justification for its modernization program.

China believes that the United States does not need missile defenses to protect itself from North Korean missiles, instead viewing BMD as part of a strategy to allow the United States to launch a first-strike against Chinese nuclear weapons and then to use missile defenses to minimize the damage from a retaliatory strike. In reaction to this scenario, China recently announced its intention to spend an additional $9.7 billion to upgrade its nuclear forces modernization program and to prepare for "a vigorous counterattack once hegemonists and their military alliance use nuclear weapons to make a surprise attack on China."[20]

A report prepared by the US Central Intelligence Agency states that China "views the probability of war to be declining with Russia, India, and Vietnam, increasing with the [United States] and Japan, and

[18] Benjamin Kang Lim, "China Rejects US Anti-missile Defence Plans," *Reuters*, 24 November 1999.

[19] Chinese Ambassador Sha Zakang has made such statements both in media and conferences. Ambassador Sha also made a statement on this issue during Russian President Vladimir Putin's visit to the US in November 2001.

[20] This announcement was made recently by General Zhang Wannian of the PLA.

ever present with Taiwan and South China Sea regional states."[21] The People's Liberation Army has already warned Taiwan and has asked it not to join a cooperative missile defense program with the United States and Japan. The PRC's official military newspaper *Liberation Army Daily* said that Taiwan President Chen Shui-bian has been "playing with fire" by seeking a military alliance with these two nations.[22]

It is obvious from the Chinese actions that the end of the Cold War refocused Chinese military planning from the Soviet Union to the United States. Chinese planners focus on the threat of conflict over Taiwan. It is widely believed in China that attaining advanced missile capabilities is the only means to provide leverage to secure its goals with respect to Taiwan without an actual invasion. Beijing apparently sees short-range missiles as useful for political coercion, and, if necessary, for defeating Taiwan's military forces, while its long-range missiles induce restraint by the United States.[23]

Chinese experts appear to be less concerned about TMD in Japan or South Korea than in Taiwan. China's primary concern about TMD cooperation between the United States and Taiwan is not so much operational as political, as China believes Taiwan to be an integral part of its territory.[24] Operationally, the PRC has the ability to overwhelm proposed missile defenses with the deployment of an even larger number of missiles, especially if equipped with the technical aids helpful for penetrating defenses. Politically, China fears that Taipei would interpret such cooperation as a *de facto* restoration of the mutual defense treaty and as a further source of encouragement to move toward formal independence.[25] Some Chinese analysts also speculate about the possible use of US TMD as an NMD capability. The prospect of US deployment of both TMD and NMD only amplifies Chinese concerns about coercion at the hands of the United States.

In response to US missile defenses, China might decide to put its missiles on hair-trigger alert. In this case, China would need to launch its nuclear weapons after it detects a nuclear attack but before incoming nuclear weapons arrive. This strategy is called "launch on warning" and was cited as a reason for not having to fear prospective missile defense deployments by American negotiators in their

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[21] "China Sees Less Chances of War with India," *Times of India*, 19 July 2001, Internet: www.nautilus.org/sand/updates2001/v2n30.html#item11.

[22] "Taiwan Role in US Missile Defence," *NAPSNet Daily Report*, 25 July 2001, Internet: www.nautilus.org/napsnet/dr/0107/JUL25.html#item5.

[23] Manning, et al., *China, Nuclear Weapons, and Arms Control*, Executive Summary.

[24] Ibid., 48.

[25] Ibid., 49–50.

consultations with Russia over the ABM Treaty.[26] This approach requires advanced and reliable early warning systems, which China does not yet possess, but will work hard to acquire.

China is also likely to respond to a US NMD system by deploying more of its own ICBMs and by developing more sophisticated countermeasures. Indian strategic analysts expect that China would be compelled to counter the deployment of US BMD by expanding and accelerating development in the field of sophisticated and long-rage missiles and it might seek a more substantial capacity to overwhelm BMD with both conventional and nuclear missiles. It is anticipated that even a limited NMD with 100 interceptors would be able to neutralize China's minimal deterrent capability which is based on its possession of twenty or so old, liquid-fueled DF-5 ICBMs. Consequently, China might accelerate the development of its mobile, solid-fueled, 6,500 nautical mile DF-41 ICBMs.

China might also use and improve its existing stealth technology to evade NMD systems. Stealth technology can be used to make warheads less observable. For example, the radar reflection of a warhead can be reduced by putting the warhead in a reentry vehicle with a pointed cone-sphere shape, or by painting the reentry vehicle with radar-absorbing materials. This countermeasure is based on fairly uncomplicated technology and can reduce the effectiveness of defenses. The only countermeasure so far mentioned by the Chinese defense industry is the use of a maneuvering warhead.[27] The maneuvering capability of the warhead should be superior to that of the interceptor.

Despite its concerns over US missile defenses, China would never repeat the mistakes committed by the former Soviet Union during the Cold War period. China's high priority is in the field of economic development. This view has been confirmed by the Pentagon's June 2000 report to Congress on Chinese military power, which explicitly states that "Beijing places top priority on efforts to promote rapid and sustained economic growth, to raise technological levels in science and industry, to explore and develop China's land- and sea-based national resources and to secure China's access to global resources."[28] In the age of globalization, the Chinese leadership sees a strong economy as the main ingredient in what they call comprehensive national power. Although China's priorities will focus on developing its economy and raising the income and living standards of its citizens, Beijing's nuclear modernization will certainly have an impact on the Asia-Pacific region.

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[26] Li Bin, "The effects of NMD on Chinese Strategy," *Jane's International Security News* (3 July 2001).

[27] Ibid.

[28] U.S. Department of Defense, *Annual Report on the Military Power of the People's Republic of China* (2000), Internet: http://www.defenselink.mil/news/Jun2000/china06222000.htm.

It is highly likely that Beijing would become more belligerent and less cooperative on a number of issues that matter to Washington once the United States deploys NMD. There is also a possibility that China would refuse to cooperate on non-proliferation matters and become more inclined to sell nuclear and ballistic-missile technology to other countries. China has already been engaged in such activities in a clandestine manner. Analysts in China feel that the Chinese export control policies are not rigid. They could be amended to suit national interests and attain strategic objectives.[29]

IMPACT ON INDIA'S FORCE STRUCTURE

China's strategic modernization programs will certainly have wide ramifications in South Asia, particularly on India's force structure. China is collaborating with Pakistan by supplying both nuclear and missile technologies as well as sharing technical expertise. Hence, Beijing's strategic modernization program will have an impact on New Delhi. Pakistan stands to gain from China's strategic modernization programs. China might provide Pakistan with actual weapons and missiles during wartime scenarios in the Indian subcontinent. In order to make its presence felt in the region and act as a "hegemon," China may have already transferred fully deployable systems to Pakistan. With the increase in China's force structure, it may become easier for Pakistan to increase the size, sophistication, and overall capability of its strategic force. Hence, India cannot dismiss Pakistan in formulating its strategies and policies. Nevertheless, while India has more immediate problems with Pakistan than China, these problems arise because China continues to collude with Pakistan, using it as a counterweight to ensure that India is kept distracted by a proxy war.

Pakistan stands to gain from China's strategic modernization programs.

The Kashmir issue is unlikely to be resolved in near future because, for India, it is not a core issue, but one that Pakistan has unnecessarily inflated. Pakistan's desire to keep Kashmir on the boil will remain. India also fears that China will continue to harbor hegemonic ambitions. The Sino–India Joint Working Group on border issues has not been able to decide on the Line of Actual Control for more than a decade. It also seems very unlikely that China will give up its claim on regions such as Arunachal Pradesh in India. Hence, in the prevailing environment, the possibility of a Sino–Indian confrontation

[29] Personal correspondence with Shen Dingli, faculty at Fudan University, Shanghai, China. Also quoted in Arvind Kumar, "China and Export Controls" in Kanti Bajpai and Amitabh Mattoo, eds., *The Peacock and The Dragon: India–China Relations in the 21st Century* (New Delhi: Har-Anand Publications, May 2000).

cannot be discounted. The assessment done by Indian Defense Minister George Fernandes in 1998 and public declarations about Chinese intentions and behavior across Indian borders might prove true.[30]

At present, there are divisions within India regarding its own nuclear policy. Moderates support the concept of a minimal and de-alerted nuclear force in the low hundreds and oppose further nuclear tests. Moderates also support India's ratification of the Comprehensive Test Ban Treaty and eventual accession to a multilaterally-negotiated Fissile Material Cut-off Treaty.[31] Hardliners, on the other hand, favor a posture with a triad nuclear force comprised of 400 to 1,000 nuclear warheads. This group advocates the resumption of nuclear testing to develop lighter, thermonuclear, and enhanced radiation warheads for a potential MIRVed ballistic missile force. Hardliners are skeptical of the value of a fissile material cut-off.[32]

There is a third group of "hard-headed liberals."[33] This group suggests that India should not imitate any other country with regard to the development in nuclear and missile technologies, but rather should articulate its requirements based on a careful assessment of threat perceptions. This group recommends that India should have a triad capability because India adheres to a no-first-use policy and sea-based assets are required for a survivable second-strike capability. Adherents to this view strongly advocate that India should be adequately prepared for war in order to ensure peace in the region. A fourth group argues that India does not need nuclear weapons for its security requirements.[34]

India's security will be adversely affected by the action-reaction cycle. US and Russian nuclear capabilities drive China's strategic modernization program, which ultimately triggers increased deterrent requirements for India. India's nuclear tests in 1998 prompted President Bill Clinton to declare that nuclear-weapon capability "is not necessary to peace, to security, to prosperity, to national greatness or personal fulfillment," but on the North Atlantic Treaty Organization's 50th anniversary, the alliance adopted a new security concept that still found US nuclear weapons "vital to the security of Europe."[35] Statements such as these have led India to denounce the Non-Proliferation Treaty (NPT) as "nuclear apartheid." Under the prevailing circumstances India will not agree to forego its strategic options unless

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[30] George Fernandes declared China to be India's enemy number one prior to India's nuclear tests in the summer of 1998. This was openly stated prior to May 1998 in media conferences.

[31] This group includes Indian analysts C. Raja Mohan, Jasjit Singh, and others.

[32] This group includes Indian analysts Bharat Karnad and Brahma Chellaney.

[33] Roddam Narasimha is a proponent of the concept of hard- and soft-headed liberals. See his views on the evolution of India's nuclear policy are published in the proceedings of XIII International Amaldi Conference on Problems of Global Security, Roma Accademia Nazionale Dei Lincei, 2001.

[34] This group includes Praful Bidwai, Achin Vanaik, and others.

[35] Joseph Cirincione, "The Asian Nuclear Reaction Chain," *Foreign Policy* (Spring 2000), 133.

the same remedy is applied to the entire international structure, including the United States, Russia, and China. It is, however, strongly believed among strategic thinkers in India that nuclear weapons are not usable war-fighting instruments. Rather, the possession of nuclear weapons makes other major powers moderate their behavior and limits the nature of any conflict between states possessing nuclear weapons.

It is most likely that India pursues on a priority basis the manufacture of a limited number of intermediate-range ballistic missiles (IRBMs). As of now, India's IRBM is in the development stage. For an effective, credible, minimum nuclear deterrent, India needs IRBMs with ranges between 3000–5000 kilometers to contain threats from China. Military analysts and government officials feel that India will probably field a modest nuclear force in the low hundreds. Most analysts feel that India does not need intercontinental ballistic missiles (ICBMs) because India does not need to reach beyond China. Hence, India should not be influenced by the Chinese possession of ICBMs.

India needs IRBMs to contain threats from China. Military analysts and government officials feel that India will probably field a modest force in the low hundreds.

Because India's nuclear posture is defensive and reactive, India certainly would need land-based missiles, aircraft, and possibly sea-based assets, as envisioned in the draft Indian nuclear doctrine.[36] A triad is required because aircraft and land-based missiles can be vulnerable to a first strike. To compliment the no-first-use policy and maintain a second-strike capability, sea-based assets are an essential component of India's proposed force structure. Currently, India has a program to develop indigenous sea-based assets at a much faster pace than in the past. India is likely to continue conducting missile tests to validate delivery systems for its nuclear deterrent while exercising strategic restraint.[37] Indian short-range ballistic missiles (SRBMs), such as the Prithvi, are likely to be improved with technological advancements. Within the Indian subcontinent, Pakistan first introduced different types of missiles on the battlefield.[38] India began to examine seriously SRBMs only after their use in the Iran–Iraq War and Pakistan's subsequent interest in them.

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[36] Arvind Kumar, ed., "Report on a Workshop on the Draft Indian Nuclear Doctrine," *NIAS Report R1-2001* (Bangalore: National Institute of Advanced Studies, March 2001), 8. See also, Indian National Security Advisory Board, "Draft Report of National Security Advisory Board on Indian Nuclear Doctrine" (17 August 1999), Internet: http://www.meadev.nic.in/govt/indnucld.htm.

[37] The test flight of India's Agni-II MRBM took place on 17 January 2001. India is also expected to test the Agni-III by the end of 2002, which is reported to have a range of 3,500 kilometers, falling under the category of IRBM. This capability might give a boost to India's credible minimum nuclear deterrent. The test of Agni-II on 25 January 2002 illustrates that India's missile program is very successful and it will not take long for India to acquire Agni-III.

[38] Shekhar Gupta, "Nuclear Weapons in the Subcontinent," *Defense and Insecurity in Southern Asia: The Conventional and Nuclear Dimensions* Occasional Paper no.21 (Washington, DC: The Henry L. Stimson Center, May 1995), 45–

India's defense concerns will largely be confined to southern Asia. Changes in China's nuclear capabilities will force India to re-examine its definition of a minimum nuclear deterrent. India's aspirations in the field of missiles and nuclear weapons are in large part a response to China's capabilities and intentions. In the existing milieu, Indian nuclear requirements will be sized against China; this should also be sufficient to cover targets in Pakistan. Viewed in this context, Indian planners might concentrate on achieving long-range IRBMs to have a second-strike capability against China. India need not pursue an ICBM capability despite the technological potential for making such missiles. The defense strategy for India should be China-specific while also taking into account Pakistan's actions.

Indian nuclear requirements will be sized against China; this should also be sufficient to cover targets in Pakistan.

The military capability of any nation is critical to deterrence, whether it is conventional or ballistic missiles tipped with nuclear warheads. India would surely take China's total force structure into account in developing a strategy to enhance its existing capabilities. If a credible nuclear deterrent is in place with respect with China, then conventional war-waging capabilities of India, even if inferior to China, could be exploited to their full potential. This simply means that once India acquires a nuclear deterrent against China, there will always be a feeling of strength and these feelings would, in turn, boost the potential of conventional weaponry even if inferior to China—just as Pakistan's nuclear status has given an unseen strength to its conventional forces.

India's draft nuclear doctrine clearly highlights that India will not be the first to initiate a nuclear strike, but will respond with punitive retaliation should deterrence fail. India's no-first-use policy has a strong linkage to US interests in missile defenses because both are defensive measures which could complement each other. There is deep compatibility with these two notions. For the Indian nuclear doctrine to produce deterrence, the stated weapons must be seen to be ready, the platforms ready, the weapons mated, and the command, control, communication and intelligence (C^3I) for their use in place. The required elements for an effective, credible, minimum nuclear deterrent are not now in place. India should keep its deterrent ready but must not deploy it.

46. Gupta argues that Pakistan was the first to deploy the Sidewinder air-to-air missiles, which came with F-104s, along with the first anti-tank missiles and air-to-surface precision-guided munitions.

INDIA'S RESPONSE TO BMD

India is concerned about China acquiring a BMD capability. If China develops a BMD capability indigenously and shares it with Pakistan, it would place India's force structure and its deterrent capability against both Pakistan and China in a precarious condition. India has been very concerned with China's clandestine nuclear and missile assistance to Pakistan, which is basically aimed at offsetting Indian technological advances and tying India down by building a counterweight. Another major disturbing factor for India is China's ability to target any city in India while India cannot target most of China. In this sense, India's lack of a missile-based deterrent force vis-à-vis China constitutes the biggest weakness in Indian defenses today. Chinese missile defenses would exacerbate this problem.

The possibility of US–Pakistan cooperation in the field of missile defenses might also emerge as a major Indian concern. Pakistan's support for United States in the war in Afghanistan could reopen the military supply relationship, including the provision of ballistic missile defenses. There is a need for the United States to clearly articulate its interests in Asia and the nature of its bilateral relationships. For now, India understands that the United States wants to enlist very selectively Japan, South Korea, and Israel on BMD technologies.

CONCLUSION

Indian concerns regarding BMD would be assuaged as long as China is not able to develop missile defenses and Pakistan is not provided BMD technologies or systems by the United States. The prospect of missile defense deployments by the United States, at both theater and national levels, intensifies Chinese concerns about their deterrent capabilities. Undoubtedly, the extent of China's strategic modernization program will have an effect on India's security. However, India might not be greatly affected by an increase in the number of Chinese ICBMs because China's threat perceptions are different from those of India. China, as of now, has the capability to target any Indian city, while India lacks credible nuclear deterrence against China. India will concentrate primarily on acquiring a credible minimum nuclear deterrent against China, and hence, might pursue its IRBM (Agni III) program vigorously. In addition, India is likely to pursue nuclear-powered submarines at the earliest to have a second strike capability. It is also likely that India, in coming years, will acquire national technical means to keep track of Chinese missiles and pinpoint their locations.

Indian concerns regarding BMD would be assuaged as long as China is not able to develop missile defenses and Pakistan is not provided BMD technologies or systems by the United States.

India is not reassured by China's no-first-use guarantee, or its claims that its nuclear arsenal is purely defensive and not on hair-trigger alert, because of the lack of transparency in China and the absence of reliable warning systems in India. India is likely to face indirect threats from China in terms of its continuing ties with Pakistan and is concerned about the future of China–Pakistan collusion with regard to nuclear and missile related technologies. India needs a better sense of Chinese behavior and intentions, which would, in turn, help India to shape its strategies and plan its force structure. At the same time, India will continue to campaign for a nuclear weapon-free world. India's mention of nuclear disarmament in its draft nuclear doctrine is a case in point.

The Challenge of Minimal Nuclear Deterrence

W. Lawrence Prabhakar[1]

Nuclear weapons are widely viewed within India as "absolute weapons" that would inflict horrendous damage on an antagonist.[2] In view of their mass destruction effects, Indian officials have repeatedly asserted that nuclear weapons are political instruments rather than war-fighting tools. They are, as President K. R. Narayanan has said, useful "only when they are not used."[3] The essential minimal requirements of Indian nuclear deterrence are, therefore, a functioning command and control system and an ability to survive a first strike and provide for an assured retaliatory strike.

The draft Indian nuclear doctrine emerged from varied pressures, including the insistent US stance calling for India to clarify its nuclear intentions. The text of the doctrine is advisory in nature. It was prepared as a confidential recommendation to the Government of India for further deliberation and evolution. However, Indian national security adviser Brajesh Mishra released the document without delay, thus giving the world the impression of its quasi-official status. Implementation of several of the draft doctrine's recommendations would be dependent on indigenous technical developments, prioritization of defense objectives, and resource allocations. The pace and scope of implementation could also be affected by changes in global technology control regimes.[4] Thus, even in the most propitious of circumstances, a significant gap would exist between the draft nuclear doctrine and evolving Indian capabilities.

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[1] The author wishes to acknowledge Michael Krepon for his encouragement. Inputs were also provided by Stephen Cohen, Elizabeth Hanson, John Parachini, Leonard Spector, Lawrence Scheinman, Ashley Tellis, Peter Lavoy, P.R. Chari, Arvind Kumar, and Chris Gagné.

[2] This term is borrowed from Bernard Brodie, ed., *The Absolute Weapon: Atomic Power and World Order* (New York: Harcourt & Brace, 1946). For an Indian perspective on this subject, see Raja Ramanna, "Security, Deterrence and the Future," *Journal of the United Services Institution of India* Vol. 122, no. 509 (July–September 1992): 283.

[3] Address to the nation at the closing function of the Golden Jubilee celebrations of India's independence in New Delhi on 15 August 1998, reprinted in *India News*, 16 July–15 August 1998, 3.

[4] The implications of technological sanctions and the concerns of nuclear proliferation are well detailed in Jeanne J. Grimmet, "Nuclear Sanctions: Sec 102 (b) of the Arms Export Control Act and its Application to India and Pakistan" *CRS Report for the Congres*s (Washington D.C.: Library of Congress, updated 30 October 1998). In the post-Pokhran II period, the US stand with regard to India on technology transfers given India's non-complicity to the NPT has been reinforced. See "U.S. High Tech To Remain 'Out of Bounds for India,'" *Hindustan Times* (New Delhi), 15 January 1999. However in the post September 11 period, US–Indian defense ties have experienced an upswing making agreements on defense technology transfers in the conventional realm now more feasible. See "India seals major arms deal with U.S." *The Hindu* (Chennai), 18 April 2002.

While the rhetoric of the nuclear doctrine sounds ambitious, subsequent statements and ground realities demonstrate a "defensive orientation for India's nuclear forces and a commitment to avoid a nuclear arms race."[5] The combination of minimum deterrence and a commitment to no-first-use provides a hedge against nuclear adventurism while averting the exorbitant and costly mistakes of a maximalist nuclear posture, which would undercut India's conventional capabilities and its campaign for nuclear disarmament. Furthermore, the draft nuclear doctrine does not calculate India's nuclear force posture by mere arithmetic alone, but by the quality and quantum of its forces and the spectrum of threats it must contend with in the present and future.

The draft nuclear doctrine was intended to reinforce the prevalent Indian stand on nuclear disarmament and the avowed goal to eliminate nuclear weapons. India's strategic approach has always been one of defensive-defense and the draft doctrine emphasizes India's pacific intent.[6] One imperative for the doctrine was to make Indian nuclear motives transparent; another was to initiate an open policy debate. A third consideration was to assert India's nuclear dominance over Pakistan and highlight India's need for a limited and graduated deterrent capability vis-à-vis China. While balancing these imperatives, India seeks a doctrine of nuclear minimalism.

There is a working consensus on the need for a minimal nuclear capability to deter adventurism by potential adversaries.

FOUNDATIONS OF NUCLEAR MINIMALISM

While there are differences of view within India on virtually every issue, there is a working consensus on the need for a minimal nuclear capability to deter adventurism by potential adversaries. India's most immediate threat comes from Pakistan, a state which sees itself as a competitor, and which engages in daily violence against India in Kashmir. The potential for escalation resides in these violent interactions. Another danger for India is a weak and paranoid Pakistan that might brandish its nuclear weaponry and engage in unanticipated and uncontrolled escalation. Pakistan's doctrine, which maintains an option of first use of nuclear weapons, adds to these concerns. While these concerns mandate India's attention, they do not mandate significant nuclear requirements, since it would not require many weapons to destroy Pakistan as a functioning state. Indian officials are convinced that Pakistan, despite making

[5] Brajesh Mishra quoted in "India Committed to Minimum N-Deterrence," *The Hindu* (Chennai), 7 December 1998.

[6] Indian National Security Advisory Board, *Draft Report of National Security Advisory Board on Indian Nuclear Doctrine*, 17 August 1999, Internet: http://www.indianembassy.org/policy/CTBT/nuclear_doctrine_aug_17_1999.html.

nuclear threats in crisis situations, would understand the suicidal consequences of crossing the nuclear threshold.

China presents a different set of challenges. China lays claim to 90,000 square kilometers of Indian territory in Arunachal Pradesh and occupies parts of the old princely state of Jammu and Kashmir. The Sino–Indian boundary issue has yet to be officially settled, but the interim agreements of Zones of Peace and Tranquility along the border have provided for a more-or-less stable bilateral relationship since 1988.[7] China's territorial claims vis-à-vis India are entirely different than its claims on Taiwan, over which Beijing could go to war. Although Beijing refuses to abdicate claims on Indian territory, it does not consider these disputes to be worthy of another war. In addition, India has deployed substantial conventional forces to deter Beijing from incursions into Indian-held territory. Moreover, the prospects of future military confrontations between Beijing and New Delhi are diminished by offsetting nuclear capabilities. Both capitals have other, more important, concerns to pursue. China has adopted a no-first-use nuclear doctrine, and Indian officials are not concerned about a nuclear first strike by China against India. Thus, India can pursue a minimalist nuclear posture vis-à-vis China as well as Pakistan. Substantial improvements in Indian conventional forces would reinforce Indian nuclear minimalism. India, in other words, emphasizes the adjective, "nuclear," over the noun, "weaponry."[8] In governing circles within India, it is widely believed that the existence of India's nuclear capability is the primary deterrent, while issues of size, readiness, and deployment are secondary issues. India's nuclear capability is a national political asset and an insurance policy against nuclear blackmail, coercion, and potential use by an adversary. These national assets are not viewed as war-fighting instruments.

Another contributing factor for India's nuclear minimalism is New Delhi's continued commitment to global nuclear disarmament. The Government of India argued before the International Court of Justice in 1994 that "any use of nuclear weapons to promote national policy objectives would be unlawful."[9] India continues to call for universal and non-discriminatory nuclear disarmament, rejecting the partiality of the Nonproliferation Treaty (NPT) and the Comprehensive Test Ban Treaty (CTBT), which, in New Delhi's view, perpetuate inequality. The weaponization process has, however, created obvious dilemmas for India's nuclear disarmament diplomacy. New Delhi manages these contradictions

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[7] See K. Subrahmanyam, "Nuclear India in Global Politics," *World Affairs* Vol. 2, no. 3 (July–September 1998): 22–23 and Sumit Ganguly, "The Sino–Indian Border Talks 1981–1989: A View from New Delhi" *Asian Survey* Vol. 29, no.12 (December 1989): 1123–1135.

[8] Jasjit Singh, "Why Nuclear Weapons," in Jasjit Singh, ed., *Nuclear India* (New Delhi: Knowledge World, 1998), 9–25.

[9] The Indian position has been stated in "International Court of Justice Annexure II: Status of Nuclear Weapons in International Law: Request for Advisory Opinion of the International Court of Justice," *Indian Journal of International Law* Vol. 37, no. 2 (April–June 1997): 224.

by asserting that the acquisition of nuclear weapons has been a reluctant, but necessary, choice to preserve national security and autonomy of action in an increasingly anarchic world.

At the same time, India's rejection of nuclear war-fighting concepts reflects a continued commitment to minimizing the role of nuclear weapons until nuclear disarmament can be achieved. India's embrace of a no-first-use posture can be viewed in a similar context. This posture affirms India's stance on de-legitimizing nuclear weapons as weapons of war. It helps underscore India's pacific intentions toward Pakistan and China, while reinforcing India's preference for a de-alerted and de-mated force posture—a force-in-being rather than a ready arsenal for rapid response.[10] This constitutes a minimum nuclear posture that poses the least incompatibility with New Delhi's declared goal of global, verifiable, nuclear disarmament.

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The economics of nuclearization also contribute to minimalism. New Delhi's top defense priority is investment in conventional forces. India must have the capability to defend against Kargil-type contingencies and to incorporate some features of the revolution in military affairs in carrying out future conventional missions.[11] Excessive investment in nuclear weapons would create distortions between conventional and nuclear expenditures. Indian armed forces zealously pursue conventional force modernization programs. They would not be keen to siphon off resources into tri-service nuclear weaponry. The organizational elements of India's nuclear posture, in which civilian control over the Indian military is secure, reinforce nuclear minimalism. India's political leaders are keen to configure nuclear weapons as political instruments of statecraft rather than as war-fighting instruments. A reorientation of India's nuclear capabilities toward war fighting would undermine their political value. Moreover, the integration of nuclear weapons to the Indian armed forces would mean the detailed delegation of command, control, and operations to the armed forces. It could also pave the way for the development of tactical nuclear weapons, the deployment of which would erode civilian control.

India's bureaucratic command and control setup further contributes to nuclear minimalism. The command structure of India's nuclear forces emanates from the President, the Prime Minister, and the Cabinet, with the home, external affairs, defense, and finance ministers in principal positions on the

[10] Jasjit Singh, "Why Nuclear Weapons."

[11] The impetus for conventional force modernization has increased in recent years. See Thomas Mahnken and Timothy Hoyt, "Indian Views of the Emerging Revolution in Military Affairs," *NSSQ* (Summer 2000), 55–80.

Cabinet Committee on Security.[12] The Cabinet Committee on Security is assisted by the National Security Advisor, the Cabinet Secretary, the Strategic Policy Group, the three chiefs of staff, the heads of Atomic Energy (DAE), the Defense Research Development Organization (DRDO), and the chiefs of the intelligence agencies. The service chiefs, through a Chiefs of Staff Committee, report to the Defense Secretary and Defense Minister and ultimately the Prime Minister and, hence, are removed from the Defense Ministry. The Defense Ministry is primarily run by the Indian Administrative Service, which has responsibility for budgetary, strategic, acquisition, and personnel decisions. All of the recommendations, opinions, and requests of the service chiefs are channeled through the civilian bureaucracy. This structure poses significant operational problems for the military command structure and for military roles in decision-making on strategic matters. India's civilian bureaucracy has maintained a position of dominance rooted in the democratic foundations of the Indian political system.

The position of Chief of Defense Staff (CDS) was created in May 2001 so that nuclear matters would be handled through the single focal point to the government.[13] It is unrealistic to expect, however, that the CDS would acquire significant authority over India's nuclear forces. Instead, the role of the CDS is likely to be confined to the innovation of the tri-service doctrine to conduct operations in the nuclear environment, and to the planning, organization, training, and equipment of the armed forces.[14] The control of the nuclear warheads and their ultimate release would remain with civilian authorities, thus reinforcing political control of India's nuclear weapons.

MINIMALISM VS. GROUND REALITIES

India's nuclear minimalism and its emphasis on viewing nuclear weapons as political, rather than military, instruments is challenged by ground realities, especially in Pakistan. Pakistan's military leaders regard nuclear weapons as essential to national defense as well as deterrence. In this view, nuclear weapons equalize Pakistan's conventional military disparities with India. Nuclear weapons also provide a backdrop for Pakistan's support for militancy in Kashmir. In effect, Pakistan has pursued a conventionalization of its nuclear strategy, with dangerous portents for regional and strategic stability. The possibility of a breakdown in deterrence cannot be dismissed. Unconventional warfare could escalate

[12] The Cabinet Committee on Security has emerged as the nodal institution of strategic decision making. See Kotera Bhimaya, "Nuclear Deterrence in South Asia," *Asian Survey* Vol. 34, no. 7 (July 1994).

[13] Government of India, *Group of Ministers Report on Reforming the National Security System* (New Delhi: Press Information Bureau Releases, 23 May 2001); See also Atul Aneja, "Towards a New Security Architecture," *The Hindu* (Chennai), 28 February 2001; and Atul Aneja, "GoM Revamp of Defense Management," *The Hindu* (Chennai), 27 February 2001.

[14] Ibid.

to conventional conflict, which in turn, approaches the nuclear threshold. New Delhi's response to the asymmetries in Pakistan's conventional military capability and nuclear posture has been to focus on maintaining survivable delivery systems for the nuclear option, and not to pursue a war-fighting posture.

This response is non-inflammatory, but it leaves many open questions, such as what New Delhi would actually do in the event of a breakdown in nuclear deterrence. Planning is required for optimal responses to a variety of contingencies, including worst-case scenarios. India has been reluctant to address these issues, instead taking comfort in rhetorical statements. Having acquired the nuclear option, the Government of India has to confront the harsh realities of configuring command and control arrangements, rules for the delegation of authority, civil-military coordination, strategies of survivability, and calibrated responses.

India's draft nuclear doctrine sheds little light on these subjects.[15] This document states requirements without a strategy of employment, as if the advent of nuclear weapons makes an employment strategy unnecessary. This is reflective of Indian strategic culture, which ascribes absolute characteristics to nuclear weapons and which affirms existential deterrence. But targeting, escalation control, and other military considerations must accompany the development and acquisition of a nuclear deterrent. These concerns do not disappear by adhering to a no-first-use policy.

Targeting is constrained by the size of India's arsenal, the yield of its weapons, the nature of satellite-based intelligence of targets, and the accuracy of the means of delivery. Counterforce targeting (striking nuclear forces, launch control centers, weapon storage sites, field formations, troops concentrations, air and naval bases, logistics, and repair and supply facilities) would require accurate and timely means of delivery. While manned aircraft are likely to provide greater accuracy than missiles, the penetration of air-defenses could be a challenge in some scenarios. Furthermore, counterforce targeting of Chinese assets would be especially challenging owing to rugged terrain, long distances, and the dispersal of Chinese strategic assets in caves, hardened silos, or in highly mobile configurations. Countervalue targeting of industrial, economic, and population centers requires less accuracy, nuclear weapons, and timeliness. In all probability, India would pursue a countervalue targeting strategy.

Countervalue targeting of industrial, economic, and population centers requires less accuracy, nuclear weapons, and timeliness. In all probability, India would pursue a countervalue targeting strategy.

[15] See G. Balachandran, "India's Nuclear Doctrine" (New Delhi: Institute of Peace and Conflict Studies, 27 August 1999), Internet: http://www.ipcs.org/issues/articles/254-ndi-bala.htm.

India's no-first-use commitment is central to its concept of nuclear minimalism. The no-first-use pledge was officially proposed for the first time to Pakistan in 1994 as a formal arms control measure and has been reiterated by Indian political leaders many times since. In the aftermath of the May 1998 nuclear tests, a formal no-first-use declaration was included in the "Paper Laid on the Table of the House on Evolution of India's Nuclear Policy" on 27 May 1998.[16] India's no-first-use policy states that India would not resort to the use or threat of use of nuclear weapons against states that do not posses nuclear weapons or are not aligned with nuclear weapon powers. This posture provides diplomatic utility, while raising potential operational dilemmas. Presumably, nuclear weapons states include the five permanent members of the United Nations Security Council, Pakistan, Israel, and perhaps North Korea. By including the allies of nuclear powers, India's draft nuclear doctrine excludes from the no-first-use pledge the non-nuclear NATO allies of the United States; the UK's Five Power Defense Agreement, which includes Malaysia, Singapore, Australia and New Zealand; and the eleven non-nuclear partners of Russia in the Commonwealth of Independent States.[17]

Several operational aspects of the no-first-use pledge are worthy of analysis. First, despite the remoteness of a military confrontation between India and China, it is not possible to completely rule out a future clash. In this unlikely scenario, India would rely on its conventional forces to sustain strong forward defense positions. Second, India's no-first-use pledge does not, by itself, prevent conventional military strikes against nuclear facilities. Pakistan might well not differentiate between the means used to attack its nuclear deterrent, in which case India's no-first-use pledge would lose its meaning. Third, the applicability of India's no-first-use pledge in a scenario involving an attack by chemical or biological weapons is unclear. A narrowly defined no-first-use pledge could leave India open to threats from other weapons of mass destruction (WMD), although deliberate ambiguity on this issue may also serve as a deterrent against such attacks.[18]

The ground realities of command and control present additional difficulties for India's nuclear minimalism. India's deployment of nuclear weapons shall arise in circumstances of nuclear coercion or the use of nuclear weapons by an adversary, or perhaps the use of chemical and biological weapons

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[16] Government of India, "Paper Laid on the Table of the House on Evolution of India's Nuclear Policy" (27 May 1998), 4–5. See also "India Evolves Nuclear Doctrine," *The Times of India* (New Delhi), 5 August 1998 and "PM Declares No-First Strike" *Indian Express* (New Delhi), 5 August 1998.

[17] Ashley Tellis, *India's Emerging Nuclear Posture: Between Recessed Deterrent and Ready Arsenal* (RAND: Santa Monica, 2000), 304.

[18] See P.R. Chari, "India's Nuclear Doctrine: Confused Ambitions," *The Nonproliferation Review*, Vol. 7, no. 3 (Fall–Winter 2000): 134. For more on India's chemical and biological weapons policies, see Anthony H. Cordesman, "Weapons of Mass Destruction in India and Pakistan, Military Balance Updates" (Washington, D.C.: Center for Strategic and International Studies, February 2002), 4–5.

against India. The need to institute a viable command and control structure is essential regardless of the scenario. But scenarios involving Pakistan require considerable prior consideration given Pakistan's strategic and military culture, which places a premium on taking the offensive. If Pakistan is first to cross the nuclear threshold, and does so in such a way as to signal a desire to cease hostilities and control escalation, India might respond in an assured, sufficient, and credible manner. Punishment could be meted out in minimal ways, requiring modest capabilities.[19] A large-scale Pakistani nuclear attack or misperceptions by India concerning Pakistan's intentions might tempt India to respond to any Pakistani first strike with a massive retaliation.

A minimal nuclear exchange and successful escalation control requires that both parties adhere to the same rules. There can be no assurance of these conditions. Consequently, India might have to consider being prepared for a much larger first strike from Pakistan. In this context, India's nuclear posture might need to be configured to buttress its conventional superiority and to establish the prospect of escalation dominance so that India could terminate a conflict on its own conditions.[20] These objectives, however, require planning and nuclear capabilities that run counter to India's concept of nuclear minimalism. For example, India could prepare for uncontrolled escalation by seeking the capability to destroy as much of Pakistan's nuclear deterrent as possible, or to pursue what is known in the West as a "damage limitation" targeting strategy. But by seeking such capabilities, New Delhi might increase the probability that any first strike by Pakistan would be unlimited.

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In scenarios of nuclear weapons' use between India and Pakistan, the choice of proportionate and graduated retaliation or massive retaliation is critical. Minimal deterrence suggests retaliation in a similar quantum. To do less, or to succumb to a first strike is unacceptable. A more ambitious nuclear strategy would seek to seize the initiative and to terminate aggression on India's terms. In the latter case, India must possess the nuclear means and the command and control to execute a massive retaliatory strike which, in turn, requires the capacity to transform India's dispersed, de-alerted force into a coherent strike force on short notice.

[19] See K.Sundarji, "Changing Military Equations in Asia: The Role of Nuclear Weapons," in Francine Frankel, *Bridging the Nonproliferation Divide: The United States and India* (Philadelphia, PA: University of Pennsylvania, 1995), 119–149.

[20] For a brief discussion on India's escalation dominance vis-à-vis Pakistan, see Tellis, *India's Emerging Nuclear Doctrine*, 696–7.

India must also consider the prospect of—and plan to respond to—the possibility of a joint Pakistani and Chinese attack. This worst-case scenario is not considered likely, but nonetheless demands serious review.[21] Another worst-case scenario, involving large-scale nuclear attacks between India and China, also seems remote given the ability of both countries to disperse and hide their strategic assets. If the fateful choice of confronting a Chinese attack emerges, the Indian response is likely to be graduated and proportionate.[22] India's pursuit of a triad of nuclear delivery means is postulated against worst-case scenarios, keeping in mind the need for secure and assured retaliatory forces.[23] This pursuit will be prolonged, due to India's slow progress in developing and deploying sea-based deterrence. As the triad evolves, India will rely upon a dyad of manned aircraft and land-based, mobile missiles.

The credibility of the Indian nuclear deterrent hinges on the certain means of retaliation more than the speed with which retaliation would be made. Certain retaliation is assured by the survivability and dispersal of India's nuclear assets, and by the sureness with which the retaliation is effected. The extent of retaliation would depend upon the damage to India's nuclear assets and infrastructure.[24] India's draft nuclear doctrine emphasizes the importance of prompt retaliation. However, assured retaliation is more essential than speed. Delay need not be construed as weakness or indecision, as long as retaliation follows. Matters of timing, and the extent of retaliation would be in the hands of the civilian political leadership. The extent of delay before retaliation would be determined by how India manages its nuclear "day after," as well as by the time required to plan and organize the riposte. Would the retaliation be symbolic and limited, or a massive response that would destroy the aggressor's society beyond repair? India might well follow the Chinese approach of certitude of retaliation with uncertain timing.

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The need for prompt retaliation is part of a maximalist nuclear agenda. If a nuclear strike occurs after a prolonged crisis, then the Indian "force-in-being" would presumably be converted, at least in part, from a de-alerted and de-mated peacetime capability to one that is ready for use. A surprise war scenario, which is not considered likely in the Subcontinent, would require a matter of days or weeks to ready

[21] See P.R.Chari, "India's Nuclear Doctrine: Confused Ambitions," *The Nonproliferation Review* Vol. 7, no. 3 (Fall/Winter 2000): 123–135.

[22] See Gregory Jones, "From Testing to Deploying Nuclear Forces: The Hard Choices Facing India and Pakistan," IP-192 (Santa Monica, CA: RAND, 2000).

[23] Waheguri Pal Singh Sidhu, "India Sees Safety in a Nuclear Triad and Second Strike Potential," *Jane's Intelligence Review* Vol. 10, no. 7 (July 1998): 25.

[24] See Gurmeet Kanwal: "Nuclear Targeting Philosophy of India," *Strategic Analyses* Vol. 24, no. 3 (June 2000): 459–473.

India's nuclear arsenal. Attempts by the international community to prevent India from retaliating would surely be ignored by India's leaders.

Whatever nuclear capabilities India pursues, its command and control arrangements need to be reinforced to ensure the credibility of the Indian deterrent. And whatever the scenario, India requires a reliable system for the early warning of nuclear attacks. There must be a high degree of mobility for India's nuclear assets—delivery systems, warheads, dummies, and decoys—and proper linkage to the National Command Authority, the apex command and control structure that would direct retaliatory strike operations. In the light of the perceived vulnerability of the National Command Authority to a decapitating first strike, India must create alternate, survivable national command posts that connect national leaders, civilian members of the atomic establishment, and leaders of the armed forces.

THE IMPACT OF MISSILE DEFENSES ON INDIA'S NUCLEAR POSTURE

Prospective US missile defense deployments and the abrogation of the Anti-Ballistic Missile Treaty could have quite varied impacts on India's nuclear posture. Increased US deployments of theater missile defenses around Taiwan would likely result in increases in China's short- and medium-range ballistic missiles. These missiles are becoming increasingly accurate and are capable of hitting strategic counter-force targets on the island.[25] If the range and deployment areas of these missiles do not suggest a threat to India, they are unlikely to lead to a direct increase in Indian nuclear requirements. However, the proliferation or transfer by China of such missile technology to Pakistan could increase India's requirements.

If the United States deploys combined national and theater missile defenses, China is likely to respond by increasing the number of its intercontinental ballistic missiles, sea-launched missiles, and long-range, land-attack cruise missiles.[26] The United States intelligence community estimates that by 2015, China will be able to quadruple the number of its nuclear-armed ICBMs.[27]

Increases in China's medium-, intermediate-, and intercontinental-range missiles and countermeasures are less technologically challenging and more cost-effective—and therefore more

[25] See Michael J. Green and Toby F. Dalton, "Asian reactions to US Missile Defense," *NBR Publications: NBR Analysis* Vol. 11, no. 3 (November 2000), Internet: http://www.nbr.org/publications/analysis/vol11no3/index.html.

[26] Office of the U.S. Secretary of Defense, *Proliferation: Threat and Response* (Washington, DC: US Department of Defense, January 2000), 14, Internet: http://www.defenselink.mil/pubs/ptr20010110.pdf.

[27] U.S. National Intelligence Council, *Foreign Missile Developments and the Ballistic Missile Threat Through 2015* (December 2001), 3, Internet: http://www.odci.gov/nic/pubs/index.htm.

likely—than opting for a comprehensive missile defense. Mobile intermediate-range missiles would provide China with the capability for rapid re-deployment of missiles that could target India. Intercontinental-range missiles could also be used against India, as could forward-deployed medium-range missiles. The Indian response to such deployments would be to counter the Chinese missile buildup.

If a Chinese missile buildup were accompanied by continued support for Pakistan's missile and/or nuclear programs, this would heighten India's concerns. Pakistan might even become a beneficiary of China's strategic modernization programs, if Beijing conveys to Islamabad older missile systems that are replaced by newer, solid-fueled types.[28] There is also a possibility that US missile defense plans against the North Korean threat could bolster North Korean–Pakistani missile cooperation.[29] In response to heightened missile and nuclear threat perceptions, India would likely accelerate the testing and deployment of Agni II and II-B intermediate-range missiles that could place targets such as Chengdu and Liupanshui within reach, as well as the Agni III, which could target Beijing and Shanghai.

India would have to be somewhat in step with China with regard to China's new missile buildup, though it would not be wise to match China system for system.

In other words, there are a number of scenarios associated with missile defense deployments that feature an increased buildup of nuclear weapons and missiles in Pakistan, India, and China. Depending on the extent of China's build up, India could be pressed to resume nuclear testing to perfect new warhead designs for missiles with improved range. Increased threat perceptions from China could also encourage India's drive to acquire a sea-based, nuclear deterrent capability in the form of submarine-launched cruise missiles.[30] India might eventually be provoked to move from a recessed deterrent posture to a deployed nuclear posture. India's defense spending in the sectors of nuclear and missile development would steeply rise to maintain superiority over Pakistan and to achieve a robust conventional and limited nuclear

[28] Bates Gill and James Mulvenon, "The Chinese Strategic Rocket Forces," *Bulletin of Atomic Scientists* (May–June 1999).

[29] "Executive Summary," *Report of the Commission to Assess the Ballistic Missile Threat to the United States* (15 July 1998), Internet: http://www.fas.org/irp/threat/missile/rumsfeld/index.html; Pakistan Institute of Air Defence Studies, "Pakistan's Missile System" (1999), Internet: http://www.piads.com.pk/users/piads/pmsintro.html; and Brahma Chellaney, "New Delhi's Dilemma," *The Washington Quarterly* (Summer 2000), 149.

[30] See Waheguru Pal Singh Sidhu, "Asian Nuclear Testing: India Sees Safety in Nuclear Triad and Second Strike Potential," *Janes Intelligence Review*, Issue PSA-2135 (1 July 1998), and alsoVladimir Radyuhin, "INS Sindhushastra Commissioned," *The Hindu* (Chennai), 20 July 2000.

deterrent capability vis-à-vis China. India would have to be somewhat in step with China with regard to China's new missile buildup, though it would not be wise to match China system for system.

With the deployment of US missile defenses, China would seek to develop effective countermeasures and deploy new variants of missiles with decoys that frustrate any missile defense.[31] If India decides to deploy missile defenses, Pakistan could pursue similar countermeasures, perhaps in collusion with China. The nature and extent of China's countermeasures to US missile defense deployments would certainly have a bearing on India's calculations of the requirements of deterrence vis-à-vis China.[32] Since neither China nor Pakistan is likely to pursue nationwide missile defenses, India would not need to develop decoys or countermeasures. While technological drivers may encourage India to enhance its missile force with MIRVs, matching China's MIRV buildups would be unnecessary, self-defeating, and contrary to India's commitment to nuclear minimalism.

China, India, and Pakistan are unlikely to adopt national missile defenses given their expense and their limited effectiveness in providing national protection. The cost of even regional missile defense systems for China or India would be enormous. In India, such expenditures would cut into its nuclear and missile programs and overstretch its defense budget, already burdened by the need to prepare for conventional, Kargil-type activities. In the long run, however, India may eventually opt for a limited missile defense with the Russian SA-300 and a mix of indigenous systems like the Akash and the Trishul for medium-level interception, and may seek to collaborate with the United States for the transfer of PAC-3 systems or equivalent technology for indigenous production. For now, all three countries are likely to conclude that increasing missile capabilities makes more sense than spending resources to acquire and deploy national missile defenses.

For now, China, India, and Pakistan are likely to conclude that increasing missile capabilities makes more sense than spending resources to acquire and deploy national missile defenses.

While the prospect of India deploying an extensive, integrated air and missile defense capability would be very remote in view of its vast territory, India might consider deploying combined air and missile defenses for selected areas. Given Pakistan's first-use posture and its philosophy of taking the

[31] "China To Counter U.S. Missile Defense, But Not With Arms Race," *Agence France Presse*, 13 July 2000. See also Michael J. Green and Toby F. Dalton, "Asian Reactions to US Missile Defense," *NBR Publications: NBR Analysis* Vol. 11, no. 3 (November 2000), and John Pomfret, "China Threatens Arms Control Collapse," *The Washington Post*, 14 July 2000.

[32] China and India are seeking the procurement and eventual transfer of SA-300 anti-missile technology with their adaptations. See "India Ponders New Russian Air Defense System; Plan May Rile Beijing," *Stratfor.com* (21 June 2001) and "Moscow abandons China for India," *Stratfor.com* (30 June 2000).

military offensive, India could opt for an integrated air and missile defense for New Delhi, which hosts the National Command Authority. Perhaps such defenses could also be employed over other areas of strategic and industrial importance, such as nuclear facilities.

India is likely to encounter problems with the indigenous development of ballistic missile defense systems and would have to rely either on Russian systems or possibly limited technology transfers from the United States. The Akash and Trishul missiles have capabilities against supersonic, manned, fighter aircraft, but the extent of their intercept capabilities against ballistic missiles is likely to be very limited.[33] Another option for India would be to opt for technological collaboration and indigenous co-production agreements for a combined air and missile defense system with Russia. Russia could offer limited missile defenses against short- to medium-range ballistic missiles in the form of the SA-300 system. Russia appears willing to sell the SA-300 to both China as well as India.[34] If purchasing the SA-300 becomes a priority, Beijing and New Delhi would likely prefer initially to import the integrated air defense network and then have Russian specialists help with indigenous programs for further development. Alternatively, India might seek US missile defense technology, which could open new avenues for bilateral cooperation and technology transfers with Washington.

India could argue that an effective, omni-directional air and missile defense capability is consistent with its non-provocative nuclear posture. However, such defenses would be extremely expensive as well as unlikely to negate China's strategic modernization programs. India would prefer at least a limited missile defense for New Delhi and Bombay to protect against a surprise attack from Pakistan. However, limited defenses vis-à-vis Pakistan might also be overwhelmed by missile barrages or countermeasures, particularly if China–Pakistan missile proliferation and technology transfers continue unabated.[35] India might overcome these technical problems with the assistance of the United States if India attaches a high priority to this task and if countering Chinese hegemony in the region becomes a US priority.

On balance, the deployment of combined air and missile defenses by India would be an expensive and difficult decision for New Delhi. India has many urgent conventional military needs. In addition, India must maintain and adapt its strategic force-in-being. Given its limited resources, India is not likely to fund missile defenses at the expense of its missile programs such as the Prithvi, Agni I, Agni II, and

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[33] Group Captain R.G. Burli, "India's Option for Space-based BMD," *Indian Air Force 2000* (New Delhi: Indian Air Force, 2000), 40–42.

[34] See Waheguru Pal Singh Sidhu, "The Implications for Postures and Capabilities in South Asia," *Missile Proliferation and Defences: Problems and Prospects* Occasional Paper no. 7 (Monterey, CA: Center for Nonproliferation Studies, Monterey Institute of International Studies, 2001).

[35] Brahma Chellaney, "New Delhi's Dilemma," *The Washington Quarterly* Vol. 23, no.3 (Summer 2000): 151.

Agni III, which constitute the cornerstone of its deterrence posture. It would be very difficult to justify and sustain expenditures on missile defense research, development, and deployment while simultaneously sustaining expenditures for ongoing missile modernization programs. The consideration of a national missile defense umbrella for India is premature in terms of technology development and exorbitant in terms of resource outlays. Even the consideration of limited missile defense deployments would be difficult. Nonetheless, India will be impelled to consider an integrated air-missile defense capability in the event of quantum increases in the threat from China and Pakistan.

The luxury of avoiding the choice between nuclear and missile programs on the one hand, and missile defenses on the other, depends on the pace of India's economic growth and its defense expenditures. Continued difficulties arising from Pakistan's support for militancy in Kashmir, the priority given to increased outlays for conventional forces, and the maintenance of India's missile programs leave few resources for missile defenses.

CONCLUSION

India's nuclear posture will reflect many factors: self reliance and indigenous technological developments; nuclear and missile developments in China and Pakistan; the state of bilateral relations with both countries, as well as ties with the United States and Russia; domestic economic factors; technology denial efforts by industrialized states; US missile defense plans; and India's strategic culture, which favors nuclear restraint, a minimal definition of the requirements of nuclear deterrence, and a force-in-being alongside continued support for global nuclear disarmament.

India relies on a robust conventional military posture and reserves nuclear weapons for retaliation and as a last resort. New Delhi takes comfort in a declaratory posture that emphasizes a pledge of no-first-use. This posture, however, raises but does not answer a number of difficult operational questions. Moreover, India's commitment to nuclear minimalism could be challenged by developments in China and Pakistan, as well as by prospective US missile defense deployments. If China responds vigorously to missile defenses, India would have to rethink its force-in-being nuclear posture.

While India has embraced the concept of minimal, credible nuclear deterrence, the size and scope of the Indian nuclear deterrent are not limited by any quantitative matrix. Given the asymmetric situation vis-à-vis Pakistan and China, India's targeting requirements cannot be completely divorced from developments elsewhere in the region. This issue is also linked to fissile material stocks in India. The scope of India's minimum deterrent is therefore subject to debate and change. India would find it very difficult to accept limits imposed by other nuclear powers. Pressures to test and deploy new nuclear weapons with better yields, and the deployment of improved delivery vehicles would certainly arise.

Thus, it would be difficult to prescribe a definition for the term “minimum,” as it would vary according to the asymmetric nuclear situations India contends with in its fluid geo-strategic environment. The issuance of a draft nuclear doctrine is an important first step in India’s evolving nuclear posture and operational planning.

Missile Defense and the Asian Cascade

Michael Krepon

With the end of the Cold War, Asia has replaced Europe as the region most likely to be roiled by prospective US missile defense deployments. While European capitals remain uncomfortable with American impulses to construct a national missile shield, these concerns pale in comparison to the 1980s, when Moscow employed intense coercive diplomacy and military bluster trying to block President Ronald Reagan's Strategic Defense Initiative. Back then, hundreds of thousands of street demonstrators rallied across Europe against the "Star Wars" program. In contrast, President George W. Bush's decisions to abrogate the Anti-Ballistic Missile Treaty and fast-track national missile defenses produced a muted response in Europe. This time around, Moscow's diplomatic and military options were quite limited, with the Kremlin's defense budget in 2002 barely one-twelfth that of the United States. If European misgivings rise again, the most likely cause will be overreaching by Washington rather than posturing by Moscow.

Washington's missile defense decisions matter far more around the periphery of Asia and along its most consequential fault lines. Abstract debates in European capitals over the utility or disutility of missile defenses have concrete meaning for Beijing, Taipei, Tokyo, New Delhi, Islamabad, Seoul, and Pyongyang. Taipei views missile defense deployments as an opportunity to reconnect with the US military establishment and as a symbolic counter to China's missile buildup. Beijing is the most vocal opponent of ballistic missile defenses and, unlike Moscow, has the capacity to increase its nuclear capabilities in reaction to US programs. New Delhi does not oppose US missile defense plans, hoping to solidify military and diplomatic ties to Washington. Privately, however, Indian officials worry about the wisdom of Washington's moves and Beijing's likely reactions to them, including renewed missile or nuclear assistance to Pakistan. Islamabad is plainly concerned about military technology transfers between India and the United States, and has lined up with China in opposition to ballistic missile defenses. Tokyo has mixed emotions, worrying both about US belligerency and Beijing's growing arsenal of theater ballistic missiles. Japanese concerns shift seamlessly between not being enmeshed in unwise US policies and not being properly defended by Washington. A thaw between Seoul and Pyongyang depends in good measure on the outcome of US diplomacy and missile defense deployments.

India, Pakistan, and China all have near-term, growing nuclear potential, in contrast to the Russian Federation, whose nuclear capabilities will be trending downwards over the next ten to fifteen years. In addition, Beijing, New Delhi, and Islamabad all have new and malleable strategic doctrines. Their missile and nuclear interactions could result in shifts from minimal to open-ended requirements for

nuclear deterrence. Consequently, US missile defense deployments and transfers could prompt cascading military requirements in China and around the periphery of Asia. Cascade effects could include accelerated growth in nuclear stockpiles, missile inventories, and conventional military capabilities.

In some ways, missile defenses are like nuclear weapons. Their military utility is questionable in times of war. Even so, missile defenses, like nuclear weapons, have very high political salience. And like nuclear weapons, missile defenses could have either political utility or disutility, depending on how others react to them. The political salience and presumed utility of nuclear weapons remain high even though they have not been used on the battlefield in over five decades. This prolonged period of non-use reflects questionable military utility or the efficacy of nuclear deterrence. Either way, political dimensions dominate. Even in the absence of battlefield use, every nuclear weapon test, every flight test of a missile designed to carry nuclear weapons, and every nuclear modernization program sends powerful messages to neighbors and potential adversaries. States on the receiving end of these messages can react supinely, seek the shelter of powerful allies, or respond in kind.

These dynamics also apply to missile defenses, albeit with important variations. Theater missile defenses are likely to see repeated use on the battlefield, but they could be overwhelmed by large inventories of short-range ballistic missiles, such as those possessed by China and North Korea. Similarly, national missile defenses cannot be relied upon to stop large numbers of missiles equipped with countermeasures. Nonetheless, the political salience of missile defenses is extremely high in Asia. Washington's decisions regarding missile defenses could improve some bilateral ties, while causing significant deterioration in others. Missile defense deployments or transfers in Asia could cause serious spikes in regional tensions or help defuse crises. No US defense modernization programs have more up-side potential and downside risk than missile defenses.

ASIAN TRIANGULATION

With the demise of the Soviet Union, nuclear signaling has shifted to Asia, becoming most pronounced in triangular interactions among China, India, and Pakistan. While other nations were signing and ratifying the Comprehensive Test Ban Treaty, India and Pakistan tested nuclear weapons. Prior to the Treaty's completion, China carried out a hurried and perhaps incomplete series of tests. All three states have active production lines for short-, medium-, and intermediate-range ballistic missiles. The testing of nuclear weapons and ballistic missiles demonstrates national resolve for these countries, whose modern history includes periods of humbling subservience. Testing demonstrates that Beijing, New Delhi, and Islamabad will not accept dictation. Nor will they seek refuge in formal alliances. Leaders in all three countries view nuclear weapons and missiles as instruments of independence, power, status, and protection against stronger competitors.

Consequently, China, India, and Pakistan are enmeshed in a three-cornered interaction that will not be easy to stabilize. It was hard enough during the Cold War to maintain strategic stability in a two power equation, when both Washington and Moscow acknowledged that stability required acceptance of rough numerical parity, meaningful changes in the nuclear balance were readily observable, both superpowers acknowledged the need for intrusive monitoring, and when the implementation of treaty obligations was verifiable. Southern Asia presents a far more complex model. Leaders in Beijing, New Delhi, and Islamabad all say that minimum deterrence will serve as their guide, and that they will avoid the competitive drives leading to ever-larger nuclear arsenals. But national leaders in all three countries have also acknowledged that deterrence is not a static concept. The requirements of each state will depend, in some measure, on what the others are doing or might seek to do.

Accepting—let alone codifying—a hierarchical, triangular relationship will be extraordinarily difficult for these proud nations. No two sides of the triangle in southern Asia are equal, and within the triangle, there are two competing dyads. In geometrical terms, there is nothing inherently stable about a triangle consisting of three unequal sides. India clashes with Pakistan over a disputed border and jockeys with China over contested areas. India and Pakistan are enmeshed in a deadly dispute over Kashmir. India and China are acutely sensitive over Tibet and anticipate a competition between "blue water" navies. All three countries worry about Islamic extremism. Nuclear weapons and missile programs now overlay these neuralgic issues, making it even harder for national leaders in China, India, and Pakistan to create and sustain a stable strategic environment.

The close triangular interactions involving China, India, and Pakistan magnify nuclear message sending, within and beyond the confines of southern Asia. Prospective US missile defense deployments will undoubtedly compound these tympanum effects. To complicate matters further, the regional effects of US missile defense deployments are invariably crosscutting. Harmony in one sphere produces dissonance in the next. Take, for example, the case of Japan. Deployments that soothe Japanese concerns could easily rub Chinese sensibilities raw. Conversely, voluntary restraint by Washington in the face of Chinese or North Korean missile threats could be as unsettling to Japan as ill-conceived transfers. Whatever deployment choice is agreed upon by Washington and Tokyo will likely raise sensitive constitutional, civil-military, and burden sharing questions in Japan.

The United States and the Soviet Union engaged in an extended strategic dialogue to establish the rules of their nuclear competition. Severe crises were followed by bilateral arrangements to improve communication lines and mutual understanding. Triangular interactions in southern Asia follow different patterns. Crises and wars are usually followed either by deep freezes or poorly implemented confidence-building measures. Over the last decade, Beijing and New Delhi have begun a strategic dialogue, but their interactions on nuclear matters have dwelled on China's displeasure at being obliquely named as a reason for India's nuclear tests in 1998, and New Delhi's concerns over China's support for Pakistan's

nuclear and missile capabilities. China has been reluctant to discuss mechanisms to stabilize the Sino–Indian nuclear relationship in a context that presumes equality.

Relations between India and Pakistan have oscillated wildly, marked by nuclear testing in 1998 and the Lahore summit in 1999 that suggested the possibility of a paradigm shift in bilateral relations, only to be followed by a Pakistan Army-led and planned military probe to seize high ground on the Indian side of divided Kashmir. The ensuing high-altitude combat over the summer of 1999 generated increased readiness in nuclear capabilities, but did not have the chastening effects produced by other nuclear scares, such as the Cuban missile crisis. The Kremlin lied blatantly before and during the Cuban missile crisis. Nonetheless, this hair-raising brush with nuclear disaster led the Kennedy administration to pursue nuclear risk-reduction arrangements with the Kremlin, which took immediate form in the Hot Line agreement establishing direct and reliable communications between national leaders. In contrast, New Delhi reacted to Pakistan's dissimulations about the high-altitude war by seeking to isolate its nuclear neighbor. The Indian government's policy of containment reflected domestic political imperatives as well as official calculations that isolating Pakistan would yield greater benefit than formalizing nuclear risk-reduction arrangements with an unreliable negotiating partner.

India's containment policy toward Pakistan lasted for two years, after which Prime Minister Atal Bihari Vajpayee invited the "architect" of the 1999 war, General Pervez Musharraf, to Agra for an unscripted summit. The July 2001 Agra summit failed to achieve an agreed structure for subsequent dialogue, breaking down in public wrangling over the Kashmir dispute. Then came the September 2001 demolition of the twin towers of the World Trade Center. The ensuing US war against the al-Qaeda terrorist network added new layers of complication to nuclear risk-reduction efforts on the Subcontinent. By suddenly becoming a front line state in the war against terrorism, Pakistan's military government now distanced itself from groups that used to do its bidding in Kashmir. Backlash predictably followed. When a band of terrorists attacked the Indian Parliament building in December 2001, South Asia witnessed another mobilization of two huge standing armies, as nuclear capabilities were again readied for use.

Supporters of nuclear weapons in India and Pakistan casually predicted that the 1998 tests would usher in a period of stability on the Subcontinent. Instead, India and Pakistan, like other adversarial nuclear dyads, immediately became deeper enmeshed in crises and border clashes. South Asia's roller coaster ride provided little time or space to put in place nuclear risk-reduction measures like those employed by Washington and Moscow to stabilize their Cold War pursuits. Instead, nuclear dangers remained intertwined with the Kashmir dispute. Crises became more frequent, and more dangerous.

Deterrence theorists in the West have a name for this phenomenon: the "stability-instability paradox."[1] The essence of this paradox is that, while offsetting nuclear capabilities might foreclose a central strategic exchange, they might also increase provocations and risk taking at lower levels—whether to remedy perceived weaknesses or to press territorial claims. Nuclear weapons can generate risk taking because they presumably provide an insurance policy against escalation. The most dangerous time to control escalation usually comes in the years immediately after both adversaries initially possess nuclear capabilities. During this awkward period, tolerance levels or "red lines" have not been clarified, the nuclear balance is unclear, and risk-reduction arrangements have not been implemented. At the earliest stages of offsetting nuclear capabilities, new weapon developments add to threat perceptions and uncertainties. India and Pakistan are now proceeding through this difficult passage.

The prospective deployment of ballistic missile defenses by the United States will surely complicate the nuclear risk-reduction agenda in southern Asia. Leaders in China, India, and Pakistan have time before national and advanced theater missile defenses are deployed to take serious steps to reduce negative consequences and nuclear risks. The sooner they attend to these tasks, the better. In the meantime, Washington must also attend to the downside risks and unintended consequences in Asia of deploying missile defenses.

MISSILE DEFENSES AND NUCLEAR RISK REDUCTION

Cold War models of nuclear risk reduction are only partly relevant to Asia. The Hot Line agreement and other accords to prevent dangerous military practices could certainly be adapted to meet Asian circumstances. But the stabilizing aspects of strategic arms limitation and reduction accords, especially their codification of equality and intrusive monitoring provisions, are unlikely to be applicable to this region.

To begin with, national leaders in China, India, and Pakistan have publicly rejected equality and opted instead for "minimum" deterrence. The quasi-official "draft" Indian nuclear doctrine is characterized as "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

[1] Glenn Snyder began to explore the instabilities associated with offsetting nuclear arsenals in *Deterrence and Defense*, (Princeton, NJ: Princeton University Press, 1961). Robert Jervis gave content to this dilemma in *The Illogic of American Nuclear Strategy* (Ithaca, NY: Cornell University Press, 1984). For its application to South Asia, see Michael Krepon and Chris Gagne, eds., *The Stability–Instability Paradox: Nuclear Weapons and Brinksmanship in South Asia* Report no. 38 (Washington, DC: The Henry L. Stimson Center, June 2001).

forces will be decided in the light of these factors."[2] The nuclear postures adopted by China and Pakistan will also be sensitive to external factors. All three countries are unlikely to accept a codification of inequality at a time of great uncertainty about the requirements of nuclear deterrence against more powerful competitors. Moreover, all three are extremely leery of the degree of transparency for nuclear forces that would facilitate treaties or the stabilization of nuclear requirements. In China, subterfuge is an integral aspect of military art and strategic culture. As David Shambaugh has observed, China's military leaders have been socialized in a military institution and political culture that prizes discipline and secrecy—thus they do not appreciate the importance of defense transparency as a security-enhancing measure, and view foreign requests to improve it with suspicion. They refuse to join alliances or participate in joint military exercises with other nations, are reticent to institutionalize military cooperation beyond a superficial level, and are leery of multilateral security cooperation.[3]

India and Pakistan, like China, rely on opacity to cover military weakness or to increase force survivability. The acceptance of transparency to reduce nuclear danger usually comes much later, after states possessing nuclear weapons gain confidence in their deterrent. The United States and the Soviet Union did not accept on-site inspections of each other's nuclear forces until 1986, nearly three decades after first broaching the subject.

In the early stages of a nuclear competition, there are few verifiable data points to measure stability or asymmetry. Paradoxically, the inclination by India and Pakistan to foster stability by not maintaining nuclear forces at high states of readiness could make it harder to clarify baselines. To complicate matters further, technical monitoring capabilities in southern Asia are limited, making it difficult to verify in a timely and repetitive fashion nuclear developments across borders. China and India have invested in "national technical means" to observe military developments from space. Not to be left too far behind, Islamabad has used the launch services of Russia to loft a rudimentary observation satellite.[4] All three states will presumably rely, as well, on imagery purchases from commercial observation satellites to monitor developments of interest.

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[2] National Security Advisory Board of India, "The Draft Report of the National Security Advisory Board on Indian Nuclear Doctrine" (17 August 1999), section 2.3, Internet: http://www.indianembassy.org/policy/CTBT/nuclear_doctrine_aug_17_1999.html.

[3] "China's Military Views the World," *International Security* Vol. 24, no. 3 (Winter 1999/2000): 55.

[4] The Badar-II was launched from the Russian Cosmodrome at Baikonur, Kazakhstan on December 10, 2001. See "Satellite Badar-II launched," *Dawn* (Karachi), 11 December 2001, Internet: http://www.dawn.com/2001/12/11/top5.htm. For a description of Badar-II's projected capabilities see John Pike, "Pakistan and Earth Observation Systems," 28 November 1999, Internet: http://www.fas.org/spp/guide/pakistan/earth/.

China, India, and Pakistan will also rely on domestic intelligence assessments, espionage, declassified US assessments or leaks of classified material in the US media, non-governmental reports, or some combination thereof to produce national estimates. These sources might well produce a confusing picture, or reinforce worst-case analysis. National intelligence assessments might well be wide of the mark, producing unpleasant surprises. Strategic surprise is not uncommon in southern Asia: India surprised China with its nuclear tests in 1998; China surprised India by going to war in 1962; and Pakistan surprised India by crossing the Line of Control dividing Kashmir after the 1999 Lahore summit. Future surprises may also be in store.

Taken together, the imbalanced triangular relationship in southern Asia, the lack of hard information and redundant monitoring capabilities, and the perceived necessity for opacity could inflate force-sizing requirements in China, India, and Pakistan—even in the absence of missile defense deployments by the United States. National leaders will certainly be hard pressed to maintain strict limits on their nuclear deterrents when domestic political, institutional, and technological pulls reinforce external drivers pointing toward more and better nuclear capabilities.

CHINA AND CASCADING NUCLEAR REQUIREMENTS

Beijing's calculations of nuclear sufficiency will reverberate in New Delhi, and India's recalibrated nuclear requirements will reverberate in Islamabad. At the top of this cascade, Beijing's calculations will be affected by US deployments of national and advanced theater missile defenses. Whatever additional requirements Beijing feels are warranted to counter US missile defense programs are likely to be relatively inconsequential in terms of the US–China nuclear equation, but could be compelling on the Subcontinent. The potential for cascading nuclear requirements would exist, however, even in the absence of US missile defense programs, since China's military and strategic modernization programs are driven in part by the Taiwan issue.

After the normalization of US–China relations begun in the Nixon administration, stability across the Taiwan Strait rested on three pillars: Beijing's inability to project military power, Taipei's disinterest in distancing itself further from the mainland, and Washington's acceptance of the status quo relationship between Taiwan and China. These pillars began to erode well before the Clinton administration began to consider seriously national missile defense deployments. As political and demographic trends in Taiwan created greater distance from China's orbit, Beijing countered by improving its power projection capabilities.

Missiles were a relatively quick, inexpensive, and highly symbolic way to demonstrate cross-strait military capabilities. Predictably, China's missile programs prompted more support for missile

defenses in the United States, more interest in Taiwan for transfers of new missile defense systems, and stronger drum beats on Capitol Hill in support of Taiwan's fledgling democracy. Beijing's leadership was willing to accept these consequences, given its inability to project military power in any way other than by ballistic missiles, and given its perceived need to "send a message" to Taiwan.

The growing distance between Taipei and Beijing, the multiple weaknesses of the People's Liberation Army, Navy, and Air Force, as well as new uncertainties about Washington's future course, meant that China required not only a demonstrable increase in missiles that could span the Taiwan Strait, but also modernized missiles that could range over intercontinental distances. In the event of a future crisis over Taiwan, Beijing's leadership is resolved never again to be subject to coercive US nuclear diplomacy, as was the case during the 1950s, especially during the Korean War.[5]

The lesson learned by Mao Tsetung from US nuclear threats was clear: "If we are not to be bullied in the present day world, we cannot do without the [atomic] bomb."[6] This lesson has been internalized by China's military leaders. Marshall Nie Rongzen wrote, "To get rid of imperialist bullying which China had suffered for more than a century, we had to develop these sophisticated [nuclear] weapons. At least then, we could effectively counterattack if China were subject to imperialist nuclear attack."[7] Major General Yuan Huan wrote in a similar vein, "China's strategic nuclear weapons were developed because of the belief that hegemonic power will continue to use nuclear threats and nuclear blackmail."[8]

The most cost-effective way for China to prevent coercive US nuclear diplomacy is to be able to destroy American cities, a requirement that is far easier to meet in the absence of US missile defenses. In order to be viable, China's nuclear deterrent must be survivable. This, in turn, requires modern intercontinental ballistic missiles—solid-fueled missiles that are mobile, hard to find and target. If Washington deploys national missile defenses, Beijing's deterrent must be able to penetrate them. Warheads must be accompanied by countermeasures that can confuse and foil US intercepts.

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[5] See Roger Dingman, "Atomic Diplomacy During the Korean War," *International Security* Vol. 13, no. 3 (Winter 1988/89); Jack Snyder, *"Atomic Diplomacy in the Korean* War," *Pew Case Studies in International Affairs* Case 359 (Cambridge, MA: Harvard University Press, 1993); and Gordon Chang, *Friends and Enemies: the United States, China, and the Soviet Union, 1948–1972* (Stanford, CA: Stanford University Press, 1990): 116–142.

[6] "On the Ten Major Relationships," *Selected Works of Mao Tsetung* Vol. 5 (Beijing: Foreign Language Press, 1977), 288.

[7] "How China Develops its Nuclear Weapons," *Beijing Review* (29 April 1985), 17.

[8] U.S. Department of Defense, Office of the Secretary of Defense, *Proliferation: Threat and Response* (January 2001), 14.

Beijing previously assumed a rather relaxed view about nuclear deterrence. Throughout the Cold War, China's strategic nuclear forces were both negligible and surprisingly vulnerable. Beijing was content to possess perhaps twenty intercontinental ballistic missiles that took many hours to become operational, one non-operational submarine carrying missiles that could not reach the United States, and no strategic bombers. Whether China's leaders realized it or not, they were vulnerable to a US first strike.[9] The vulnerability of Beijing's strategic nuclear forces and the enormous asymmetry between Chinese and US nuclear capabilities did not matter as long as the status quo on Taiwan held firm, and as long as both countries—as well as Taiwan—were content not to change it.

These central determinants of strategic stability are in flux. The combination of Taiwan's drift from the mainland, the acquisition of advanced conventional capabilities by US forces, and Washington's renewed interest in ballistic missile defenses poses a triple threat to China. Beijing's vulnerable strategic deterrent is now clearly insufficient in the event of a confrontation over Taiwan, its ability to coerce Taiwan is being challenged, and its economic development is being taxed, since extra funding for conventional and nuclear forces comes at the expense of domestic priorities, which are essential for economic growth and social cohesion. Nonetheless, Chinese leaders are prepared to direct unprecedented funding increases to the military, reflecting the importance they attach to the Taiwan issue and the concerns they feel about growing asymmetries in Chinese and US military capabilities.[10] As a consequence, one close China watcher believes that:

> From the late 1980s on, Chinese strategists have developed a concept of "limited deterrence" (*you xian wei she*) to describe the kind of deterrent China ought to have. While the concept is still evolving, limited deterrence, according to Chinese strategists, requires sufficient counterforce and countervalue tactical, theater, and strategic nuclear forces to deter the escalation of conventional or nuclear war. If deterrence fails, this capability should be sufficient to control and to compel the enemy to back down. [11]

Not surprisingly, Beijing has been the most vocal opponent of US missile defense programs, far surpassing Moscow in the intensity of its criticism. Pakistani leaders have also reacted quite negatively to

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[9] See Bates Gill and James Mulvenon, "The Chinese Strategic Rocket Forces: Transition to a Credible Deterrence," *China and Weapons of Mass Destruction: Implications for the United States*, Conference Report (5 November 1999), 13. This paper, prepared for the National Intelligence Council, can be accessed at www.cia.gov/nic/pubs/conference_reports/weapons_mass_destruction.html.

[10] China reportedly increased its defense spending by 17 percent in both 2001 and 2002. "China Plans Major Boost In Spending for Military," *Washington Post*, 6 March 2001 and "China Raises Defense Budget Again," *Washington Post*, 5 March 2002.

[11] Alastair Iain Johnston, "China's New 'Old Thinking': The Concept of Limited Deterrence," *International Security* Vol. 20, no. 3 (Winter 1995/96): 5–6.

prospective missile defenses, not simply in support of Beijing, but also out of concern that New Delhi will eventually deploy its own defenses, possibly negating Islamabad's investment in missiles. New Delhi's diplomatic posture toward missile defenses has shifted from negative to neutral. Early in the Clinton administration, when ties were strained, Indian diplomats derided missile defenses as yet another ill-conceived strategic initiative by an insular and unilateralist Washington. As Indo–US relations improved, criticism toward missile defenses became greatly muted, with some even contemplating active bilateral cooperation in this sphere.[12] At the outset of the administration of George W. Bush, New Delhi's response to presidential pronouncements on strategic policy was far more appreciative than official responses from European capitals.

While New Delhi's views toward missile defenses shifted, Beijing's opposition deepened. Prospective US missile defense deployments reinforced anxieties over the future of Taiwan and the "revolution in military affairs," which has hollowed out the People's Liberation Army's oversized and outdated conventional forces. These concerns will be reflected by China's strategic modernization effort, which will then have cascading impacts on Indian threat perceptions and force requirements. The extent of the resulting cascade would depend, in part, on how China's leaders define the requirements of deterrence against the United States (and lesser cases), how US leaders define the extent and architecture of ballistic missile defenses, and how much India's leaders feel compelled to respond to Chinese moves.

There is broad agreement in the United States regarding China's presumed requirements for deterrence. This near-consensus view was stated in the Pentagon's 2001 review of proliferation dangers: "China's stated doctrine reportedly calls for a survivable long-range missile force that can hold a significant portion of the U.S. population at risk in a retaliatory strike."[13] Some who support missile defenses would seek to negate this capability; those who seek a cooperative relationship with Beijing would accept a mutual deterrence relationship. If negation of the Chinese deterrent is either sought or perceived, China's strategic modernization programs are likely to expand accordingly, as will their cascade effects on the Subcontinent.

Given the low priority China's leaders have attached to nuclear deterrence in the past and the higher priority given to conventional force modernization and to economic development, Beijing will seek to fulfill the requirement of targeting US cities at least cost. China's minimalist requirements continue to be reflected in official US projections of Beijing's strategic modernization plans. According to estimates offered by the Pentagon and the Central Intelligence Agency, China will likely have "tens to

[12] Author's interviews at the Ministry of External Affairs and Ministry of Defence, New Delhi, November 2000.

[13] U.S. Department of Defense, Office of The Secretary of Defense, *Proliferation: Threat and Response* (January 2001), 14.

several tens of missiles" capable of reaching the United States by 2015.[14] A January 2002 CIA estimate revised upward China's requirements, predicting between seventy-five and 100 warheads on ocean-spanning missiles by 2015. Moreover, the US intelligence community estimated that Beijing would "encounter significant technical hurdles" as well as financial costs trying to place multiple warheads atop its mobile missiles.[15] In other words, Beijing would deploy, on average, only six warheads atop intercontinental ballistic missiles per year in response to US national missile defense deployments. This is an extraordinarily low estimate for government agencies that have not been known to deflate the military potential of a prospective strategic competitor.

Depending on the scope of "limited" US national missile defenses that are ostensibly oriented against North Korea, Iran, and Iraq, US deployments could also be able to "capture" China's quite modest nuclear deterrent. If the prospective size of "limited" US missile defense deployments exceeds the intelligence community's estimates of the Chinese strategic nuclear deterrent in 2015, then Beijing will presume that China is the real object of US defense planning. Beijing is unlikely to sit still if Washington seeks to neutralize its nuclear deterrent. As a consequence, the pace and extent of China's strategic modernization effort are likely to increase alongside the breadth of prospective US missile defense deployments. Several non-governmental studies are less sanguine than the US intelligence community about Beijing's missile plans, predicting force increases from tens to hundreds of missiles.[16] An increase by China of this magnitude could have significant cascading effects in India and Pakistan. It would also create perturbations in Japan and Taiwan. Thus, the prospective size of the "limited" US national missile defense system matters greatly.

With the removal of treaty constraints against missile defenses, these limits will be bounded primarily by US executive branch and legislative interactions. Beijing will unwillingly become a party to American choices, since its responses to US deployments will establish a feedback loop for missile defense enthusiasts and skeptics. If ambitious US missile defense plans alienate Beijing, Moscow, and

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[14] *Ibid.*, 13. Also see National Intelligence Council, *Global Trends 2015: A Dialogue About the Future With Nongovernmental Experts* (December 2000), 55; and Stephen Lee Myers, "Intelligence Report Says U.S. Missile Defense May Stimulate China," *New York Times*, 10 August 2000.

[15] National Intelligence Council, "Foreign Missile Developments and the Ballistic Missile Threat Through 2015," 10. This estimate can be accessed at www.cia.gov/nic/pubs/other_products/Unclassifiedballisticmissilefinal.htm.

[16] See Philip C. Saunders and Jing-dong Yuan, "China's Strategic Force Modernization: Issues and Implications for the United States," in Michael Barletta, ed., *Proliferation Challenges and Nonproliferation Opportunities for New Administrations*, CNS Occasional Paper no. 4 (Monterey, CA: Center for Nonproliferation Studies, September 2000); David Shambaugh, "Facing Reality in China Policy," *Foreign Affairs* Vol. 80, no. 1 (January/February 2001): 52; Robert Manning, Ronald Montaperto, and Brad Roberts, *China, Nuclear Weapons, and Arms Control: A Preliminary Assessment* (New York: Council on Foreign Relations, May 2000), 49–50. Brad Roberts enumerates a continuum of possible responses to NMD deployment in "China," in James J. Wirtz and Jeffrey A. Larsen, eds., *Rockets' Red Glare: Missile Defenses and the Future of World Politics* (Boulder, CO: Westview Press, 2001), 183–211.

allied capitals, while appearing to be linked to the resumption of nuclear testing and the weaponization of space, domestic blocking action is likely to be taken. If, on the other hand, China again resorts to the use of ballistic missiles for coercive diplomacy or, worse, in a military campaign against Taiwan, national missile defenses will receive a significant boost. Even if Washington makes wise decisions regarding ballistic missile defense deployments, Beijing could make poor ones resulting in increased tensions, instability and armament around its periphery.

Given the importance Beijing's leaders attach to the Taiwan issue and still-raw memories of US nuclear coercion, China has already begun a strategic modernization program, albeit one that has proceeded very slowly. A trickle-down effect on South Asia is already underway, but it has yet to become a cascade. The extent of acceleration will depend, in the first instance, on decisions taken in Washington and Beijing. Beijing cannot be given a veto over national missile defenses or for advanced theater defenses provided to friends and allies, but neither should Washington be given encouragement to make bad decisions. The dilemmas associated with missile defense deployments are inescapable, and they have as much to do with minimizing downside risks and unintended consequences as with pursuing favorable outcomes.

A trickle-down effect on South Asia is already underway, but it has yet to become a cascade.

INDIA'S NUCLEAR CHOICES

New Delhi's nuclear choices are different from those driving Beijing, but they are also susceptible to reverberations generated from missile defense deployments. India's nuclear requirements flow from two colluding nuclear neighbors, considerations of status and domestic politics, and the prompting of a well-connected "strategic enclave."[17] The Indian nuclear program has its own biorhythms, however, which are extremely relaxed by western standards. The most extraordinary data point in this regard is the twenty-four year hiatus between India's nuclear detonations.

Several reasons could be posited for this elongated time line for developing a nuclear arsenal, including the high priority Indian leaders have given to economic concerns; their past susceptibility to US pressure; a strong aversion by Indian political leaders to make difficult choices; the absence of an indigenous national security consciousness and support structure in New Delhi; and the powerful lassitude and risk aversion of the Indian bureaucracy. To these must be added a unique duality among Indian elites toward the Bomb, in which status-consciousness and anti-colonialism point in one direction,

[17] This term has been widely borrowed from Itty Abraham, "India's 'Strategic Enclave:' Civilian Scientists and Military Technologies," *Armed Forces and Society*, Vol. 18, no. 2 (Winter 1992).

while moral superiority and anti-nuclear Gandhianism point in the other. One chronicler of India's bomb program, George Perkovich, characterizes this odd mix as "defiant assertiveness and diffident timidity."[18]

Indian singularity could comfortably support both pro- and anti-nuclear postures, since either path made India special. As a proud Third World state speaking from uncommon moral authority, New Delhi relished leading international campaigns for nuclear disarmament. But India also privately longed to be a member of this exclusive club. Ongoing nuclear and missile programs in China and Pakistan, the indefinite extension of the Nuclear Non-Proliferation Treaty in 1995, and the 1996 negotiation of the Comprehensive Test Ban Treaty all served to clarify the necessity for choice. The divide between nuclear and non-nuclear-weapon states was now clearer than ever. A newly elected government led by the Hindu nationalist Bharatiya Janata Party, operating with a bare parliamentary majority, definitively resolved India's ambivalence with five nuclear weapon tests in May 1998.[19]

The Prime Minister of this coalition government, A. B. Vajpayee, spoke few words about India's nuclear ambitions since announcing the tests. Official pronouncements dwell on the guiding principles of minimalism with respect to the requirements of nuclear deterrence and a pledge of no first use that appears to be unconditional.[20] In lieu of more elaborate statements regarding the requirements of nuclear deterrence, the Vajpayee government assembled an eclectic group of advisors to draft a non-official, but officially sanctioned statement of India's nuclear needs. The August 1999 report by the National Security Advisory Board conveys authoritativeness, since it asserts, rather than recommends doctrine. (e.g., "India's nuclear forces will be effective, enduring, diverse, flexible, and responsive. . . .")

This semi-official and yet quasi-deniable report is certainly unique in national efforts to fashion a nuclear doctrine. The report's release was accompanied by a government invitation for public engagement, furthering the consensus-building effort begun with the diversity of the report's drafting group. The drafters appeared to have built internal consensus by endorsing a wide range of initiatives, including the need for a nuclear triad of capabilities held by India's Army, Navy and Air Force. Some of the asserted needs, such as organizing India's deterrent for "rapid punitive response" vitiate India's reassuring principle of no-first-use, since a force ready to respond quickly would look indistinguishable

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[18] George Perkovich, *India's Nuclear Bomb, The Impact of Global Proliferation* (Berkeley, CA: University of California Press, 1999), 421. For a well-sourced Indian perspective, see Raj Chengappa, *Weapons of Peace* (New Delhi: Harper Collins, 2000).

[19] For an assessment of the factors behind India's tests, see Michael Krepon, "Introduction," in *The Balance of Power in South Asia* (Abu Dhabi: The Emirates Center for Strategic Studies and Research, 2000), 1–10.

[20] See, for example, Vajpayee's remarks before the Rajya Sabha on 29 May 1998 and his Independence Day Speech on 15 August 1998, which are accessible at www.indianembassy.org. Also see Foreign Minister Jaswant Singh's interview in *The Hindu* (Chennai), 29 November 1999.

from one preparing to launch a pre-emptive strike. The core requirement is stated as "credible minimum nuclear deterrence." The demands of credibility, however, can influence the minimum required. A high premium is placed on survivability to lend credence to India's retaliatory force posture.[21]

The advisory board said nothing about the requirement, role, or repercussions of ballistic missile defenses for India's national security. Nor did the advisory board's report provide insight into how India might react to an increase in China's nuclear capabilities as a result of missile defense deployments by the United States. In any event, the incremental requirements resulting from missile defenses would be hard to discern, since the advisory board endorsed such a robust triad of nuclear capabilities. Presumably, however, those advisors who supported a large arsenal would support an even larger one after factoring in the cascade effects of missile defenses.

The absence of official Indian government statements regarding the requirements of nuclear deterrence was not unwelcome to foreign capitals that preferred ambiguity to firmly stated, ambitious estimates of India's nuclear needs. Filling this vacuum were Indian strategic analysts who offered their own unofficial estimates of the requirements of deterrence. One notably hawkish author called for an "escalation dominance" posture against China and at least 300 nuclear weapons.[22] Another hawkish strategist places the stockpile requirement at 132 devices.[23]

The dean of India's strategic analysts, K. Subramanyam, estimated the need for sixty deliverable weapons, but this was before China's strategic modernization program began to take shape.[24] Writing soon after the 1998 nuclear tests, when Western concerns were quite elevated, the head of India's government-supported institute of defense studies, Jasjit Singh, wrote, "... it is difficult to visualize an arsenal with anything more than a double-digit quantum of warheads. It may be prudent to even plan on the basis of a lower figure of say, two–three dozen nuclear warheads by the end of ten–fifteen years ... with the passage of time, deterrence decay factors will lead to a smaller arsenal rather than a larger one."[25]

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[21] For the text of the report and an informed analysis of it, see Arvind Kumar, ed., *Report on a Workshop on The Draft Indian Nuclear Doctrine*, NIAS Report R1-2001 (Bangalore: National Institute of Advanced Studies, 2001).

[22] Bharat Karnad, "A Thermonuclear Deterrent," in Amitabh Mattoo, ed., *India's Nuclear Deterrent: Pokhran II and Beyond* (New Delhi: Har-Anand, 1999), 109–149. An overview of non-official views can be found in Sumit Ganguly, "Potential Indian Nuclear Force Postures," CMC Occasional Paper no. 19 (Albuquerque, NM: Cooperative Monitoring Center, Sandia National Laboratories, January 2001), from which this analysis is drawn.

[23] Vijai K. Nair in Mattoo, ed., *India's Nuclear Deterrent: Pokhran II and Beyond*, 105.

[24] "Nuclear Force Design and Minimum Deterrence Strategy for India," in Bharat Karnad, ed., *Future Imperilled: India's Security in the 1990s and Beyond* (New Delhi: Viking Penguin, 1994), 177–195.

[25] Jasjit Singh, *Nuclear India* (New Delhi: Knowledge World, 1998), 315.

This estimate now appears unrealistically low. A subsequent assessment by retired Admiral Raja Menon calculated that India should eventually rely upon a deterrent capability of six submarines, each carrying as many as ninety-six warheads.[26] Another retired senior military officer, Kapil Kak, called for an initial force for 100 warheads carried by aircraft and land-based missiles.[27]

These unofficial assessments, together with the advisory board's report, suggest some clues as to how the Indian government might translate minimum nuclear deterrence into numbers—at least in the absence of cascade effects. The community of strategic commentators in India that pushed for an overt nuclear capability, and others who have joined them since the 1998 blasts, mostly translate the requirements of nuclear deterrence and the prerequisites of great power status into a thermonuclear weapons capability and a three-digit sized force of nuclear weapons.

The Indian government has also refrained from publicly discussing nuclear targeting, and the National Security Advisory Board provides no elucidation on this subject. Private commentators, mostly with military backgrounds, have again filled this void. Vijay Nair postulates that deterrence against China would translate into strikes against four to five metropolitan areas, nine to ten "strategic industrial centers" and China's submarine bases. As for Pakistan, Nair suggests targeting six to ten cities and a lesser set of communication nodes.[28] Raja Menon promotes a "flexible response" nuclear posture that targets military sites instead of cities.[29] Bharat Karnad advocates striking enemy cities and the development of high-yield thermonuclear weapons.[30]

The targeting of cities poses dilemmas for the stronger state in any nuclear pairing, and Indian government officials are likely to recoil from "countervalue" strikes against Pakistani cities unless Indian urban centers are hit first. In addition, countervalue targeting runs against the grain of Indian strategic culture. India's wars with Pakistan have been quite restrained by western standards, and have almost entirely avoided the targeting of military assets in built-up areas.[31]

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[26] Raja Menon, *A Nuclear Strategy for India* (New Delhi: Sage Publications, 2000), 225–228.

[27] "Command and Control of Samll Nuclear Arsenals," in Singh, ed., *Nuclear India*, 268.

[28] In Mattoo, ed., *India's Nuclear Deterrent*, 88.

[29] Menon, *A Nuclear Strategy for India*, 169.

[30] In Mattoo, ed., 142. Karnad suggests Chinese military targets as "secondary" targets.

[31] The clearest exception to this standard was the Indian Navy's shelling of oil facilities in Karachi in December 1971. However, acts of terror in urban areas presumably carried out with the support of intelligence agencies are not uncommon.

To the extent that Indian officials venture beyond the targeting of cities, they expand the parameters of minimal nuclear deterrence. A close US observer of India's evolving nuclear plans, Ashley J. Tellis, believes that New Delhi's requirements are likely to remain limited, following the cardinal principle that nuclear weapons are political, and not war-fighting instruments. Tellis concludes that India will maintain a modest "force in being," a deterrent "consisting of available, but dispersed, components that are constituted into a useable weapon system primarily during a supreme emergency."[32] He estimates that India's nuclear inventory is not likely to exceed 150–175 weapons by the year 2010.[33] This sanguine assessment still leaves open the door to increased targeting requirements as India's capabilities grow, providing for "more flexible responses in order to ensure that punishment, whenever inflicted, can be proportional and leads to speedy conflict termination at the most minimal cost."[34] Nuclear strategists in the West know all about this slippery slope and where it can lead.

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The "second tier" of nuclear weapon states—China, Great Britain, and France—are assumed to have nuclear weapon stockpiles in the low hundreds, which could set a marker for Indian ambitions. A British expert deeply steeped in western practices of nuclear deterrence, Michael Quinlan, finds it "difficult to believe" that India's requirements "could justifiably reach any higher than the smallest of the five 'NPT' nuclear armouries (the United Kingdom's, at an announced maximum of below 200 operational warheads)."[35] This might be wishful thinking, however, since New Delhi's security dilemmas are far greater than those facing London or Paris. In addition, a status-conscious India might well be averse to establishing a third nuclear tier below Great Britain and France, and might even be inclined to supercede the "colonialist" rung on the nuclear ladder. A three-digit sized Indian nuclear force would be directed mostly against China, while covering the lesser case of deterring Pakistan. The aspiration by India's nuclear hawks for a three-digit sized nuclear capability might well be inflated but, at present, theirs is the dominant discourse in India. Needless to say, these public aspirations help shape Chinese and Pakistani considerations of their own nuclear needs.

[32] Ashley Tellis, "India's Emerging Nuclear Doctrine: Exemplifying the Lessons of the Nuclear Revolution," *NBR Analyses* Vol. 12, no. 2 (Seattle: The National Bureau of Asian Research, May 2000): 8. For an elaboration of Tellis' analysis, see *India's Emerging Nuclear Posture: Between Recessed Deterrence and Ready Arsenal* (Santa Monica, CA: RAND, 2001).

[33] Tellis, *India's Emerging Nuclear Posture*, 348.

[34] Tellis, "India's Emerging Nuclear Doctrine," 102.

[35] "How Robust is India–Pakistan Deterrence?" *Survival* Vol. 42, no. 4 (Winter 2000–2001): 152.

PAKISTAN'S DILEMMAS

Most scenarios for nuclear danger on the Subcontinent begin at the Line of Control dividing Kashmir. The staging areas for carrying out deadly operations against Indian targets are on Pakistan's side of the Kashmir divide where, for many years, jihadis received logistical, intelligence, fire control, and material support from the Pakistani Army and intelligence services. During the Pakistani-backed Kashmir insurgency, firefights between Indian and Pakistani forces along the Line of Control have been frequent occurrences, sometimes accompanied by the overrunning of border posts. The war against terrorism in Afghanistan has greatly complicated Pakistan's Kashmir policy, which relied to a considerable extent on jihadi operations to punish Indian security forces and to draw international attention to its concerns.

Islamabad champions a strategic restraint regime for South Asia alongside its pro-active Kashmir policy. Different Pakistani military and intelligence officers worked on the nuclear and Kashmir accounts. Prior to the war against terrorism in Afghanistan, the contradictions inherent in the twin pursuits of nuclear risk management and fomenting violence in Kashmir were either not well appreciated at General Headquarters or believed to be manageable. During the first decade of offsetting nuclear capabilities in South Asia, Pakistani governments were reluctant to allow too much forward progress on nuclear risk reduction in the absence of satisfaction on Kashmir, viewing one as leverage for the other. Progress in resolving the Kashmir dispute, however, was publicly characterized in zero-sum terms, with the enumeration of Indian wrongs becoming a unifying theme in national life.

Pakistan's parallel pursuit of a strategic restraint regime and a proactive Kashmir policy became a casualty in the post-September 11, 2001 war against terrorism. Prior to September 11, Pakistani governments had previously hidden behind the argument that their support for militant Islamic groups was merely moral and political. The burden of proof needed to expose this fiction—the public use of intelligence to demonstrate military ties—was incidentally met during the US military campaign against the Taliban. Many of these "student" warriors received religious and military training from Pakistani mentors. Plausible deniability was now replaced by a presumption of guilt, not only in Afghanistan, but also in Kashmir. Every new act of terror committed by groups that received training and other forms of military assistance from Pakistan became an embarrassment to Islamabad.

By continuing to support jihadi crossings of the Kashmir divide, Pakistan could no longer expect the sympathy of the international community. To the contrary, after September 11, 2001, Islamabad could only expect diplomatic support and protection if it appeared to be moving against jihadi groups. This new dynamic became apparent after a suicide squad of Islamic extremists once backed by Pakistani intelligence outfits attacked the Indian parliament building three months after the World Trade Center collapsed in flames. The government of Pakistani President Pervez Musharraf plausibly argued that it had

no role in the attack against the Parliament, but could only prove this point by taking further steps against jihadi groups that previously received official sanction.

Prior to the war against terrorism in Afghanistan, Islamabad's Kashmir diplomacy rested on the expectation that India would be restrained from crossing the Line of Control to retaliate against terrorist acts, due to concerns over escalation and New Delhi's sensitivity to negative international reaction. After the terrorist attack on the Parliament, the Indian government placed its army on a war footing, announcing that it would not be paralyzed by Pakistan's nuclear deterrent, and that limited war was a viable military option to stop terrorist attacks.[36] The "rules of the game" in the Kashmir dispute are changing, reinforcing Pakistan's commitment to compete with India's nuclear programs.

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During the first decade of offsetting nuclear capabilities in South Asia, Pakistan's nuclear diplomacy was constructed around initiatives offered in the confident expectation of their rejection by India. Indeed, India's acceptance of Pakistan's previous proposals for nuclear abolition, if faithfully and bilaterally implemented, would pose serious dilemmas to Islamabad, the weaker state. Consequently, Pakistani proposals for nuclear disarmament have increasingly been mated to proposals for mutual, disproportionate reductions in conventional military capabilities. As Tanvir Ahmad Khan, a retired senior Pakistani diplomat has noted:

> We are frequently asked by international experts as to what would set Pakistan on the risk-reduction route. Essentially, the answer lies in addressing Pakistan's primary concerns. First, progress towards conflict resolution…. Secondly, the quest for confidence-building measures in the conventional field needs to be intensified. Particularly significant in this regard would be verifiable reduction in the asymmetry of the capability to make pre-emptive strikes….[37]

These proposals are also unlikely to be realized, since India's conventional military requirements must take into account Chinese as well as Pakistani contingencies.

The dance of diplomatic one-upsmanship continued after the 1998 nuclear tests and the 1999 high-altitude war in Kashmir. Pakistan's proposals for nuclear risk-reduction and stabilization measures

[36] See, for example, the remarks of Indian Army Chief General S. Padmanabhan in "From one General to another: we're ready," *The Indian Express* (New Delhi), 12 January 2002.

[37] "Nuclear Risk Reduction," *Dawn* (Karachi), 7 April 2001.

were explicitly linked to the escalatory potential inherent in the Kashmir dispute. Islamabad's nuclear diplomacy became broader and more nuanced after the nuclear tests, centering around the need for a "nuclear restraint regime" that included prohibitions on deployed nuclear forces and missile defenses.

Michael Quinlan reasoned that India was not "within sight [of a pre-emptive option], or could so render itself for decades ahead, or possessing such an option to a standard which military advisers could recommend to leaders."[38] Pakistan's generals confidently endorse this view. Troubling realities lurk below this surface, however. Pakistan has less than two-dozen airfields from which to operate nuclear-capable aircraft. Its missile production, main operating bases, and nuclear facilities are very few in number, and their geographical coordinates are publicly known. Commercial satellite images of Pakistan's facilities can be found on the Internet, along with the particulars of its missile programs.[39]

Quinlan's qualification still has merit. Even if the case for preemption were strongly made, it is difficult to envision an Indian Prime Minister believing and acting upon an assurance of complete success. Nonetheless, Pakistan's confidence in the survivability of its nuclear deterrent is likely to degrade in crisis situations, given the quick reach of Indian strike forces. Consequently, there are strong incentives for Pakistani military leaders to increase the readiness of their nuclear deterrent in periods of mounting tension, as they have in the past.[40] The potential for accidents and miscalculations grows when missiles are moved or are placed on heightened alert.

By championing the non-deployment of nuclear forces, Pakistan seeks to protect its deterrent. If faithfully adopted, however, this proposal could increase Islamabad's vulnerability to preemption, given the extremely short flight times between northern India and Pakistan's strategic assets. Pakistan's custodians of the nuclear option could, of course, define "non-deployment" in permissive ways. (The oft-used, official Indian idiom of "inducting" nuclear forces lends itself to an equally wide latitude of

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[38] "How Robust is India-Pakistan Deterrence?" 150.

[39] See, for example, http://www.fas.org/nuke/guide/pakistan/facility/khushab.htm.

[40] See Bill Gertz, "Pakistan builds missile sites," *The Washington Times*, 14 January 2002. Also see Kanti Bajpai, P.R. Chari, Pervaiz Iqbal Cheema, Stephen Cohen, and Sumit Ganguly, *Brasstacks and Beyond: Perception and Management of Crisis in South Asia* (Urbana, IL: University of Illinois, Urbana-Champaign, 1995); Stephen P. Cohen, P.R. Chari, Pervaiz Iqbal Cheema, *The Compound Crisis of 1990: Perceptions, Politics, and Insecurity*, ACDIS Research Report (Urbana, IL: University of Illinois, Urbana-Champaign, July 2000); and Raj Chengappa, *Weapons of Peace*, 9, 327, 357. The extent to which Pakistan prepared to use its nuclear capability in the 1990 crisis has been wildly exaggerated by Seymour M. Hersh, "On the Nuclear Edge," *The New Yorker* (29 March 1993), 56–73. Hersh's account was repeated in William E. Burrows and Robert Windrem, *Critical Mass, The Dangerous Race for Superweapons in a Fragmenting World* (New York: Simon & Schuster, 1994). For a participants' account of the 1990 crisis, see Michael Krepon and Mishi Faruqee, eds., *Conflict Prevention and Confidence-Building Measures in South Asia: The 1990 Crisis*, Occasional Paper no. 17 (Washington, DC: The Henry L. Stimson Center, April 1994).

interpretation.) Because Pakistan lacks strategic depth, it might well "deploy" a portion of its deterrent in unorthodox ways, distant from main operating bases.

There are several precedents for unorthodox basing. China, for example, maintains some of its missiles in caves, where they could be moved surreptitiously to confound targeting. The Soviet Union also used caves blasted out of the shoreline to protect missile-carrying submarines.[41] Pakistan could well resort to similar hide-and-seek practices. But moves to provide safety against a surprise attack could also generate a very different set of dangers, including accidents and breakdowns of command and control. Missiles located at satellite deployment areas away from main operating bases might also require movement in deep crisis, generating alarms (if detected) and prompting dangerous counter-moves if undetected but presumed. The movement of Pakistani missiles operating on poor roadways poses safety concerns, especially if the missiles in transit use highly combustible, liquid fuel. If a nuclear-related accident occurs in a deep crisis, it could trigger unforeseen consequences if enemy action is the presumed cause.

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Pakistan faces additional security dilemmas. The Sunni-Shia fault line within Islam is situated along Pakistan's border with Iran. Islamabad has had minor flare-ups with Teheran in the past, which both capitals have chosen not to overemphasize, given their other, more serious security concerns. Iran's quest for nuclear and missile capabilities would complicate regional security matters for Pakistan, creating a two-front nuclear danger—much like that facing India.

Pakistan's border with Afghanistan was supposed to provide strategic depth and a gateway to the markets of Central Asia, but Islamabad's efforts to shape Afghanistan's future by means of the Taliban proved to be a poor choice. What began as a low-cost plan to ensure a friendly border and to facilitate a jihad in Kashmir evolved into diplomatic isolation and domestic woes.[42] A Taliban-led government that

[41] Xue Litai, "Evolution of China's Nuclear Strategy," in John C. Hopkins and Weixing Hu, eds., *Strategic Views from the Second Tier: The Nuclear Weapons Policies of France, Britain, and China* (New Brunswick: Transaction Publishers, 1995), 167–189; You Ji, *The Armed Forces of China* (New York: I.B. Tauris, 1999), 88; and Menon, *A Nuclear Strategy for India*, 223. A drawing of Soviet submarine tunnel basing can be found in U.S. Department of Defense, *Soviet Military Power* (March 1986), 20–21.

[42] This sad tale in best told in Ahmed Rashid, *Taliban: Militant Islam, Oil and Fundamentalism in Central Asia* (New Haven: Yale University Press, 2000).

President Musharraf deemed essential to Pakistan's well being in March 2001[43] became a huge liability six months later after the demolition of the World Trade Center by Osama bin Laden's recruits. With the US declaration of war against terrorism in Afghanistan, Pakistan was forced to improvise an extrication strategy designed to prevent yet another hostile government along its borders.

Amidst these difficulties, Pakistan's friendship with China became increasingly essential to national well being, helping greatly to offset India's strategic advantages and to keep New Delhi off balance. China's assistance for Pakistan's missile programs continues despite Beijing's concerns over Islamic militancy along its western borderlands. Pakistan's other major external source of missile-related equipment, North Korea, is decreasing in importance, since Pakistan's clear preference is mobile, solid-fueled missiles, not the liquid models that North Korea has provided. If Pyongyang and Washington reach non-proliferation accords, the missile pipeline from North Korea would close, in any event.

While Pakistan's challenges come from all azimuths, its most serious problems remain social, political, and economic in nature. Pakistan's domestic difficulties could lend force to official pronouncements that Islamabad does not intend to engage in a nuclear competition with New Delhi. Nevertheless, Pakistan's army, which oversees nuclear and missile efforts, has invested heavily in these pursuits and is acutely aware of India's growing conventional capabilities. To hold costs and gain greater managerial control over duplicate nuclear and missile laboratories, a reorganization was announced by the Musharraf government in March 2001. Nonetheless, Pakistan is likely to define minimal nuclear deterrence in relative, not minimal, terms. "Pakistan's nuclear policy is," as Samina Ahmed has noted, "reactive in nature, responding to India's nuclear ambitions…. Pakistan's nuclear directions will be determined by India's nuclear choices."[44] If India increases its nuclear and missile capabilities, Pakistan's requirements are likely to be adjusted upward. While India's nuclear infrastructure and financial means are far greater, Pakistan has spared no effort to compete in this realm. With sufficient time and effort, however, New Delhi can pull away from Islamabad, particularly if the combined nuclear threat from China and Pakistan appears to warrant doing so.

FORCE SIZING CONSIDERATIONS

Nuclear force sizing calculations between China and India will be determined by the interplay of crosscutting pressures. Unlike the Cold War competition between the United States and the Soviet

[43] See Musharraf's interview with Arnaud de Borchegrave, "Bin Laden 'cult figure' of Pakistani Muslims," *Washington Times*, 21 March 2001.

[44] "Security Dilemmas of Nuclear-Armed Pakistan," *Third World Quarterly* no. 21 (October 2000): 782, 790.

Union, domestic factors are, on balance, likely to depress nuclear needs. External drivers point in the opposite direction. On the inflationary side, New Delhi's declared test of a thermonuclear device and its quest for an extended-range missile able to reach Beijing and Shanghai send clear messages to the Chinese leadership. Every flight test of the extended-range Agni III ballistic missile would confirm a Chinese orientation for India's nuclear deterrent. The perceived need for thermonuclear weapons to deter China is relatively new in Indian strategic discourse, and did not play a prominent role in the push for a resumption of nuclear testing in the 1990s. In effect, a debate over thermonuclear weapons was pre-empted by the 1998 test series, which, according to Indian government officials, included one such detonation. If additional "China specific" nuclear tests are required to confirm a thermonuclear weapon design, Beijing's feigned indifference to Indian nuclear and missile programs would become increasingly strained.

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Indian nuclear scientists have expressed divided views as to whether the thermonuclear test was a complete success, as asserted by government officials. Outside observers have their doubts.[45] The Government of India has notably declined to sign the Comprehensive Test Ban Treaty, leaving open the possibility of a resumption of tests to confirm a more advanced nuclear capability. China has signed, but not ratified the Test Ban Treaty, a constraining factor for Beijing, both in its dealings with a rising India and with prospective US missile defenses. If China seeks to assert a hierarchical nuclear posture against an India armed with thermonuclear weapons and extended-range missiles, it could do so without testing by ratcheting up its inventories of deployed launchers and nuclear weapons. Or China, along with other states, could resume nuclear testing.

During the Cold War, China was largely disinterested in strategic modernization programs. With rising concerns over Taiwan and US missile defense deployments, Beijing has belatedly embraced some of the requirements of nuclear deterrence long propounded in the West.[46] Chinese calculations are now compounded by India's ambitions and nuclear status-consciousness. If the Government of India appears to be embracing a three-digit-sized nuclear capability—either through veiled public statements or through the trajectory of its programs—China is likely to see this bid, and raise it. Doing so would not merely

[45] See P.K. Iyengar, *The Times of India* (New Delhi), 10 February 2000; "Corrupt Nuclear Yields," *Jane's Intelligence Review* (1 December 1998), 20; and "Size of Indian Blasts Still Disputed," *Science* Vol. 281, no. 5385 (25 September 1998): 1939.

[46] See Alastair Iain Johnston, "China's New 'Old Thinking': The Concept of Limited Deterrence," *International Security* Vol. 20, no. 3 (Winter 1995/96): 5–42.

constitute a hierarchical response, but would also reflect China's strategic concerns within and beyond the Subcontinent.

If China and India both appear headed for three-digit sized nuclear capabilities, one key question is what portion of these capabilities would be deployed. Another is what the first integer of the three digits would be for both countries. Non-governmental analysts estimated that, at the turn of the century, China's nuclear arsenal consisted of 300–400 warheads, with very few, if any, deployed on a day-to-day basis.[47] Most of this arsenal appears geared toward regional warfare. These estimates are admittedly sketchy; given Beijing's commitment to nuclear opacity, they could well be wide of the mark.

The first integer of China's three-digit sized nuclear inventory will be determined, in large measure, by the strategic environment around China's periphery, by Beijing's economic circumstances, and by the architecture and extent of US national missile defenses. The more limited the US deployment, the more likely it is to depress China's nuclear needs. If US national missile defense deployments suggest an attempt to negate China's nuclear deterrent, Beijing's nuclear requirements would rise accordingly. In addition, the more extensive the deployment of US national missile defenses, the more Beijing would seek to solve the technical problems associated with placing multiple warheads atop its mobile missiles, perhaps with Russian assistance. The deployment of space-based interceptors as part of the US architecture for ballistic missile defenses would be profoundly disturbing to China, as would other US programs for space warfare. Beijing's options to counter US military dominance might well include the accelerated development of anti-satellite weapons and other asymmetric responses.[48]

Perhaps the most noteworthy aspect of the China–India nuclear equation is the number of significant uncertainties that could affect force-sizing calculations. India would be more sensitive to increases in China's nuclear forces associated with regional targets than with a buildup directed against the United States. One response by Beijing does not necessarily preclude the other, however. Bilateral relations between India and China and between India and Pakistan have oscillated, as have US ties with all three countries. The Taiwan issue and prospective US missile defense deployments add volatility to this mix. There are too many critical variables to predict with confidence how the Chinese-Indian nuclear equation will unfold. If any of these external drivers become more worrisome, nuclear requirements will point upward.

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[47] Robert S. Norris and William M. Arkin, "NRDC Nuclear Notebook: Chinese Nuclear Forces," *Bulletin of the Atomic Scientists* Vol. 56, no. 6 (November/December 2000): 78–9.

[48] Mark A. Stokes, *China's Strategic Modernization: Implications for the United States* (Carlisle, PA: Strategic Studies Institute, US Army War College, September 1999), 117–123 and Steven Lambakis, *On the Edge of Earth: The Future of American Space Power* (Lexington, KY: The University Press of Kentucky, 2001), 147–150.

During the Cold War, the United States and the Soviet Union were stuck determining nuclear force requirements in relative terms. Powerful domestic constituencies mandated that actual or perceived "second place" was unacceptable in the nuclear arms race. The twin impulses of seeking relative advantage and avoiding disadvantage generated huge arsenals and targeting lists. The second rank of nuclear powers during the Cold War avoided this perverse dynamic. For example, the leaders of Great Britain and France concluded that a small number of missile-carrying submarines at sea would suffice to overwhelm the 100 or fewer nuclear-armed missile defense interceptors erected around Moscow.[49]

Similarly, China, India, and Pakistan all retain a strong interest in holding down nuclear force levels. But none of these states will be inclined to establish fixed requirements for minimal nuclear deterrence, given external uncertainties. With external prodding, minimal requirements could be defined in relative ways. This would constitute a dramatic shift for China, which was, by far, the most relaxed nuclear weapon state during the Cold War. And if Beijing ratchets up its capabilities, domestic pressures and interest groups within India will push in a similar direction. Pakistan has the infrastructure to compete with India, as long as nuclear and missile programs remain high budgetary priorities. The more Pakistan's military falls behind Indian conventional capabilities, the more it will be tempted to rely on nuclear weapons as an "equalizer." External drivers could come from the bottom up, the top down, or from the status-conscious middle power, India.

A competitive, "tit for tat" dynamic already exists on the Subcontinent, as was evident after India carried out five nuclear tests in 1998, prompting Pakistan to claim a higher number of detonations. Another indicator is Pakistan's decision to extend the reach of its missiles beyond New Delhi. Since India can cover all of its neighbor's cities with missile strikes, Pakistan has decided that it, too, must be able to target urban areas in India's south. The opacity of nuclear and missile programs could prompt national leaders to build in "safety" factors in determining requirements. And, to the extent that nuclear capabilities are equated with status as well as deterrence, further impetus to nuclear-related programs could be generated either by the loss of status in non-nuclear domains, or by falling behind in the strategic competition.

MODERATING FACTORS

In South Asia, troubling developments are usually intermixed with hopeful signs. While there is considerable potential for China, India, and Pakistan to become enmeshed in an open-ended nuclear competition, there are also moderating factors within each country that could mitigate negative effects.

[49] See chapters by Michael Quinlan and David S. Yost in John C. Hopkins and Weixing Hu, eds., *Strategic Views from the Second Tier: The Nuclear Weapons Policies of France, Britain, and China* (New Brunswick: Transaction Publishers, 1995).

To begin with, all three states have considerable financial constraints or opportunity costs associated with extensive nuclear modernization. Pakistan's economic forecast is clouded by heavy military expenditures and foreign debt. If Pakistan's military leaders seek to keep pace with India's nuclear and missile programs, conventional military capabilities could suffer along with the national economy. While the Pakistani Army's leadership strongly supports nuclear and missile programs, that support could wane in the future when such funding competes against the Army's other institutional interests.

Even India and China, which could support increased spending for conventional as well as nuclear programs, must seriously consider the opportunity costs of doing so. Although New Delhi's military budgets spiked after the 1999 high-altitude war with Pakistan, sustained growth in Indian defense spending is a rare occurrence. Chinese defense spending also increased significantly in the 1990s, but a growing economy remains the top priority of Beijing's leaders. Without it, they face domestic threats far greater than the external problems posed by US ballistic missile defenses. Much of the added defense spending in both China and India goes to improve the rewards of military service and to replace outmoded tanks, planes and ships. The expense of strategic modernization programs must be weighed against these priorities.

The Soviet experience of overspending for national defense is clearly within the Chinese field of view. While the scope of China's strategic modernization efforts would depend greatly on the ambitions US officials attach to missile defense programs, Beijing's national security imperative would remain constant—to counter missile defenses and to maintain credible deterrence at least cost. As a leading Chinese arms control official has stated, "We will do whatever possible to ensure that our security will not be compromised, and we are confident that we can succeed without an arms race." The cheapest counter to missile defenses, in this view, is to attack the system's most vulnerable parts.[50]

Beijing has had the good sense to avoid nuclear arms racing in the past, and is not likely to alter this behavior in the future. A significant increase in nuclear capabilities would not only complicate China's relations with India, but also with Japan, Russia, and elsewhere along its periphery. A major buildup in nuclear forces would also badly undercut Beijing's diplomatic offensive against missile defenses, while empowering the missile defense lobby in the United States. Consequently, if future

If future US administrations do not seek the negation of China's strategic deterrent, cascade effects on the Subcontinent could be greatly reduced.

[50] Interview of Sha Zukang by Michael R. Gordon, "China Fearing a Bolder U.S., Takes Aim on Proposed National Missile Shield," *New York Times*, 29 April 2001, 6.

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The relaxed biorhythms of Indian nuclear modernization are also not easy to change, although external shocks, such as Pakistan's surprise crossing of the Line of Control in 1999, have done so in the past. Nonetheless, a bureaucratic and political culture that prizes the avoidance of decisive decisions does not change overnight.[51] In the past, powerful Indian civil servants and defense scientists have been loathe to share confidences with military leaders. This, too, has begun to change. Operational and command and control imperatives will require India to confront difficult issues of civil-military relations. Moreover, nuclear issues are politicized in India's hyper-democracy, another constraint on pacing. The Vajpayee government did not take the Congress Party and other opposition groups into confidence before deciding to test nuclear weapons, and they in turn do not feel beholden to support all aspects of the Vajpayee government's nuclear agenda. India's relaxed biorhythms have already quickened somewhat, but the deliberative pace of consequential Indian decision-making remains an important moderating factor.

The public declarations of national leaders also constrain pacing, at least in a notional fashion. China doesn't deign to compete with India, and India doesn't deign to compete with Pakistan, at least in official statements. Public pronouncements could well be proven false, but they at least provide an opportunity to realize stability through asymmetry in the difficult passage ahead. Moreover, India's status-consciousness could work in positive as well as negative ways. New Delhi appears determined to demonstrate a far superior wisdom on nuclear matters than that evidenced during the Cold War. In particular, Indian strategists stress the importance of reassurance and affirmation of national pledges not to use nuclear weapons first against nuclear-armed opponents, and not to use them at all against non-nuclear-weapon states. India certainly has the strategic depth to maintain its nuclear holdings in a relaxed status and to take other steps clarifying a non-threatening posture.

New Delhi has already taken positive steps in this regard. Senior Indian officials have publicly rejected "nuclear war fighting" strategies and requirements. Foreign Minister Jaswant Singh explicitly undercut the draft Indian nuclear doctrine's requirements for prompt retaliatory capabilities noting, "[W]e would like to convey a sense of assurance in our region, also beyond, so that our deployment posture is not perceived as destabilizing. We have rejected notions of 'launch on warning postures' that lead to maintaining hair trigger alerts, thus increasing the risks of an unauthorized launch."[52] Government

[51] See Rajesh M. Basrur, "Nuclear Weapons and Indian Strategic Culture," *Journal of Peace Research* Vol. 38, no. 2 (March 2001): 181–198.

[52] Interview with C. Raja Mohan in *The Hindu* (Chennai), 29 November 1999.

officials in India have also repeatedly stated that they intend to demonstrate their commitment to a no-first-use pledge through operational practices. In this regard, some short-range Prithvi missiles were moved from storage cites in central India to the border area near Pakistan in 1997, but were subsequently moved back.[53] This singular step is unlikely to be comforting to Pakistan, given the relative ease with which short-range missiles could be shuttled back to strike locations, as was reported in the war scare following the December 2001 attack on India's Parliament.[54] While crisis stability remains problematic in South Asia, in peacetime, New Delhi could provide reassurance to Pakistan, moderating their strategic competition and providing a model for others to follow.

Similarly, China and India could avoid expansive nuclear requirements, if other external drivers remain muted. Each country has strategic depth and is developing mobile, land-based missiles that the other cannot locate or destroy. Because preemption is not a viable option, "counterforce" targeting or "damage limitation" strategies of nuclear deterrence built around the ability to knock out military capabilities of the other side seem eminently avoidable. These concepts were significant drivers in the expansion of US and Soviet targeting lists.

Alternatively, India and China could adopt a nuclear targeting strategy of placing each other's cities at risk. Both countries have six cities with populations in excess of five million. While such a "countervalue" nuclear targeting strategy would not require many warheads, it places national leaders who would prefer more targeting options in a terrible vice.

The United States and Soviet Union "solved" these dilemmas by compiling thousands of targets, including military facilities, command and control bunkers, and war-supporting industries that happened to be located within or in close proximity to major metropolitan areas. This allowed national leaders to maintain the moral fiction of not targeting populations "*per se*," while endorsing nuclear targeting plans that would still produce many millions of collateral deaths.[55] Indian and Chinese leaders might be disinterested in such deadly fictions. If, however, they reject both counterforce and countervalue targeting, what, exactly, would they place on their targeting lists?

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[53] See R. Jeffrey Smith, "India Moves Missiles Near Pakistan Border," *Washington Post*, 12 June 1997; Perkovich, *India's Nuclear Bomb*, 396; Menon, *A Nuclear Strategy for India*, 202; and Pravin K. Sawney, "Pakistan Scores Over India In Ballistic Missile Race," *Jane's Intelligence Review* (1 November 2000).

[54] "India's Missiles In Position: Fernandes," *The Times of India* (New Delhi), 26 December 2001, Internet: http://www.timesofindia.com/articleshow.asp?catkey=843527949&art_id=1778730327&sType=1.

[55] For a sense of the collateral damage that could be produced from various targeting options, see the Natural Resources Defense Council, *The U.S. Nuclear War Plan: A Time for Change*, at www.nrdc.org.

The leadership in both countries (as well as in Pakistan) could use a demonstration nuclear detonation to signal the approach of an intolerable threshold, or they could use a nuclear strike against an infrastructure project that could result in devastating economic consequences. It does not take many nuclear weapons for such demonstrative purposes. And if one nuclear detonation leads to a second, what then? Cold War nuclear strategists tried mightily to define multiple escalation rungs and to establish escalation dominance capabilities,[56] but these were not very helpful or convincing to political leaders caught in the crucible of an intense crisis. Indian and Chinese leaders are likely to react no differently in this respect than their US or Soviet counterparts.

Pakistani leaders do not have the luxury of strategic depth. Their lines of communication run perilously close to Indian territory; Lahore is situated just twenty-seven kilometers from the international border, and most of Pakistan's fixed strategic assets could be targeted within minutes of a directive to launch India's strike aircraft. As the gap in conventional military capabilities widens between India and Pakistan, Islamabad's concerns would grow accordingly. As a consequence, Pakistani doctrine apparently holds that a nuclear detonation on national territory carried out by either conventional or nuclear means would constitute grounds for a retaliatory nuclear strike.[57]

The response of Pakistan's military leaders to a disadvantageous order of battle appears to be quite similar to that chosen by other small nuclear powers. "If we have only one bomb left," said one officer, "it will be targeted on New Delhi. If we have two, it will be New Delhi and Bombay." Both Indian cities contain large Muslim populations. Holding them hostage, and exterminating them in response to grave threats to Pakistan's vital national interests, is not viewed as a theological issue by those responsible for Pakistan's nuclear deterrent.[58]

Religion can either moderate or inflame passions. In South Asia, religion has not been a moderating influence. Religious differences can also have a bearing on nuclear postures. For example, clerics affiliated with Pakistan's largest religious party who champion the Bomb cite passages from the Koran to justify the targeting of fellow Muslims residing in India's major cities. One passage reads, "Against them make ready your strength to the utmost of your power, including steeds of war, to strike terror into (the hearts) of the enemies of Allah and your enemies and others besides, whom you may not know." Another passage suggests that if Muslims live voluntarily in the land of a country waging war with Muslims, they too, are subject to the terrible punishments of war. There are also many passages in

[56] One such effort was Herman Kahn's *Thinking About the Unthinkable* (New York: Horizon Press, 1962). Another was Kahn's *On Escalation, Metaphors and Scenarios* (New York: Frederick A. Praeger, 1965).

[57] Confidential interviews by the author, 2001.

[58] Confidential interviews by the author, 2001.

the Koran that enjoin Muslims not to engage in violence, and certainly not in bloodshed on a scale associated with the use of nuclear weapons.[59] If, however, Pakistan's leaders believe that the country's vital national interests are threatened, they could well target India's major cities.

The bad news in this analysis is that even a modest strategic competition in southern Asia could generate interactive nuclear requirements in a region largely devoid of stabilization measures. Moreover, this region is susceptible to crises, and crises add to perceived nuclear needs. Prospective missile defense deployments add another wild card to this volatile mix. The good news in this analysis is that, while the strategic dynamic among China, India and Pakistan is quite complex, these interactions are geared toward a modest competition rather than a strategic arms race. All three countries have separate as well as common reasons for dampening their nuclear pursuits. Military and targeting rationales for a nuclear arms buildup are not compelling. Domestic political, bureaucratic, and institutional factors pushing for more and better nuclear capabilities are pale shadows of those present in the US–Soviet competition.

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WASHINGTON'S CHOICES

If change occurs merely through the act of observation, what changes might one expect though the act of deploying US missile defenses? The triangular nuclear arms competition in southern Asia is at a very modest stage, when requirements are small, but amenable to growth. Washington's decisions could accelerate or moderate cascade effects depending on the design and extent of its missile defense deployments. The architecture chosen for US missile defense deployments will speak volumes to Beijing. Sea-based missile defenses would not, by themselves, signal a US intent to negate China's deterrent, which would likely be situated far inland, beyond the reach of these interceptors. Sea-based missile defenses would therefore suggest US readiness for regional contingencies and the protection of friends and allies. Interceptor missiles based on US soil might or might not suggest an attempt by Washington to negate Beijing's nuclear deterrent, depending on the number of interceptors deployed, their presumed capability, and the size of Beijing's ocean-spanning missile forces. Beijing would be most

[59] The first passage of the Koran, Sura Anfal, also contains verses that dictate against unnecessary bloodshed and the protection of non-combatants. Sura Al-An'am states, "... take not life which Allah has made sacred, except by way of justice and law." The second passage referenced is Sura 4, verse 97. (Email communications from Khalid Rahman, Institute of Policy Studies, Islamabad, 8 August 2001, and Sameer Ahmad, Stanford University, 29 August 2001.)

concerned over space-based interceptors that would continually be "on station" overhead. Space-based missile interceptors have the potential to be far more capable than those on land and at sea. By adding up the elements of US missile defense plans, Beijing will determine US intentions and necessary responses.

The extent of the nuclear cascade in southern Asia will be the sum total of many complex interactions to which the United States is a party. The first integer of China's modernized, three-digit inventory of nuclear weapons—and the mix of tactical and strategic warheads—therefore depend heavily on Washington's choices. If Washington designs and sizes its missile defenses to challenge China's nuclear deterrent, Beijing would react by upping the size and capability of its nuclear forces directed against the US homeland and against US bases in the region. Alternatively, the choice by Washington not to threaten Beijing's deterrent would help moderate nuclear cascade effects in southern Asia.

It is in the US national security interest, as well as in the interest of America's Asian friends and allies, to deploy highly capable theater missile defenses around China's periphery. Beijing utilizes short- and medium-range ballistic missiles for coercive purposes, and these missiles have already become expected instruments of regional warfare. The forward deployment of missile defenses, particularly at sea, would signal US resolve to come to the aid of threatened friends and allies. For these and other reasons, US theater missile defenses would not be welcomed by China, but they are nonetheless essential.

Furthermore, it is in the US national security interest, as well as in the interest of Japan, India, and Pakistan, to depress the size of China's nuclear capability, not to seek its negation. The pursuit of a negation strategy is not only dangerous, but also highly unlikely to succeed, since it would depend on Beijing's inability or unwillingness to maintain a nuclear deterrent against the United States. This quest will fail as long as Beijing has the will and the resources to add to its nuclear stockpile.

Washington already enjoys overwhelming superiority over China in strategic offensive forces. Beijing has no national security interest in moving beyond a minimum deterrent unless Washington raises this requirement. Overwhelming US strategic superiority does not, by itself, generate cascade effects, as long as China could successfully hide a portion of its limited arsenal. The overlay of missile defenses atop overwhelming US strategic superiority would force Beijing to adjust upward the requirements of that hidden nuclear arsenal. The extent of this adjustment—and with subsequent steps by India and Pakistan—would depend largely upon the design and extent of US missile defense plans. The resulting cascade effects and Chinese countermoves would be detrimental to regional stability.

The United States could seek to minimize cascade effects by designing and sizing national missile defenses against maverick states such as North Korea, Iran, and Iraq, rather than against China. A defense against the possible acquisition or development of ocean-spanning missiles in maverick states would require a modest insurance policy of a few tens of interceptors on American soil. Limited US

national missile defenses would be backed up by US power projection forces that constitute the primary line of defense against missile inventories in maverick states. It is, after all, far easier and more cost-effective to destroy threatening missiles on the ground with conventional weapons than to intercept an incoming warhead in its final seconds of re-entry. American preemptive military capabilities against missile production capabilities, storage and test sites could be reinforced, in selective cases, by a forward-leaning US declaratory policy warning maverick states against the acquisition, development, or flight testing of certain missiles.

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This approach requires great care, however, in part because questions would naturally arise as to why preemption is suitable for and against some states, but not others. The norm to be reinforced is non-proliferation, not preemption.[60] In each case, calculations of risk would vary depending on an evaluation of the threat and the likelihood of successful military action. Such calculations, however, would be rare and they would be made with or without a more pointed US declaratory policy regarding missile proliferation. When the state carrying out preemption is itself guilty of proliferation—or of weakening non-proliferation regimes—the overall result would be doubly unfortunate, reinforcing both preemption and proliferation.

The diplomatic challenges and potential military consequences of putting into place a forward-leaning US declaratory policy on pre-emption would be considerable, requiring much consultation with friends and allies. Diplomatic fall-out could be diminished if a more pointed US declaratory policy were linked to more concerted American efforts to strengthen multilateral non-proliferation accords. A more pointed US declaratory policy would still need to provide leeway for choice, rather than straightjacketing presidents, but not so much leeway as to vitiate the message. In many, but not all cases, inference might have greater utility than specificity. There could be times, however, when the deterrent value of a more pointed US declaratory policy would be greater than, say, the deployment of an additional one hundred missile defense interceptors on US soil. This trade-off might be worth making if, for example, the net effect would be to dampen cascade effects in Asia.

If diplomacy and other means fail to prevent North Korea, Iran, and Iraq from acquiring missiles able to reach US soil, the number of such missiles is likely to be very low. Conversely, even if the United

[60] See Jessica Mathews, "Not Saddam But His Weapons," *International Herald Tribune*, 5 March 2002.

States succeeds in preventing the spread of missiles with ocean-spanning range, these maverick states would retain many shorter-range missiles that threaten their neighbors and US power projection forces. In every troubling case, priority must be given to theater missile defenses, while great care is required to correlate national missile defenses against the modesty of prospective threats.

US national missile defense plans have a long history of being cast against improbable threats, raising serious doubt of their intended purpose. The first US missile defense plan in the administration of President Lyndon Baines Johnson was ostensibly cast against China, a country that would not acquire ocean-spanning missiles for another fourteen years. The Kremlin dismissed this rationale, rightly figuring that US missile defenses were directed against the Soviet Union. President Richard M. Nixon offered a different rationale for national missile defenses—to protect missile silos—with only modest alterations to his predecessor's architecture. The global protection system against "limited" attack proposed by President George H.W. Bush consisted of almost 2,000 interceptors. Presidents William J. Clinton and George W. Bush proposed quite different architectures for the same declared purpose—a limited defense against mavericks—again generating disbelief in foreign capitals. The Clinton administration asserted that limited defenses could be compatible with the ABM Treaty, while the Bush administration asserted that the treaty was hopelessly outdated, irrelevant, and too constricting, even for limited defenses.

If Washington cannot maintain a straight story on missile defenses from one administration to the next, foreign capitals might be forgiven their skepticism and disbelief of official statements. Foreign governments hoped against hope that the Bush administration's verbal assaults on the ABM Treaty would be a prelude to deal making, but were proven wrong. President Bush's decision to abrogate the ABM Treaty would appear to be an excessive remedy for the deployment of very limited missile defenses, which is likely to prompt Democrats on Capitol Hill to erect new firebreaks to replace those in the Treaty. Judgments as to US strategic objectives will eventually come to rest after much partisan wrangling. In the meantime, foreign governments will proceed with contingency plans.

If the architecture chosen for national missile defense in the United States entails hundreds of missile interceptors to counter rogue missile threats, New Delhi might charitably ascribe such plans to worst-case thinking. Beijing would think and act differently. If US intelligence community projections are correct, and if Beijing deploys only 100 or fewer warheads atop its ocean-spanning missiles by the year 2015, Beijing would likely view a comparable or larger number of US missile interceptors as a concerted effort to negate its nuclear deterrent and to induce stress fractures in the Chinese economy by forcing still-greater defense expenditures. Islamabad would support China and worry about missile defense deployments in India. The deployment of less than 100 interceptor missiles on US soil as an insurance policy against mavericks would still prompt an undesired increase in China's strategic nuclear forces and trickle-down effects on the Subcontinent, but with diminished negative and unintended

consequences. The thinner the deployment on US soil the better the chances for limiting cascade effects in southern Asia.

US space warfare programs would generate very little, if any, charitable explanation from foreign capitals. Instead, a US push to weaponize space is likely to promote collaboration between Moscow and Beijing to counter US strategic superiority and space operations at least cost. Responses would be asymmetric in nature, since Beijing and Moscow cannot match Washington's resources or technological advantages. US advantages could nonetheless be neutered through countermeasures that are relatively inexpensive and that could create havoc with advanced, complex, and vulnerable sensors essential for the military and commercial utilization of space. It is easier for weaker adversaries to level the playing field in space than to counter US terrestrial superiority.

THE CHALLENGES AHEAD

The deployment or transfer of theater missile defenses by the United States could have positive as well as negative repercussions. In contrast, prospective US deployments of national missile defenses overwhelmingly point to negative repercussions and downside risks, especially in Asia. Cascade effects in triangular interactions among China, India, and Pakistan have already begun in the form of contingency planning. Washington's decisions could dampen or heighten negative effects. Safety ledges could still be found and slippery slopes avoided if US national missile defenses are designed against maverick states rather than China, and if Washington refrains from weaponizing space. These dampening measures could be realized by executive branch forbearance or by congressional control of the purse.

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National leaders in India, China, and Pakistan need to find the wisdom to exercise restraint. They also need wise US policy choices, because their own security dilemmas are so complicated. The triangular geometry of regional competition in southern Asia overlays two dyads. In each of the dyads, the stronger of the two antagonists does not outwardly acknowledge its competitor, making formalized nuclear risk reduction extremely difficult. A triangular effort to moderate cascade effects would be plagued by this history, and by the lack of symmetry resulting from three-cornered interactions. Even without the added complications of US missile defenses, formalized bilateral or trilateral arrangements dampening nuclear interactions would be very difficult to negotiate. National or theater missile defense deployments further complicate this picture.

National leaders in China, India, and Pakistan have all declared their firm intention not to repeat the nuclear excesses of the United States and Soviet Union. The only clear benefit of nuclear excess during the Cold War was that large arsenals provided insurance against a surprise attack, making strategic defeats or preemption inconceivable. Despite repeated domestic scares, the US–Soviet nuclear balance, as Bernard Brodie noted, was far from "delicate":

> For either superpower to attack the other because of an optimistic guess of the latter's vulnerabilities is obviously to take a risk of cataclysmic proportions. Neither can be seduced into such an error by some apparent shift in the relationship of forces—usually more apparent to technicians than to politicians. Nor will either superpower be seduced by the appearance of some new mechanical contrivance which at best affects only a part of the whole scheme of things, usually a small part. [61]

Small nuclear arsenals provide far less insurance against faulty calculations. Put another way, limited arsenals are more likely to generate risks than to guarantee risk reduction. Indeed, the historical record suggests that security concerns have been particularly worrisome to states possessing small nuclear arsenals. This was certainly true for the US–Soviet experience, when nuclear risks were greatest in the early phases of arsenal building, when vulnerabilities were evident, verification weak, and command and control unsure. Thus, during the formative stages of their nuclear competition, the United States and the Soviet Union faced harrowing crises over Berlin and Cuba. The Korean War was fought under the shadow of the mushroom cloud. Likewise, soon after Beijing acquired a nuclear capability, it fought border skirmishes with Moscow. The brief, crisis-filled record since India and Pakistan acquired offsetting nuclear capabilities, including their high-altitude war in 1999, confirms this pattern.[62]

Nuclear risk reduction in southern Asia will be a far more complex undertaking than was the case for the United States and the Soviet Union, in part because the Cold War risk-reduction agenda was not further complicated by open-ended national missile defense deployments. As bad as Cold War nuclear dangers were, bipolarity provided a measure of simplification. The nuclear balance was codified in treaties predicated on equality. These treaties obligated the parties to accept intrusive monitoring. A common understanding of stabilizing and destabilizing activities was negotiated. Competition continued to be pervasive, and yet aspects that were most dangerous were placed off-limits. Berlin and Korea were divided, but Washington and Moscow did not exchange artillery fire across these lines. US and Soviet military planning was not predicated on daily, violent interactions between their armed forces.

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[61] "On the Objectives of Arms Control," *International Security* Vol. 1, no. 1 (Summer 1976): 32–33.

[62] For a comparative assessment of nuclear risks, see Michael Krepon, "Nuclear Risk Reduction: Is Cold War Experience Applicable to South Asia?" in Michael Krepon and Chris Gagne, eds., *The Stability-Instability Paradox: Nuclear Weapons and Brinksmanship in South Asia*, Report no. 38 (Washington, DC: The Henry L. Stimson Center, June 2001).

India, Pakistan, and China are very distant from these stabilizing conditions. In Central Europe, international boundaries were fixed; not so for India, Pakistan, and China. Even the relatively quiet Line of Actual Control between India and China is the occasional scene of jockeying between military patrols. During the 1990s, ritualized violence in the form of small arms fire and artillery exchanges was a regular occurrence along the Line of Control dividing Kashmir. The geometry of strategic competition in southern Asia makes triangular or bilateral treaty arrangements unlikely, since none of the three parties will accept formalized equality or inequality with another. Consequently, stand-alone nuclear risk-reduction arrangements become more essential, but also more difficult, given the absence of trust that verifiable treaty obligations might generate. Cooperative risk reduction in this region is spotty, unreliable, and of unequal interest to the parties.

If New Delhi, Beijing, and Islamabad are to find nuclear safety, they are likely to do so through a combination of bilateral cooperation, unilateral preparation to reduce the risk of accident or miscalculation, and unilateral restraint. In the absence of verifiable treaty regimes, nuclear risk reduction is likely to be found—if at all—through an acceptance of bilateral asymmetries in force sizing and deployment readiness. Pakistan, the state with the weakest military posture and most vulnerable nuclear deterrent, would have to refrain from competing with India, while maintaining some nuclear capabilities in a survivable status. New Delhi would need to refrain from competing with China and from posturing its nuclear capabilities so as to threaten Pakistan. Beijing sits atop this cascade. Consequently, the scope of the nuclear competition within southern Asia will be set primarily by China's decisions. The larger China's nuclear arsenal grows—whether in response to US missile defense plans or for other reasons—the more likely it will generate cascade effects elsewhere in the region.

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The establishment of hierarchical and stable nuclear postures in southern Asia is an enormously difficult and ambitious agenda. Successful nuclear risk reduction will require finding a unique mixture of transparency and survivability for nuclear capabilities, as well as creative monitoring arrangements that provide reassurance without increased vulnerability. This agenda has barely begun at a time when it can be severely buffeted by prospective US deployments of missile defenses. Perturbations in Asia are insufficient reasons for the United States to forego a modest insurance policy against the low probability of a ballistic missile attack on the US homeland. Nonetheless, the complex triangular interactions between China, India, and Pakistan and the prospect of an Asian nuclear cascade mandate great care in the design and extent of US national missile defenses.