THE HENRY L.
STIMSON CENTER

Escalation Control and the Nuclear Option in South Asia

Michael Krepon, Rodney W. Jones, and Ziad Haider, editors

Copyright © 2004
The Henry L. Stimson Center

All rights reserved. No part of this publication may be reproduced or transmitted in any form
or by any means without prior permission in writing from the Henry L. Stimson Center.

Cover design by Design Army.

ISBN 0-9747255-8-7

The Henry L. Stimson Center
1111 19th Street NW Twelfth Floor Washington, DC 20036
phone 202.223.5956 fax 202.238.9604
www.stimson.org

Table of Contents

Preface

It is with great pleasure that I present the latest publication of the Stimson Center's South Asia program, *Escalation Control and the Nuclear Option in South Asia*. We believe this book of essays by prominent American, Pakistani, and Indian authorities will advance our understanding of this poorly explored topic.

India and Pakistan have been beset by several serious crises since the advent of offsetting nuclear capabilities. To date both countries have sought to manage nuclear dangers primarily by unilateral means. Bilateral negotiations seeking cooperative approaches have so far produced disappointing results. The international community and policy makers around the globe also seek to ensure that India and Pakistan manage this potentially destructive capability responsibly, particularly since the two programs are not bound by international conventions or treaties.

The Stimson Center's Michael Krepon has been engaged in serious discourse with all concerned to illuminate the best paths to responsible stewardship, and this new volume represents the fruits of two years of programming to identify concepts and concrete ideas for escalation control on the subcontinent. This critical subject warrants far greater attention.

These essays refer to the literature of the Cold War period, but are mindful of the differences between the Cold War and South Asia cases. To this day, wise and learned people can disagree about whether deterrence was proven right, was dangerously close to failure, or was irrelevant to the outcome of the superpower competition. We are all grateful that our data set does not include the consequences of a nuclear exchange between the rival powers.

This volume represents the beginning of a new literature that pays homage when due to the intellectual legacy of the Cold War, but also recognizes the need for fresh thinking that is grounded in South Asian realities. We hope that this book will stimulate further thinking about escalation control, nuclear doctrine and policy, and conflict avoidance in South Asia. It ends with an essay by Michael Krepon that begins to identify a new theoretical construct that takes into account the particular dynamics of the region, including the possible sparks to conflict that could escalate, and the way the region's leaders think about limited war and its consequences.

I will welcome your reactions to this latest publication of our South Asia program, and hope you will find it a useful contribution to the shared goals of a peaceful and safe region.

My colleagues and I at the Stimson Center wish to thank Senator Sam Nunn, Charles Curtis, and Joan Rohlfing at the Nuclear Threat Initiative, as well as Vartan Gregorian and Stephen Del Rosso at the Carnegie Corporation for their generous support for our South Asia programming. Thanks are also due to Toby Berkman, Jane Dorsey, Ziad Haider, Lisa Herskowitz, Jake Lefebure, Moira Shanahan, Meghan Smith, Luis Vertiz, and Elizabeth Wallish for their help in shepherding this publication to print.

Ellen Laipson
President and CEO
The Henry L. Stimson Center

Abbreviations

ABM Treaty	Anti-Ballistic Missile Treaty
AWACS	Airborne Early Warning and Control System
BJP	Bharatiya Janata Party
BVR	Beyond Visual Range
CBM	Confidence-Building Measure
CCS	Cabinet Committee on Security
CICA	Conference on Interaction and Confidence-Building Measures
CII	Confederation of Indian Industries
CTBT	Comprehensive Test Ban Treaty
DefCon	Defense Condition
DGMO	Director-General of Military Operations
DRDO	Defense Research and Development Organization
EMP	Electromagnetic Pulse
INF Treaty	Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles
IGMP	Integrated Guided Missile Development Program
JeM	Jaish-e-Muhammad
LeT	Lashkar-e-Toiba
LoC	Line of Control
MTCR	Missile Technology Control Regime
MEA	Ministry of External Affairs
MoD	Ministry of Defense
NCA	National Command Authority
NDA	National Democratic Alliance
NPT	Nonproliferation Treaty
NSAB	National Security Advisory Board
NSG	Nuclear Suppliers Group
NRRM	Nuclear Risk-Reduction Measure
PAL	Permissive Action Link
PSI	Proliferation Security Initiative
RPV	Remotely Piloted Vehicle
SAARC	South Asian Association for Regional Cooperation
UAV	Unmanned Aerial Vehicle
UPA	United Progressive Alliance

Introduction

When nations with deep grievances acquire nuclear weapons, tensions increase and their crises become more nerve wracking. It is therefore not surprising that India and Pakistan are traversing a very dangerous passage marked by periods of intense confrontation. Offsetting nuclear capabilities on the subcontinent have made crisis avoidance and conflict resolution more imperative, but also more difficult to achieve.

One reason why crises have become more prevalent under the nuclear shadow is that some in Pakistan have sought to use unconventional warfare, backed by nuclear weapons, to leverage a more favorable outcome of the Kashmir dispute. A second reason is that India's ill-advised policies have given ample opportunities for mischief making in Kashmir.

Decades of Pakistani diplomacy, two conventional wars, and unconventional means have failed to wrest territorial gains from New Delhi. Pakistan's failed Kashmir policies have instead worsened social, economic, and political conditions at home, while penalizing those living across the Kashmir divide. It has also pinned down and punished large numbers of Indian security forces. Perhaps India's grief is viewed as a sufficient reward by those in Pakistan who continue to support the "freedom struggle" in Kashmir. Continued support for militancy, however, means that a single catalytic event by *jihadis*, whether operating independently or under guidance, can spark the next severe crisis on the subcontinent.

The outcome of a nuclear-tinged crisis is rarely decisive, since all parties as well as outsiders will seek to prevent a crossing of the nuclear threshold. Indeterminate outcomes have not, however, prevented adversaries from declaring victory once the crisis has passed. These assertions are then belied by subsequent actions taken on the presumption that scores still need to be settled. When unsettled accounts produce yet another crisis, the outcome cannot be confidently predicted. While efforts will again be made to keep the crisis from reaching a boiling point, or to prevent unintended escalation, these plans might fail since the unexpected becomes commonplace during crises and military campaigns.

Despite – or perhaps because of – the inconclusive resolution of crises, some in Pakistan and India continue to believe that gains can be secured below the nuclear threshold. How might advantage be gained when the presence of nuclear weapons militates against decisive end games? Pakistan has answered this question by resorting to unconventional methods. If Indian press reports are to be believed, New Delhi is now contemplating the answer of limited war. Each

answer reinforces the other, and both lead to dead ends. If the means chosen to pursue advantage in the next Indo-Pakistan crisis show signs of success, they are likely to prompt escalation, and escalation might not be easily controlled. If the primary alternative to an ambiguous outcome in the next crisis is a loss of face or a loss of territory, the prospective loser will seek to change the outcome. In South Asia, misery loves company.

Another reason for the reoccurrence of crises on the subcontinent is that the contestants learn different lessons from close calls. Because unsatisfactory outcomes are not acknowledged and new ventures are not foreclosed, the next crisis waits in the wings. These circumstances leave much to chance. In New Delhi, the preferred way to break this dangerous cycle would be for Pakistan to place Kashmir on the back burner. This appears unlikely. Pakistani leaders declare that their preference is to resolve the Kashmir dispute – and the sooner the better. But it is hard to envision New Delhi taking Islamabad up on this offer, or enlisting the active involvement of the United States and other third parties to facilitate a settlement. Under these circumstances, a tenuous and crisis-prone *status quo* is likely to be maintained.

This *status quo* does not serve the interests of India, Pakistan or Kashmiris, but it might look better than some of the alternatives, such as a politically damaging Kashmir settlement or a new kind of crisis that spins out of hand, resulting in inadvertent escalation. National leaders can surely prevent the first unwanted outcome from occurring, but their ability to control the second is less certain than they publicly admit.

Nuclear risk-reduction and confidence-building measures – subjects of intense interest at the Stimson Center – are therefore necessary, but insufficient. These measures may not be relied upon during an intense crisis, and are likely to be shunted aside during conflict. Besides, Islamabad has held these measures hostage in the past to progress toward its preferred outcome on Kashmir, while New Delhi has sought to pursue these and other measures in lieu of progress on Kashmir, which it does not expect. As a consequence, dialogue between Pakistan and India on such measures has been episodic and disappointing. Small steps forward have been checkmated by bureaucratic resistance, domestic political sensitivities, and big explosions.

As this book goes to print, another effort at "composite" dialogue on Kashmir, nuclear issues, trade, and other important topics is underway between New Delhi and Islamabad. Perhaps this time, vested interests that are adept in slowing down, complicating, and torpedoing progress will be overridden by top-down political impulses to succeed. The Stimson Center and the authors of these essays certainly hope so.

Previous attempts on the subcontinent to set favorable conditions for tackling the larger issues in dispute by taking small steps have not succeeded. Small advances are certainly to be welcomed, but they are unlikely to gain traction without a strong and sustained political impulse to tackle bigger issues. Whether national leaders in India and Pakistan pursue this ambitious course or revert to the choreography of backsliding, violent acts can be expected, either to prevent significant progress from occurring or in response to stalemate. Violence can prompt the next crisis, and the next crisis could result in inadvertent escalation. The chances of preventing and containing the next crisis are enhanced if the purpose of violence is to block reconciliation rather than to punish backsliding.

This is the first book written on escalation control on the subcontinent. It draws from western deterrence theory, but the authors are all keenly aware of the need to differentiate Cold War experience from South Asian realities. Because the subject matter is new, we do not presume that our analysis is definitive. Indeed, the authors disagree on some points, and would place different degrees of emphasis on key factors. The Stimson Center hopes that this book will spark further analysis and more intense scrutiny by others on the topics we raise here.

The Stimson Center is grateful to the Nuclear Threat Initiative and the Carnegie Corporation of New York for providing grant support to ameliorate, stabilize, and reduce nuclear dangers on the subcontinent. The Center has sought to advance these goals through innovative "Track II" workshops with Indian and Pakistani participants. These workshops have broken new ground, as they have been designed around sensitive scenarios involving actions that could lead up to, and across, the nuclear threshold. Our quiet deliberations have served to clarify the need for specific nuclear risk-reduction and escalation control measures that are under active consideration in official channels.

Some of the essays that appear in this book originated as background papers for our workshops; others were written after, but informed by, our deliberations. The Stimson Center greatly appreciates the participation and input of the following Pakistani and Indian colleagues who helped to shape this work: Qazi Javed Ahmed, Shankar Bajpai, Zafar Cheema, Mahmud Durrani, Salman Haidar, Jehangir Karamat, Farrakh Khan, Feroz Hassan Khan, Shaharyar Khan, V.P. Malik, S.K. Mehra, K. Raja Menon, M.K. Narayanan, V.R. Raghavan, Rahul Roy-Chaudhury, Najmuddin Shaikh, and Saeed Uz Zafar. The Center is also grateful for the guidance received by many American colleagues, including Michael Crutcher, Lisa Curtis, Craig Denny, Lewis Dunn, Robert Einhorn, Jack Gill, Rose Gottemoeller, William Hatchett, Peter Lavoy, Douglas Makeig, Polly Nayak, Michael Oppenheimer, George Perkovich, Joan Rohlfing, Caroline Russell, Scott Sagan, Teresita Schaffer, John Sigler, Scott Taylor, Michael Wasserman, and Richard Winslow. Any weaknesses of analysis or errors in the

text that might remain are solely the responsibility of the authors.

Michael Krepon
Washington, DC
September 2004

— 1 —

The Stability-Instability Paradox, Misperception, and Escalation Control in South Asia

*Michael Krepon**

The United States and the Soviet Union managed to avoid nuclear and conventional warfare during the Cold War, while jockeying for advantage in a myriad of ways, including proxy wars and a succession of crises that became surrogates for direct conflict. International relations and deterrence theorists aptly described this tense standoff in which much blood and treasure was expended—but without direct conflict—as the "stability-instability paradox."

The stability-instability paradox was embedded in the enormity of the stakes involved in crossing the nuclear threshold. As posited by western deterrence theorists, offsetting nuclear capabilities and secure, second-strike capabilities would induce special caution, providing the basis for war prevention and escalation control. Offsetting nuclear deterrents channeled the superpower competition into "safer" pursuits, one object of which would be to impose penalties on an adversary without inducing direct conflict.

The stability-instability paradox was identified rather early in the Cold War, as western strategists weighed the consequences of a Soviet Union able to produce thermonuclear weapons. In 1954, B. H. Liddell Hart reflected a widely-held view that, "to the extent that the H[hydrogen] bomb reduces the likelihood of full-scale war, it increases the possibility of limited war pursued by widespread local aggression."[1] One of the reasons for rolling out the nuclear declaratory policy of massive retaliation during the Eisenhower administration was to warn against such adventurism.

The US doctrine of massive retaliation was quickly qualified and subsequently shelved as a declaratory policy because it was not credible and could not be counted on to deter the unwanted eventualities that prompted its articulation. The Soviet Union as well as the United States could retaliate in a massive fashion, so this threat invited a bluff that could be called. In Glenn Snyder's words, the Soviets could still engage in "a range of minor ventures

* The author wishes to thank Rafiq Dossani, Rodney W. Jones, Scott Sagan, and Ziad Haider for their helpful comments. A different version of this essay will appear in Rafiq Dossani and Harry Rowen, eds., *Prospects for Peace in South Asia* (Stanford: Stanford University Press, 2004).

[1] Reprinted in *Deterrent or Defence* (London: Stevens and Sons, 1960), p. 23.

which they can undertake with impunity, despite the objective existence of some probability of retaliation."[2] Massive retaliation gave way to the quest for flexible nuclear war-fighting options and limited war doctrine, but these calibrations never really altered the fundamental precepts of the stability-instability paradox. Robert Jervis summarized this dilemma as follows: "To the extent that the military balance is stable at the level of all-out nuclear war, it will become less stable at lower levels of violence."[3]

The purpose of this essay is to explore the extent to which the stability-instability paradox is applicable to the subcontinent, drawing upon the work of western and South Asian strategists. One central tenet of the stability-instability paradox—that offsetting nuclear capabilities will increase tensions between adversaries—has already been amply demonstrated in South Asia. While India's difficulties in Kashmir are rooted in poor governance and domestic grievances, Pakistan's active support for separatism and militancy in Kashmir has notably coincided with its acquisition of covert nuclear capabilities. Tensions between India and Pakistan have intensified further since both nations tested nuclear weapons in 1998. A nuclearized subcontinent has already produced a succession of nuclear-tinged crises and one conflict that was limited in time, space, as well as in the choice of weapons used.

This high-altitude conflict above Kargil in 1999 was less than a full-blown war but far more than the skirmishing elsewhere along the Kashmir divide. A review committee assessing this conflict established by the Indian government asked, "Did the nuclear tests conducted by India and Pakistan in May 1998 rule out a major conventional war between them?" Its answer constituted a partial acknowledgement of the applicability of the stability-instability paradox to a distinctly non-western setting: "Possibly not; but only up to a given threshold, which margin was exploited by Pakistan."[4]

Whether the second central tenet of the stability-instability paradox—that, despite increased tensions and severe crises, nuclear-armed adversaries will avoid a major conflict or a nuclear exchange—applies to the subcontinent cannot be answered with confidence at this juncture. So far, India and Pakistan, like the Soviet Union and the United States, have been fortunate to avoid a nuclear exchange. It is possible that this luck will hold and that New Delhi and Islamabad will make concerted, joint efforts to reduce nuclear risks. The applicability of the second tenet of the stability-instability paradox to South Asia may also become more evident once India and Pakistan feel completely assured that they have acquired secure, second-strike capabilities. The jury is still out on these matters, but some grounds for optimism lie in the resumption of bilateral dialogue on nuclear risk reduction, Kashmir, and other matters. It is, however,

---

[2] *Deterrence and Defense* (Princeton: Princeton University Press, 1961), p. 226.
[3] *The Illogic of American Nuclear Strategy* (Ithaca: Cornell University Press, 1984), p. 31.
[4] *From Surprise to Reckoning: The Kargil Review Committee Report* (New Delhi: Sage Publications, 2000), p. 22.

far too early to declare that the tide has turned and that offsetting nuclear capabilities have ushered in a new era of stability on the subcontinent.

Western experience suggests that constructive engagement between nuclear adversaries can follow chastening experiences of flirting with disaster. The Cuban missile crisis occurred fourteen years after the Soviet Union joined the United States as a nuclear-weapon state. Within twelve months, both nations implemented a "hotline" agreement and negotiated an atmospheric nuclear test ban treaty. The Kargil conflict occurred perhaps ten years after both India and Pakistan covertly acquired nuclear weapon capabilities.[5] After Kargil, bilateral relations were too strained to permit the resumption of dialogue on nuclear matters. Then came the prolonged crisis during most of 2002, when the Pakistan and Indian armies were posed for another war. These two chastening experiences seem to have provided the impetus for constructive engagement on nuclear risk reduction by India and Pakistan as seen in the June 2004 expert level talks on nuclear confidence building measures. The talks culminated in a joint statement calling on both sides to upgrade the existing hotline between the Directors-General of Military Operations (DGMO); establish a dedicated and secure hotline between the two foreign secretaries; extend the unilateral moratorium on nuclear testing; and take steps toward the conclusion of an agreement on the pre-notification of missile flight testing.[6]

DETERRENCE OPTIMISTS

Two camps of deterrence theorists have formed over whether a nuclearized subcontinent will prevent a major conflict and foster escalation control.[7] One camp might be called deterrence optimists.[8] This camp naturally includes Indian and Pakistani strategists who chafed at western efforts to prevent new members from joining the nuclear club. Nuclear optimists in South Asia point directly to western experience to bolster their case. As the former Indian Minister of External Affairs, Jaswant Singh, wrote, "If deterrence works in the West—as it so obviously appears to, since Western nations insist on continuing to possess nuclear weapons—by what reasoning will it not work in India?"[9] Similarly, Vijai Nair, an early Indian advocate of nuclear weapons, pointedly noted that, "[T]here has been no direct conflict between states of the Western world,

---

[5] The best narrative of India's nuclear ambitions is George Perkovich, *India's Nuclear Bomb: The Impact on Global Proliferation* (Berkeley: University of California Press, 1999), pp. 293–333. A companion volume for Pakistan's nuclear program has yet to be written.

[6] *Joint Statement, Meeting Between Foreign Secretaries of India and Pakistan*, June 28, 2004. http://meaindia.nic.in/jshome.htm.

[7] For a clear exposition of these alternative views, see Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons, A Debate* (New York: W.W. Norton, 1995).

[8] These terms are adapted and borrowed from Scott Sagan, Ibid., and Peter R. Lavoy's review essay of the debate between Sagan and Waltz, "The Strategic Consequences of Nuclear Proliferation," *Security Studies* 4, no. 4 (Summer 1995), pp. 695–753.

[9] "Against Nuclear Apartheid," *Foreign Affairs* 77, no. 5 (1998), p. 43.

endowed with nuclear power…while conflict has been the order of the day in the developing, non-nuclear Third World."[10]

The ranks of deterrence optimists include J.N. Dixit, now the national security adviser to Prime Minister Manmohan Singh. Writing in 2002, Dixit concluded:

> [I]n some respects, India should be relieved Pakistan has gone ahead and tested its nuclear devices and declared itself a nuclear weapons state. Such a move has ensured greater transparency about Pakistan's capacities and intentions. It also removes the complexes, suspicions, and uncertainties about each other's nuclear capacities. A certain parity in nuclear weapons and missile capabilities will put in place structured and mutual deterrents. These could persuade the Governments of India and Pakistan to discuss bilateral disputes in a more rational manner.[11]

Perhaps the most important, early conceptualizer of India's nuclear deterrent, former Army Chief K. Sundarji, flatly predicted that nuclear deterrence would add stability and peace and that "the only salvation is for both countries to follow policies of cooperation and not confrontation…A mutual minimum nuclear deterrent will act as a stabilizing factor. Pakistan will see it as counteracting India's superior conventional power potential and providing a more level playing field. The chances of conventional war between the two will be less likely than before."[12]

Sundarji's optimism suffuses Raj Chengappa's insider account of India's nuclear and missile decision-making, which is titled *Weapons of Peace*. In Chengappa's narrative, Prime Minister A.B. Vajpayee is portrayed as thinking that nuclear testing by India and Pakistan would mean an end to war on the subcontinent.[13] Similarly, Jasjit Singh, a leading Indian commentator on strategic affairs, has argued that with the advent of offsetting nuclear capabilities, "Deterrence will continue, but on a higher level. I don't think we are going to see a slide toward instability. I don't think anybody will allow it to happen."[14]

This view was widely echoed in Pakistan. At a symposium convened by the Institute of Policy Studies in 1995, General K.M. Arif declared that, "The nuclear option will promote regional peace and create stability," while Air Marshal Zulfikar Ali Khan opined that nuclear weapons "make wars hard to

---

[10] *Nuclear India* (Hartford, WI: Spencer & Lancer, 1992), p. 79.
[11] *Indo-Pakistan in War and Peace* (London: Routledge, 2002), p. 338.
[12] "Proliferation of WMD and the Security Dimensions in South Asia: An Indian View," in William H. Lewis and Stuart E. Johnson, eds., *Weapons of Mass Destruction: New Perspectives on Counterproliferation* (Washington DC: National Defense University Press, 1995), p. 59.
[13] *Weapons of Peace: The Secret Story of India's Quest to be a Nuclear Power* (New Delhi: HarperCollins, 2000), p. 8.
[14] Interview with Jasjit Singh, "One on One," *Defense News* (July 27–August 2, 1998), p. 22.

start." [15] [16] The accomplished Pakistani diplomat and former Foreign Minister, Abdul Sattar, concluded that, "attainment of nuclear capabilities by Pakistan and India has helped promote stability and prevented dangers of war despite the crises that have arisen from time to time…Self-interest itself should persuade Pakistan and India to exercise due restraint. Continuance of responsible conduct is likely also because it could gain greater tolerance of their nuclear policies."[17]

During this period, a former Chief of the Army Staff, General M. Aslam Beg, summarized the prevailing view in Pakistan that, "It is the nuclear deterrent that has kept wars in South Asia at bay."[18] The "father" of Pakistan's nuclear bomb, Abdul Qadeer Khan, is reported to have told *The Times of Oman* that, "Anyone will have to think [a] hundred times before they try to indulge in any misadventure against Pakistan. I don't care if somebody disagrees, but I consider nuclear weapons as weapons of peace"—echoing similar views within the Indian nuclear establishment, as chronicled by Chengappa. "A nuclear Pakistan," in A.Q. Khan's view, "means safety, security, and peace of mind."[19]

Assessments of the stabilizing consequences of offsetting nuclear capabilities have not been confined to deterrence theorists in South Asia. According to Sumit Ganguly,

> Despite this tension-ridden relationship and contrary to a number of dire warnings, it is unlikely that India and Pakistan are on the verge of another war, let alone a nuclear war…The possession of nuclear weapons on both sides has, in all likelihood, introduced elements of caution among strategic elites in the region.[20]

Likewise, Devin T. Hagerty concluded that, "There is no more ironclad law in international relations than this: nuclear weapon states do not fight wars with one another."[21] Nuclear weapons on the subcontinent, in Haggerty's view, "deters nuclear and conventional aggression, but not the unconventional military operations characteristic of guerrilla warfare."[22] Ashley Tellis' exhaustive review of India's emerging nuclear posture also concludes with an upbeat

---

[15] "Retaining the Nuclear Option," in Tariq Jain, ed., *Pakistan's Security and the Nuclear Option* (Islamabad: Institute of Policy Studies, 1995), p. 123.
[16] "Pakistan's Security and the Nuclear Option," in Jain, ed., p. 138.
[17] "Nuclear Issues in South Asia: A Pakistani Perspective," in Jain, ed., p. 89.
[18] *Indian and Pakistani Security Perspectives* (Rawalpindi: Foundation for Research on National Development and Security, 1994), p. 73.
[19] "'N-arms weapons of peace,'" *The Hindu*, August 26, 2002.
[20] "Nuclear Proliferation in South Asia: Origins, Consequences, and Prospects" in Shalendra D. Sharma, ed., *The Asia-Pacific in the New Millennium: Geopolitics, Security, and Foreign Policy* (Berkeley: Institute of East Asia Studies of the University of California, Berkeley, 2000), pp. 252-3; also see Ganguly, "Indo-Pakistani Nuclear Issues and the Stability/Instability Paradox," *Studies in Conflict and Terrorism* 18, (1995), pp. 325-34.
[21] *The Consequences of Nuclear Proliferation: Lessons from South Asia* (Cambridge, MA: The MIT Press, 1998), p. 184.
[22] Ibid., p. 39.

assessment: "A reasonably high degree of deterrence stability currently exists within the greater South Asia region…It is not unreasonable to expect that the acknowledged presence of nuclear weapons on all sides would inhibit any interactive sequences that could lead to serious forms of deterrence breakdown in the future."[23]

DETERRENCE PESSIMISTS

Those who hold diametrically opposed views might be called deterrence pessimists. This camp works from very different assumptions and arrives at deeply troubling conclusions. In this view, the situation in South Asia, like that during the Cold War, is far from stable and could lead to inadvertent escalation. As Robert Jervis notes, "It is rational to start a war one does not expect to win…if it is believed that the likely consequences of not fighting are even worse. War could also come through inadvertence, loss of control, or irrationality."[24] A close observer of South Asia, Neil Joeck, argues that,

> India and Pakistan's nuclear capabilities have not created strategic stability [and] do not reduce or eliminate factors that contributed to past conflicts…Far from creating stability, these basic nuclear capabilities have led to an incomplete sense of where security lies. Nuclear weapons may make decision-makers in New Delhi and Islamabad more cautious, but sources of conflict immune to the nuclear threat remain. Limited nuclear capabilities increase the potential costs of conflict, but do little to reduce the risk of it breaking out.[25]

Similarly, V.R. Raghavan is far from sanguine about the trajectory of Indo-Pakistan relations:

> The conclusions drawn in New Delhi from the Kargil experience are significant. Instead of seeking a stable relationship on the basis of nuclear weapon capabilities, Pakistan has used nuclear deterrence to support aggression. Kargil indicated that armed with nuclear weapons, Pakistan has increased confidence that it could raise the conflict thresholds with India. It demonstrated a willingness to take greater risks in conflict escalation.[26]

---

[23] *India's Emerging Nuclear Posture: Between Recessed Deterrent and Ready Arsenal* (Santa Monica: RAND, Project Air Force, 2001), p. 743.
[24] "The Political Effects of Nuclear Weapons" in Sean M. Lynn-Jones, Steven E. Miller, and Stephen Van Evera, eds., *Nuclear Diplomacy and Crisis Management* (Cambridge, MA: The MIT Press, 1990), p. 29.
[25] "Maintaining Nuclear Stability in South Asia," *Adelphi Paper* 312 (Oxford: Oxford University Press, 1997), p. 12.
[26] "Limited War and Nuclear Escalation in South Asia," *The Nonproliferation Review* 8, no. 3 (Fall-Winter 2001), p. 83.

Raghavan concludes that, "the probability of a nuclear war between India and Pakistan is high, in the event the two countries engage in direct military conflict."[27] P.R. Chari also belongs to the camp of nuclear pessimists. He argues that, "The nuclearized environment in South Asia has not informed the leaderships in both countries to observe restraint in making provocative and inflammatory public declarations."[28] In his view, the combination of harsh rhetoric, provocative action, and the absence of trust and communication channels between Indian and Pakistani leaders invites destabilizing actions and escalation.

Nuclear pessimists can also be found within the ranks of veteran observers in Pakistan. Talat Masood has written that, "It would be dangerous for either country to presume that its nuclear capability provides a cover for high-risk strategies or gives immunity from an all-out conventional war."[29] Columnist M.B. Naqvi has concluded that, "The point is that nuclear weapons, by their mere presence, have actually proved to be a deeply destabilizing factor."[30]

Several deterrence and international relations theorists straddle these camps. Henry Kissinger has written that, "Nuclear Weapons have rendered war between countries possessing them less likely—though this statement is unlikely to remain valid if nuclear weapons continue to proliferate into countries with a different attitude toward human life or unfamiliar with their catastrophic impact."[31] Kissinger doesn't tell us whether India or Pakistan fits into this category. John Mueller argues that, "Nuclear weapons neither crucially define a fundamental stability nor threaten severely to disturb it."[32] In Mueller's view, "what deters is the belief that escalation to something intolerable will occur, not so much what the details of the ultimate unbearable punishment are believed to be."[33]

Some close observers of South Asia have also introduced important qualifiers to relatively upbeat assessments. Ashley Tellis, for example, notes that "weak state structures" and "deficient strategic decision making" skewed by "severe motivational and cognitive biases" could produce a breakdown in nuclear deterrence in a deep crisis.[34] This author, at least for now, belongs in the

---

[27] Ibid., p. 82.
[28] P.R. Chari, "Nuclear Restraint, Risk Reduction, and the Security-Insecurity Paradox in South Asia," in Michael Krepon and Chris Gagné, eds., *The Stability-Instability Paradox: Nuclear Weapons and Brinksmanship in South Asia* (Washington DC: The Henry L. Stimson Center, June 2001), p. 20.
[29] "Our multiple challenges," *DAWN*, June 22, 2002, http://www.dawn.com/2002/06/22/op.htm.
[30] "Facts about Indo-Pak impasse," *The News*, June 3, 2002, http://www.jang.com.pk/thenews/mar2002-daily/06-03-2002/oped/o4.htm.
[31] "America at the Apex: Empire or Leader?" *The National Interest*, no. 64 (Summer 2001), p. 13.
[32] "The Essential Irrelevance of Nuclear Weapons: Stability in the Post-War World," in Sean M. Lynn-Jones, Steven E. Miller, and Stephen Van Evera, eds., *Nuclear Diplomacy and Crisis Management* (Cambridge, MA: The MIT Press, 1990), p. 3.
[33] Ibid., p. 14.
[34] *India's Emerging Nuclear Posture*, pp. 743–4.

camp of deterrence pessimists, as conditions are not present in South Asia to provide a lasting basis for nuclear stabilization. I am, however, willing and eager to switch camps once the governments of India and Pakistan commit to constructive engagement and make concerted and sustained efforts to reduce nuclear risks.

INSTABILITY AND RISK

The earliest stages of offsetting nuclear capabilities between states with significant grievances are inherently the most dangerous. During this period, lines of communication tend to be unreliable, and crisis management procedures are especially ad hoc. As Richard Betts has noted, "Confusion can be used against an enemy by increasing his uncertainty and encouraging caution, but it also widens the range for miscalculation."[35]

In the early stages of developing nuclear arsenals, the size and disposition of each side's nuclear deterrent are mostly opaque to the other, which can prompt worst-case assessments during an intense crisis. Another core element of strategic stability identified by western deterrence strategists—secure second-strike capabilities—is difficult to constitute during the early stages of a new nuclear rivalry. New nuclear capabilities, as well as uncertainties regarding the nuclear balance, can encourage risk taking. In this dangerous passage, the United States and the Soviet Union went eyeball-to-eyeball over Berlin and Cuba, and the two pairings of contiguous nuclear-weapon states—China and the USSR as well as India and Pakistan—both fought border clashes soon after these adversaries demonstrated offsetting nuclear capabilities.

The concepts of escalation control and stable nuclear deterrence presume rational decisions by rational actors, even in the deepest crisis. There are, however, extremist groups in Pakistan and India that would view the advent of crisis as an opportunity rather than as a problem to be contained. Western deterrence theorists never had to address the factors of religious extremism and *jihad.* Deterrence optimists also presume that "Murphy's Law" does not apply to nuclear weapons—at least not to the extent that an accident or a chain reaction of miscalculation, error, chance, or misuse of authority would lead to a crossing of the nuclear threshold. These presumptions were rather generous during the Cold War, as have been amply documented.[36]

Additional reasons for pessimism are rooted in uncertainties associated with the nuclear equation in South Asia. It is hard for Indian and Pakistani officials to predict with accuracy the holdings of the other side. In the early phases of a

---

[35] *Nuclear Blackmail and Nuclear Balance* (Washington DC: The Brookings Institution, 1987), p. 211.

[36] See, for example, Scott Sagan**,** *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons* (Princeton: Princeton University Press, 1993) and Bruce Blair, *The Logic of Accidental Nuclear War* (Washington DC: The Brookings Institution, 1993).

nuclear rivalry, opacity is considered essential to deterrence. Moreover, India and Pakistan rely primarily on human intelligence on nuclear matters, since national technical means are minimal. Human intelligence can be spotty and unreliable. The potential for misestimating an adversary's nuclear holdings is therefore considerable. One can envision how misestimates might be stabilizing, if imperfect intelligence reinforces caution in a crisis. Misestimates could also be destabilizing, if the reverse is true. Even if both adversaries are aware of the nuclear balance and acknowledge its equality, there are no guarantees against adventurism.[37] Indeed, the first tenet of the stability-instability paradox predicts adventurism.

Sumit Ganguly argues that the stability-instability paradox will hold for the foreseeable future in South Asia because "neither side has the requisite capability to pursue a decapitating first strike against the other."[38] Deterrence optimists presume that India's nuclear arsenal is secure from attack, given its large landmass. It is necessary, but insufficient, for New Delhi's nuclear assets to be secure from attack, if India's national command authority could be subject to decapitation. India appears not to have attached a high priority to addressing this vulnerability. The Indian Nuclear Command Authority only decided to build two bunkers to protect top officials from a potential nuclear strike, the first in New Delhi and the second within 250 miles of the city, in September 2003, five years after India became an overt nuclear power.[39] A "recessed" deterrent or a "force in being" that cannot be constituted or deployed because of a decapitating strike might be unusable.[40]

India's vulnerability can be fixed without resorting to destabilizing actions in a crisis. Pakistan's primary vulnerability is quite different, and "fixing" it would appear to require potentially destabilizing steps. Pakistan's means of delivery for its nuclear deterrent resides primarily at missile and air bases, which constitute a relatively small number of fixed aim points that could be reached quickly by Indian strike capabilities. Perhaps over time, Pakistan will acquire a more secure and stabilizing nuclear capability at sea, but for the foreseeable future, its national command authority's options to reduce structural vulnerabilities in deep crisis appear limited to moving missiles and warheads away from bases and storage facilities, employing satellite basing of some kind, and increasing alert rates.[41] All of these steps increase the possibility of unfortunate events and misreads by foreign observers.

---

[37] Betts, *Nuclear Blackmail,* p. 214.
[38] Sumit Ganguly, *Conflict Unending: Indo-Pakistan Tensions Since 1947* (New York: Columbia University Press, 2001), p. 108.
[39] "India to Build Nuclear-Proof Bunkers for Leadership," *Global Security Newswire*, September 22, 2003.
[40] These terms have been borrowed from Jasjit Singh and Ashley Tellis, respectively.
[41] There are few public assessments written by Pakistani authors familiar with these dilemmas. One worth reading is Tariq Mahmud Ashraf, *Aerospace Power: The Emerging Strategic Dimension* (Peshawar: PAF Book Club, 2003).

Should New Delhi decide, for whatever reason, to move toward a ready arsenal, Islamabad must contemplate—and compensate for—its nightmare scenario of preemption. India's current vulnerability associated with command and control, combined with Pakistan's structural vulnerability, could be mutually and negatively reinforcing in the event of another severe crisis. In such circumstances, one side's quest for protection is likely to feed the other's concerns over preemption. Until stabilizing steps are taken to clarify retaliatory capabilities, the best safeguards against worst cases are the continuation of relaxed nuclear postures and the avoidance of crises.

Nuclear stabilization presumes adequate back-up from conventional forces. Conventional balances are not easy to calculate, because advantages in some categories might be offset in others. Moreover, it is easier to defend than to advance, particularly in the rugged terrain along much of the Kashmir divide. In South Asia, the conventional military balance is shifting steadily in India's favor. From 1995-1999, South Asian military expenditures grew more than for any region of the world, with India's growth rate three times that of Pakistan.[42] This disparity, which could enable the Indian military to employ new military tactics in future conflicts with Pakistan, has grown even more appreciably in recent years. As the Indian armed forces begin to absorb the necessity for combined arms operations, Pakistan's armed forces remain plagued by a "lack of coordination and joint planning."[43] Critical deficiencies in Pakistan and growing conventional capabilities in India could increase nuclear risks – unless new peacemaking initiatives are forthcoming.

New Delhi's procurements of advanced combat aircraft, deep surveillance capabilities, and supersonic cruise missiles are sources of concern in Pakistan. These capabilities appear well suited to support new conventional and limited war-fighting options. Growing Indian air superiority has ramifications for escalation control and for the stability of nuclear deterrence on the subcontinent in at least two major respects. First, the attrition of the Pakistani Air Force in air-to-air combat in a limited war scenario could constitute a "red line" that cannot be predicted with assurance. Second, Pakistani military planners would view Indian air power as the quickest and most accurate means for deep strikes against nuclear, as well as conventional targets.

More reason for deterrence pessimism can be found in the absence of nuclear risk reduction measures on the subcontinent. The author has argued elsewhere that ten key commandments of nuclear risk reduction evolved over

---

[42] India's military expenditures rose an average of 8.8 percent from 1995 to 1999; Pakistan's rose an average of 2.9 percent. In 1999, the last year for which official US data are available, India spent $11.3 billion on military expenditures; Pakistan spent $3.5 billion. (US Department of State, Bureau of Verification and Compliance, *World Military Expenditures and Arms Transfers, 1999-2000* (Washington DC: Library of Congress, 2002), pp. 2–3).

[43] Pervez Iqbal Cheema, *The Armed Forces of Pakistan* (Karachi: Oxford University Press, 2003), p. 184.

time to help keep the Cold War from becoming white-hot.[44] These commandments are:

- Do not change the territorial status quo in sensitive areas by use of force.
- Avoid nuclear brinksmanship.
- Avoid dangerous military practices.
- Put in place special reassurance measures for ballistic missiles and other nuclear forces.
- Implement properly treaty obligations, risk-reduction, and confidence-building measures.
- Agree on verification arrangements, including intrusive monitoring.
- Establish reliable lines of communication, between political leaders and between military leaders.
- Establish redundant and reliable command and control arrangements as well as intelligence-gathering capabilities to know what the other side is up to, especially in a crisis.
- Keep working hard on these arrangements. Improve them. Don't take anything for granted.
- Hope for plain dumb luck or divine intervention.[45]

It is unsettling to note that none of the key elements of nuclear risk reduction (with the possible exception of good fortune) are now present in South Asia. Instead, Pakistan remains opposed to the status quo in Kashmir, the contiguous territory that has sparked previous wars and, except for brief cease fires, almost daily friction between the Indian and Pakistani forces that are deployed along this divide. Both governments have resorted to brinksmanship over Kashmir, India by mobilizing and threatening war, Pakistan by initiating the Kargil incursion and by its commitment to a Kashmir policy that has relied on militancy to punish India and to leverage favorable outcomes.

In this sense, both countries seem to have copied a page from early Cold War playbooks on how to demonstrate resolve. Bernard Brodie used this formulation: "[T]he best way, perhaps the only way, for us to avert not only defeat but unnecessary escalation is to demonstrate clearly that our readiness to

[44] "Nuclear Risk Reduction: Is Cold War Experience Applicable for South Asia?" in Michael Krepon and Chris Gagne, eds., *The Stability-Instability Paradox* (Washington DC: The Henry L. Stimson Center,), pp. 1–14.

[45] Desmond Ball, Hans Bethe, Bruce Blair, and others compiled a shorter list of key measures: Do not use deadly force against an adversary; do not force an adversary to choose between humiliation and escalation; do not use military forces to undermine an adversary in geographic areas he deems vital; do not use force against an adversary's ally; do not use force to dramatically alter the status quo in a sensitive region; and do not initiate horizontal escalation. *Crisis Stability and Nuclear War* (Ithaca: Cornell University Peace Studies Program, 1987), p. 62.

take risks is not less than theirs."[46] For most of the past fifteen years, brinksmanship in South Asia has taken the form of dangerous military practices along the Kashmir divide, including the overrunning of border posts and the "routine" use of small arms and mortars as well as artillery firing. In 1984 Indian forces preemptively occupied an un-demarcated glacial region, citing Pakistani intentions to get there first.[47] Aerial incursions are also a frequent occurrence, notwithstanding signed "confidence-building" measures designed to end such activity.

Deterrence optimists argue that brinksmanship in South Asia is highly ritualized and even pragmatic. As Satu Limaye has written,

> Pakistan and India's brinksmanship is not wild-eyed but designed to meet policy objectives. Pakistan, as the weaker state in the bilateral relationship, ratchets up tensions over Kashmir to garner external (mainly US) pressure on India to come to the bargaining table. India uses coercive diplomacy to bring US pressure to bear on Pakistan to halt support for militants and their infiltration into Kashmir. Both states seek to achieve their ends without war: Pakistan because it might lose, India because it might not win…In using brinksmanship, both India and Pakistan ultimately want to be held back while having the United States push their interests forward.[48]

There is much insight in this analysis but it presumes a high degree of control over events by national leaders. The "pragmatic," self-interested use of brinksmanship leaves much to chance. As Thomas C. Schelling has cautioned, "Brinksmanship involves getting onto the slope where one may fall in spite of his own best efforts to save himself, dragging his adversary with him."[49] Responses to repeated instances of brinksmanship could change, and Washington's ability to broker satisfactory outcomes could be diminished from one crisis to the next. If any of the three parties decides to change the rules of the game, outcomes could be surprisingly different.

For both tenets of the stability-instability paradox to be in place, thereby preventing unintended escalation, lines of communication need to be reliable, the messages conveyed over these channels need to be trustworthy, and they need to be interpreted properly. As noted above, the United States and the Soviet Union began to address the requirement of more reliable and quicker means of communication after the Cuban missile crisis. In contrast, after the Kargil crisis,

---

[46] Bernard Brodie, *Escalation and the Nuclear Option* (Princeton: Princeton University Press, 1966), p. 128.
[47] Some in Pakistan cite India's occupation of the Siachen Glacier as the predicate to the Kargil operation. See, for example, Shireen M. Mazari, *The Kargil Conflict 1999* (Islamabad: Feroz Sons, 2003).
[48] "Mediating Kashmir: A Bridge Too Far," *The Washington Quarterly* 26, no. 1 (Winter 2002-3), p. 159.
[49] *The Strategy of Conflict* (Oxford: Oxford University Press, 1960), p. 200.

communication between India and Pakistan worsened, and then ceased altogether. Efforts to improve communication channels were the first item of business once official bilateral dialogue finally resumed in 2004.

Upgrades in hotlines and the establishment of nuclear risk-reduction centers are essential.[50] Even more essential are changing destabilizing policies, avoiding brinksmanship, and reading of one's nemesis properly. Intelligence assessments in South Asia have been badly wrong in the past, resulting in severe consequences. Most notably, the initiation or outcome of wars—and sometimes both—have come as a surprise to one side or the other. For example, the outbreak of the 1999 high-altitude conflict above Kargil came as a surprise to India; its outcome came as a surprise to Pakistan. Robert Jervis and others reminded us during the Cold War that, "Deterrence succeeds or fails in the mind of the attacker."[51] But Indian and Pakistani leaders have repeatedly misestimated each other's intentions.

Escalation control requires a careful and correct reading of one's adversary. Regrettably, problems of misperception on the subcontinent have grown as the wall of separation between India and Pakistan becomes higher and thicker. One leading Indian strategic analyst, Raja Menon, acknowledges this danger, while identifying its source as "the belief among some Indian academics in the exaggerated resolve of the Pakistanis."[52] In Menon's view, "an escalatory spiraling out of control could only grow from a Pakistani initiative."[53] There is much room for misjudgment in this analysis. The Global War on Terrorism declared by Washington provides further grounds for misjudgment by Pakistan and India. As Mary Nayak has noted, "Each has misread its closer ties to the United States as evidence that Washington has embraced its perspective. Each has treated the intense engagement and military presence of the United States as insurance against escalation to war."[54]

DIFFERING LESSONS

The ten-month long dual mobilizations in 2002, during which the government of India demanded the cessation of acts of terrorism abetted by Pakistan and the hand-over of leading militants, ended without satisfaction on either count. The resulting lessons learned in both countries could well increase confusion or misjudgments.

---

[50] See Robert Einhorn, *Nuclear Risk Reduction Centers in South Asia*, CSIS Working Group Report (Washington DC: Center for Strategic & International Studies, 2004).
[51] Robert Jervis, Richard Ned Lebow, and Janice Gross Stein, *Psychology and Deterrence* (Baltimore: The Johns Hopkins University Press, 1985), p. 125.
[52] *A Nuclear Strategy for India* (Thousand Oaks, CA: Sage Publications, 2000), p. 152.
[53] Ibid., p. 230.
[54] "Reducing Collateral Damage to Indo-Pakistani Relations from the War on Terrorism," Policy Brief No. 17 (Washington DC: The Brookings Institution, September 2002), p. 2.

Within India and Pakistan, official post-mortems predictably put a positive spin on the crisis.[55] President Musharraf declared that, "We have defeated an enemy without fighting a war." He then added that if Indian troops "took even a step across the international border or LoC (Line of Control), we will not only be in front of them, we will surround them. It will not remain a conventional war."[56] Prime Minister Vajpayee declared that the extended Indian troop mobilization "sent [a] 'strong message' to Pakistan to end cross-border terrorism…I can tell you that the message is working. We'll make sure that it works.'"[57] The Indian Army Chief of Staff during the crisis, General S. Padmanabhan, declared the mobilization "a boon for the armed forces in upgrading training along with equipment availability." In addition, Padmanabhan noted that infiltration across the LoC had markedly declined, and that a successful state election had been held in Jammu and Kashmir.[58]

Prominent strategists, retired military officers, and journalists in India and Pakistan have differed sharply on the lessons learned from this extended standoff. The national security establishment in Pakistan was mostly upbeat after India's exercise in coercive diplomacy. According to Shireen M. Mazari, the chair of the government-funded Institute of Strategic Studies in Islamabad, "The reason for the present dissipation of the military threat is primarily the result of Pakistan calling India's bluff and the major power realizing the need to move India away from its game of brinksmanship."[59] Some Pakistani military officers viewed the Indian climb-down as evidence of cowardice, and as prompting serious morale problems in the Indian Army.[60] Other military officers privately expressed dismay over the Kargil misadventure.

Indian commentators offered a mixed assessment, with some seeing the glass half-full. The influential editor of *The Indian Express*, Shekhar Gupta, took solace from the confrontation: "The Pakistani pledge to abjure terrorism now has some international guarantees. Their nuclear bluff has been called—finally we have shown we cannot be blackmailed as we were in 1990."[61] Similarly, the dean of Indian commentators on national security, K. Subrahmanyam, argued that India's extended troop mobilization was a success insofar as it served "to compel the United States to apply pressure on Pakistan to promise a visible and

---

[55] See, for example, "Troop withdrawal vindicates our stance, says Musharraf," *Daily Times*, October 26, 2002; "Objective of Army deployment achieved, says Fernandes," *The Hindu*, October 28, 2002; "Indian troops deployment failed, says Yusuf," *Dawn*, December 11, 2002.
[56] "Warning forced India to pull back troops, says President," *Dawn*, December 31, 2002. This statement was subsequently "clarified" by Pakistan's military spokesman as meaning "unconventional forces and not nuclear or biological weapons." ("Gen shoots mouth off, backfires," *The Indian Express*, December 31, 2002.)
[57] "Troop build-up sent strong message to Pak: PM," *The Indian Express*, December 13, 2002.
[58] "Gen shoots mouth off, backfires," *The Indian Express*, December 31, 2002.
[59] "The real intent?" *The News,* July 24, 2002.
[60] Interviews with the author, October 7–13, 2002.
[61] "One month after Kaluchak: Five lessons we learnt, can't afford to forget," *The Indian Express*, June 15, 2002.

permanent end to cross-border terrorism."[62] In contrast, several retired military officers were scathing in their assessment of Indian coercive diplomacy, as was General Afsir Karim, editor of *Aakrosh* (and former editor of the *Indian Defence Review)*, in a published interview:

> [T]he troops became mere pawns in the hands of politicians intent on pursuing their own agenda…The troops sweated it out on the borders in extremely harsh environments while the rest of us went about its [sic] normal business of celebrating festivals and holding fashion shows…The aim of coercive diplomacy is basically to demand a particular change in an adversary's policies with a real and credible threat of devastating punitive action in case of noncompliance...India, for obvious reasons, posed no such threat to Pakistan…Not surprisingly, cross-border terrorism continued unabated and Pakistan seemed far from being coerced.[63]

Outlook magazine's national security correspondent, V. Sudarshan, heard similar sentiments from prominent members of the Indian national security establishment. He described "seething anger" in the armed forces against coercive diplomacy that, in the words of one source, "achieved so little with so much." The recently retired Vice Chief of Staff of the Indian Army, General Vijai Oberoi, is quoted as saying, "Instead of terminating it as that point in the graph where the gains from mobilization were headed downwards, we carried it on like a Hindi film." Vijai Nair added, "The fact that you deployed the entire military and did not take punitive action against terrorists demonstrated to all that New Delhi does not have the political will to use the means it has deliberately created to secure India when the chips are down."[64] V.K. Sood and Pravin Sawhney reached a similar conclusion: "Facing tremendous pressure, the Indian leadership lacked the stomach to take a war inside Pakistan."[65]

These divergent views do not provide a sound basis for nuclear stabilization on the subcontinent. When both Indian and Pakistani leaders claim to have succeeded at brinksmanship, they may be inclined to continue such practices. Pakistan's national security establishment continues to declare confidence in being able to call India's bluff, while expressing concerns over the shifting military balance. At the same time, significant elements of the Indian national security establishment have expressed deep dissatisfaction with threats that are not backed up by the use of force and are developing new military doctrine and capabilities to enhance limited war options.[66]

---

[62] "Premature Pullback vs. Army Fatigue," *The Times of India*, October 29, 2002.
[63] Ibid.
[64] "Mirage 2001-02," *Outlook*, October 28, 2002.
[65] V.K. Sood and Pravin Sawhney, *Operation Parakram: The War Unfinished* (New Delhi: Sage Publications, 2003), p. 83.
[66] Shishir Gupta, "No Eyeball to Eyeball Any More in New War Doctrine," *Indian Express,* March 6, 2004.

Renewed brinksmanship could come in the form of more extensive support for *jihadi* groups by Pakistan's national security establishment, and more aggressive tactics to punish *jihadis* and their sponsors by Indian leaders. This juxtaposition could lead to misestimates and intelligence failures. The initiation of war could again come as a surprise to Pakistan, particularly when India's vibrant democracy will broadcast mixed messages about the wisdom of engaging in more adventurous military tactics to counter terrorism. Since both military establishments express confidence in achieving their objectives in the event of another war relating to Kashmir, one will be proven wrong in the event of another war.

In this sense, Kashmir can again become a "nuclear flashpoint," if Pakistan's national security establishment turns the heat up on Kashmir to punish India and to leverage a favorable outcome to this longstanding dispute. During most of the past fifteen years, escalation control on the subcontinent has depended heavily on two risky assumptions: First, that *jihadi* groups would refrain from such horrendous acts of violence as to spark a war; and second, that the Indian government would refrain from attacking Pakistan in response to lesser grievances. These two assumptions constitute a very poor basis for nuclear stabilization.

Pakistan's credibility in denying culpability for acts of terror across the Kashmir divide depends upon the extent to which it has ceased providing military, intelligence, communications, and logistical support for *jihadi* groups. Likewise, positive changes in the policies adopted by the government of India toward Kashmir could provide a sustained basis for nuclear stabilization. These include concrete measures to prevent and punish human rights abuses by security forces and sustained, substantive diplomatic engagement with Pakistan over Kashmir. Absent these significant course corrections, additional crises on the subcontinent could be expected. Depending on the severity of future crises, the increased readiness of nuclear capabilities might be expected, including the movement of missiles to complicate targeting and to signal resolve. Nuclear capabilities that are in a high state of readiness or are in motion to reduce their vulnerability could become more susceptible to accidents, sabotage, or breakdowns in command and control.

Deterrence optimists tend to discount accidents, inadvertence, and sabotage as contributing factors in crossing the nuclear threshold. But accidents happened during the Cold War. Fortunately, none produced a mushroom cloud. There were also decisions made by local commanders during deep crises that could have led to misjudgments and grave misfortune.[67] Accidents, inadvertent steps,

[67] See Sagan, *The Limits of Safety*, Ch. 2; James G. Blight, Bruce J. Allyn, and David A. Welch, *Cuba on the Brink: Castro, the Missile Crisis, and the Soviet Collapse*, 2nd edition (Lanham, MD: Rowman & Littlefield, 2002); Laurence Chang and Peter Kornbluh, eds., *The Cuban Missile Crisis, 1962: A National Security Archive Documents Reader* (New York: W.W. Norton & Co., 1999). Also

and misjudgments during crisis could also occur in South Asia. Catalytic acts of terrorism provide additional grounds for concern about escalation control in the subcontinent. The writings of deterrence optimists tend to downplay the factors of religious extremism and terrorism. The possibility of domestic turmoil and its potential impact on command and control – a concern that did not figure prominently during the Cold War, except in screenplays – is also more of a factor on the subcontinent.

MASSIVE RETALIATION

Nuclear doctrines that equate deterrence with massive punishment provide additional grounds for concern about escalation control in the subcontinent. The government of India has publicly declared that, "Nuclear retaliation to a first strike will be massive and designed to inflict unacceptable damage."[68] As former Indian Defense Minister George Fernandes has warned,

> We have been saying all through that the person who heads Pakistan… has been talking about using dangerous weapons, including the nukes. Well, I would reply by saying that if Pakistan has decided that it wants to get itself destroyed and erased from the world map, then it may take this step of madness, but if [it] wants to survive then it would not do so.[69]

The government of Pakistan has not released a draft or official nuclear doctrine for public consumption, but one might reasonably infer from the statements of senior military figures that they, too, endorse a massive response to Indian strikes against sensitive targets or the crossing of Pakistani "red lines." During the ten-month long dual troop mobilizations in 2002, President Pervez Musharraf traveled to the front and announced that "even an inch" of Indian incursion across the Kashmir divide "will unleash a storm that will sweep the enemy…The people of Pakistan have always had faith in the ability of the armed forces to inflict unbearable damage to the enemy."[70] In his address to the nation on March 23, 2002, Musharraf declared, "By Allah's Grace Pakistan today possesses a powerful military might and can give a crushing reply to all types of aggression. Anybody who poses a challenge to our security and integrity would be taught an unforgettable lesson."[71] In a subsequent address to the nation of May 27, 2002, Musharraf announced, "We do not want war. But if

---

see: "The Havana Conference on the Cuban Missile Crisis," Press Release from the National Security Archive, available at http://www.gwu.edu/~nsarchiv/CWIHP/BULLETINS/b1a1.htm.

[68] Press release, Prime Minister's Office, "Cabinet Committee on Security Reviews Progress in Operationalizing India's Nuclear Doctrine," January 4, 2003.

[69] "Pak. Will be erased if it nukes India: Fernandes," *The Hindu*, January 28, 2003.

[70] "Musharraf vows to 'unleash a storm' if India attacks," *The News*, May 30, 2002.

[71] Available online at http://www.infopak.gov.pk/President_Addresses/Pres_23Marc.htm.

war is thrust upon us, we would respond with full might, and give a befitting reply."[72]

The public declarations of Indian and Pakistani leaders endorsing massive retaliation are reminiscent of the tense Cold War standoff in the 1950s. These threats are likely to be as ineffectual on the subcontinent as during the Eisenhower administration. Massive retaliation does not provide an answer to the bloodletting in Jammu and Kashmir nor to ambiguous cases that result in the release of radioactivity. The critique of massive retaliation by Henry Kissinger and other Cold War deterrence strategists still rings true:

> Given the power of modern weapons, a nation that relies on all-out war as its chief deterrent imposes a fearful psychological handicap on itself. The most agonizing decision a statesman can face is whether or not to unleash all-out war; all pressures will make for hesitation, short of a direct attack threatening the national existence…A deterrent which one is afraid to implement when it is challenged ceases to be a deterrent.[73]

As Thomas C. Schelling wrote, "When the act to be deterred is inherently a sequence of steps whose cumulative effect is what matters, a threat geared to increments may be more credible than one that must be carried out either all at once or not at all."[74]

A declaratory doctrine of massive retaliation seems particularly ill suited to the circumstances surrounding a nuclear event whose source might not be easily ascertained. Such an event could be caused by an accident, a terrorist act, or an inadvertent conventional strike executed by an air force pilot under orders to avoid known nuclear targets. Under such circumstances, parallel and reinforcing doctrines of massive retaliation constitute a severe impediment to escalation control. Joint adherence to massive retaliation doctrines during the early stages of the nuclear competition in South Asia could result, as Maria Sultan has noted, in deterrence that is based "not on the credibility of the second-strike capability of either side, but on the effectiveness of the first strike."[75]

The threat of massive retaliation could have utility when the crossings of red lines that would result in the use of nuclear weapons are clear and bright, but such clarity is elusive in international relations. Indeed, it is in the interest of national leaders not to be too precise about the actual location of red lines, since to do so could invite unwelcome actions that approach, but do not cross, these thresholds. Consequently, advertised red lines could be overdrawn and

---

[72] Available online at http://www.infopak.gov.pk/President_Addresses/presidentadress-27-5-2002.htm.
[73] Henry Kissinger, *Nuclear Weapons and Foreign Policy* (New York: Harper & Brothers, 1957), pp. 133-4.
[74] *The Strategy of Conflict*, p. 42.
[75] "Deterrence and limited war," *The News*, June 3, 2002.

purposefully vague. As Tariq Mahmud Ashraf has noted, the nuclear threshold "has to be credible and vague enough to be visible yet not identifiable by the enemy but also by the world at large." Ashraf, a retired Pakistani Air Force officer, defined Pakistan's red lines as:

> (1) Penetration of Indian forces beyond a certain defined line or crossing of a river. (2) Imminent capture of an important Pakistani city like Lahore or Sialkot. (3) Destruction of Pakistan's conventional armed forces or other assets beyond an acceptable level. (4) Attack on any of Pakistan's strategic targets such as dams or nuclear installations like Tarbela, Mangla, Kahuta, Chashma, etc. (5) Imposition of blockade on Pakistan to an extent that it strangulates the continued transportation of vital supplies and adversely affects the war-waging stamina of the country. (6) Indian crossing of the Line of Control to a level that it threatens Pakistan's control over Azad Kashmir.[76]

A more authoritative figure, Lieutenant General Khalid Kidwai, Director-General of the Strategic Plans Division, offered the following red lines in an interview with two Italian researchers. Kidwai, a key overseer of Pakistan's nuclear deterrent, is reported to have said that Pakistan would resort to nuclear weapons' use in the event that:

- India attacks Pakistan and conquers a large part of its territory
- India destroys a large part either of its land or air forces
- India proceeds to the economic strangling of Pakistan
- India pushes Pakistan into political destabilization or creates a large scale internal subversion[77]

These red lines represent unacceptable thresholds relating to losses of territory, military capability, economic viability, and political stability. As such, they reflect obvious Pakistani sensitivities. How Indian authorities might translate these markers into war-fighting guidelines, however, is anything but obvious. For example, Pakistan's vital lines of communication run perilously close to its international border. India does not need to capture a large part of Pakistani territory in order to deliver a humiliating blow. And what constitutes "large" losses of air power? The blockade of Karachi could take many weeks to have a severe impact on the Pakistani economy. When might this red line be crossed? The political stability threshold is the most difficult of all to calibrate, since Pakistan could be destabilized either in the absence of, or resulting from, a war with India.

---

[76] *Aerospace Power*, p. 148.

[77] The wording of these thresholds is that of the Italian interviewers. Paolo Cotta-Ramusino and Maurizio Martellini, *Nuclear Safety, Nuclear Stability and Nuclear Strategy in Pakistan* (Como: Landau Network, January 2002), p. 5.

Rather than being clear and bright, red lines can be hidden from view. They could be inadvertently embedded in tactical operations that are not expected to result in the detonation of nuclear weapons. During the "quarantine" of Cuba in the 1962 missile crisis, a red line could have been crossed when a US naval destroyer used depth charges to compel a Soviet submarine to the surface. This red line was avoided when one of three officers on board the sub refused to concur with unauthorized, ad hoc procedures to use a nuclear weapon in extremis.[78] Analogous events could be imagined in the throes of a deep crisis or limited military engagements in South Asia.

LIMITED WAR

During the Cold War, the non-viability of massive retaliation as a nuclear doctrine against less than all-out threats led the United States to explore the concept of limited war. For such contingencies, nuclear doctrine evolved to emphasize limited nuclear strikes, tactical nuclear weapons, and a wide range of employment options. Escalation control in the event of a crossing of the nuclear threshold was a conundrum that was never satisfactorily resolved. Some western deterrence theorists found solace in the pursuit of escalation dominance: superior nuclear capabilities at each rung of the ladder and advantageous nuclear force ratios in the event of all-out war would presumably dissuade the Kremlin from escalating or persuade it to capitulate. Another option was "damage limitation" concepts that bore a strong resemblance to preemptive strikes and that reflected the belief that a nuclear war could be fought and won. Western deterrence strategists inferred a similar animus and logic to the Soviet nuclear posture.[79]

Despite considerable intellectual effort, western deterrence strategists found no politically acceptable or militarily plausible way to "escape" from deterrence. It was hard to envision how, if the differences between the United States and the Soviet Union had risen to the point of nuclear detonations, the constructs of escalation dominance and damage limitation could have offered a satisfactory outcome. Both superpowers became active partners in the nuclear arms race because neither was willing to surrender or acknowledge disadvantage. The conundrum of escalation control was resolved during the Cold War by avoiding direct conflict and by engaging in the nuclear risk reduction measures enumerated above.

The juxtaposition of India's nuclear doctrine of massive retaliation with a conventional war-fighting doctrine focusing on limited war presents quite different, but no less challenging dilemmas for escalation control. New Delhi's

---

[78] Kevin Sullivan, "One word from nuclear war," *International Herald Tribune*, October 14, 2002.
[79] See, for example, Herman Kahn, *On Escalation: Metaphors and Scenarios* (New York: Frederick A. Praeger, 1965); Paul H. Nitze, "Assuming Strategic Stability in an Era of Détente," *Foreign Affairs* 54, no. 2 (January 1976), pp. 208–232; Richard Pipes, "Why the Soviet Union Thinks it Could Fight and Win a Nuclear War," *Commentary* 74, no. 1 (July 1977), pp. 21–34.

interest in limited war is borne, in part, out of frustration over Pakistan's use of unconventional methods to bleed India in Jammu and Kashmir. Frustration grew after the successful, but self-punishing, tactics used by Indian forces to repel Pakistani intruders from the heights above Kargil. As the Indian Army Chief during this conflict, V.P. Malik, later observed, [al]though India and Pakistan are nuclear nations, it is not true to say there cannot be a conventional war between them. Kargil proved that. There is a threshold under which a conventional war is possible.[80]

General Malik's successor, General S. Padmanabhan, echoed these thoughts:

> I am looking at the whole range that constitutes the spectrum [of conflict]. You have low-level conflict on the one end and on the other you have the nuclear war scenario. In between this spectrum is a whole amount of strategic space. This is the space in the middle for conventional operations…Nuclear war fighting is perhaps the last thing in anybody's mind. What we are looking at is to get an optimal return from conventional warfare.[81]

Padmanabhan's successor, General Nirmal Chander Vij, has evidently continued to develop plans and capabilities for a combined arms approach to limited warfare, which has been dubbed the "cold start" in the Indian media.[82]

New Delhi's quest to escape from deterrence and to define space for military action below the nuclear threshold continues. The reasons for this quest are clear, since the penalties of the stability-instability paradox have been borne disproportionately by India. Offsetting nuclear capabilities appear to rule out full-scale conventional war, while providing space for Pakistan to support militancy across the Kashmir divide. At the same time, India's declaratory policy has embraced nuclear minimalism and de-emphasizes limited nuclear options. Can limited war objectives be backed up by a doctrine of massive retaliation in South Asia? Western deterrence theorists explored this terrain without success. Now Indian strategists and military planners are surveying the territory.

The combination of India's limited war planning and threat of massive retaliation could become an unstable and explosive mix. Both adversaries must agree to limited war options, and both need to understand each other well enough to distinguish bluff from firebreak. They will need superb intelligence

---

[80] The Rediff Interview with General V. Prakash Malik, Part II: "Pakistan thought the Indian Army's back was broken," *Rediff*, July 27, 2001, accessible at http://www.rediff.com/news/2001/Jul/27inter.htm.
[81] "Army Will Be Prepared to Tackle Nuclear Threat," *Hindustan Times*, September 29, 2000, cited in Tellis, *India's Emerging Nuclear Posture*, p. 44.
[82] Shishir Gupta, "No Eyeball to Eyeball Any More in New War Doctrine," *Indian Express,* March 6, 2004.

and tight command and control over nuclear forces. Accidents must not happen. To risk all for modest objectives appears nonsensical. Penalties must be credible, otherwise risk-taking by one side will likely prompt risk-taking by the other. Backstopping limited war with the threat of massive retaliation runs the familiar risks of unintended escalation.

Western deterrence strategists have dwelled at length on this dilemma. Neither adversary, as Robert Jervis has written, "can confidently move into an area of significant concern to the other without great risk of incurring very high costs—if not immediately, then as a result of a chain of actions that cannot be entirely foreseen or controlled."[83] Conceiving of nuclear weapons as a firebreak does not necessarily prevent unintended escalation. As Bernard Brodie observed, "The more that confidence in the firebreak is built up, the less is each side restrained from committing larger and larger conventional forces within the limits of its capabilities."[84]

ENDURING DILEMMAS OR NEW PROGRESS?

The government of India has been caught on the horns of this dilemma ever since the subcontinent was nuclearized. As a matter of principle (as well as sound judgment), New Delhi refuses to endorse limited nuclear options and the other paraphernalia of nuclear deterrence that drove US and Soviet arsenals to dizzying heights. Instead, New Delhi has embraced the concept of minimal, credible nuclear deterrence. Moving its bomb from the basement to Pokhran has not, however, served an intended purpose of stabilizing the subcontinent.

New Delhi continues to seek favorable military methods to counter Pakistan's tactics in Kashmir. The device chosen after the terrorist attack on the Indian parliament—keeping battle-ready forces in the field for ten months—is not one that lends itself to repetition, unless the government of India is ready to wage war. Otherwise, the credibility of the threat would be further devalued, while confirming Brodie's observation, above. The frustrations prompted by previous crises have no doubt contributed to Indian interest in limited war options, which coexist awkwardly with an unlimited nuclear threat. Because this juxtaposition is inherently unstable at this stage of the subcontinent's nuclear standoff, the possibility of unintended escalation is always present.

One key element of escalation control, as Morton Kaplan wrote in *The Strategy of Limited Retaliation*, is the "ability of the opponents to see the legitimacy of each other's claims."[85] It has been very hard for Indian and Pakistani leaders to show such generosity of spirit. Escalation control also requires the ability to reign in wild men eager to pursue violent agendas.

---

[83] *The Illogic of American Nuclear Strategy* (Ithaca: Cornell University Press, 1984), p. 148.
[84] *Escalation and the Nuclear Option*, p. 124.
[85] Mortan Kaplan, *The Strategy of Limited Retaliation* (Princeton: Center of International Studies, 1959), p. 3.

Western deterrence strategists never made the acquaintance of the Jaish e-Mohammed or the Lashkar e-Toiba. *Jihadi* wild cards are now mixed into the deck of Indo-Pakistan relations, along with Hindu chauvinists who abet the mass murder of Muslims and mosque demolition. Catalytic acts of terror can again place India and Pakistan at the knife's edge. Concerns over terrorists acquiring fissile material are present in South Asia, as elsewhere.[86] The dilemma of escalation control was avoided after the attack on the Indian parliament largely because the Indian prime minister wished to avoid a war whose risks were great and benefits modest. A future Indian prime minister, faced with another major provocation, might be working from a different calculus of decision.

In the fifteen years since acquiring nuclear weapons, India and Pakistan have experienced difficult times. The last five years of this stretch have been particularly rough. Before outsiders pass judgment on this record of brinksmanship, it is worth recalling that the first fifteen years of the nuclear standoff between the United States and the Soviet Union were also very harrowing. The two superpowers looked directly into the nuclear abyss during crises over Berlin and Cuba. After this extremely dangerous passage, Washington and Moscow were finally ready to take steps to reduce nuclear dangers. Only after the Cuban missile crisis did the superpowers agree to improve communication methods and negotiate an end to nuclear testing in the atmosphere. These measures, and others that followed, did not blunt their nuclear rivalry -- far from it. But the rivalry was more predictable and less dangerous. Nuclear dangers were eventually tamed by a long and difficult process of negotiating confidence-building measures, arms control treaties, intrusive verification, and finally, deep cuts in nuclear forces.

The leaders of India and Pakistan face a similar challenge to transition from recurring crises to nuclear safety. This passage can only be traversed safely with sustained collaboration. If so, deterrence optimists will be proven right. After all, India and Pakistan have experienced severe crises, but national leaders have studiously avoided a conventional war that could result in a crossing of the nuclear threshold. National leaders are well aware of the adverse economic consequences of severe crises. They understand the potential consequences of war and the specter of unintended escalation.

Perhaps now, at long last, Pakistan and India are at the beginning of a sustained process of nuclear risk reduction. We know, however, that for five and one-half decades, no one has lost money betting against peace making on the subcontinent. Deterrence pessimists are correct in warning that nuclear risk-reduction measures are not in place. Much could go badly wrong on the subcontinent unless Pakistan's national security establishment reassesses its Kashmir policy and unless New Delhi engages substantively on Islamabad's concerns and with dissident Kashmiris. The way out of this morass is widely

[86] See Michael Krepon and Ziad Haider, eds., *Reducing Nuclear Dangers in South Asia* (Washington DC: The Henry L. Stimson Center, January 2004).

appreciated, but rarely acted upon. This exit strategy points to placing a much higher priority on the well being of Kashmiris – something both governments profess to hold dear, but rarely act upon. If the governments of Pakistan and India were to follow this fundamental guideline, firing would cease permanently along the LoC, the crossings of *jihadis* and human rights abuses would virtually cease, divided families would be free to meet, and trade and development projects would be encouraged across the Kashmir divide. At the same, we also know that, if Islamabad and New Delhi take concerted actions to change course, those opposed to reconciliation will attempt to blow up the process. The best chance of defusing nuclear danger and controlling escalation lies in political engagement. Nuclear risk reduction begins along the Kashmir divide.

— 2 —

Nuclear Stability and Escalation Control in South Asia: Structural Factors

Rodney W. Jones*

When India and Pakistan became overt nuclear weapon states in May 1998, officials as well as opinion leaders in both countries pressed a common theme on western interlocutors: Pakistan and India, they argued, knew all too well the dangers that nuclear weapons posed from witnessing the global superpower rivalry and the strategic arms race during the Cold War. Indians and Pakistanis knew that nuclear weapons were for deterrence of nuclear war rather than for waging it, and they would be responsible stewards of the awesome destructive power in their hands. They would avoid the worst pitfalls the superpowers stumbled into during the Cold War by charting a course of restraint from the outset. "Minimum deterrence" would be their nuclear watchword in South Asia -- India and Pakistan each acquiring just enough nuclear retaliatory capacity to make sure the other believed full-scale war was unthinkable. This would forestall arms race compulsions and the military overspending that exhausted the former Soviet Union. Indian and Pakistani leaders would sidestep the worst-case assessment traps of imputing "first strike" planning and capability to the opponent and thus short-circuit the tendency to inflate minor crises into major ones.

If this brave new world of nuclear minimalism and expected stability ever existed in South Asia, its half-life was hardly perceptible. By May 1999, India and Pakistan were embroiled in the Kargil mini-war under a nuclear shadow. Indian nuclear weapons did not deter covert Pakistani planning and launching of a military probe across the Line of Control (LoC) in Kashmir. Many onlookers concluded that nuclear weapons actually emboldened the Pakistani high command to assume unusual risks in conducting the Kargil operation.[1]

---

* The author would like to thank Michael Krepon, Tariq Ashraf, Ziad Haider, Feroz Hassan Khan, Rahul Roy-Chaudhury, and Ayesha Siddiqa for their valuable comments.

[1] To keep Kargil in perspective, it may be recalled that both sides in the pre-nuclear years had carried out intermittent intrusions across the LoC to test the other side's resilience or gain minor terrain advantages. Moreover, in what arguably was a strategic maneuver within the Kashmir envelope, India occupied the Siachen Glacier in 1984 where the LoC was not demarcated on the ground nor delineated on maps, initiating a high-altitude, low-intensity war there that is ongoing after twenty years. Nevertheless, Pakistan's regiment-scale, cross-LoC operation in the Kargil sector in 1999 was bound to be viewed as more than just another tit-for-tat probe to test the other side's resilience or

Likewise, Pakistan's nuclear weapons did not deter India from responding to Kargil with a wider military mobilization that threatened an expanded war, until the crisis was defused by US involvement.[2] President Bill Clinton gave Pakistan's Prime Minister Nawaz Sharif and the Pakistani military command a face-saving opportunity to pull forces back behind the LoC.[3] Neither did Pakistan's nuclear weapons deter Indian military mobilization and brinkmanship with Pakistan in Operation *Parakram* during the near-year-long confrontation of 2001-2002, in response to a terrorist attack on India's parliament in December 2001.[4]

In short, rather than discourage military crises in South Asia, nuclear weapons may have stimulated or accentuated them and certainly made their occurrence more dangerous. By any common sense understanding of military stability or security equilibrium, the introduction of nuclear weapons to this region was not stabilizing.[5] The United States and coalition operations in the Global War on Terrorism added new cross-pressures to South Asia after September 2001 that may have aggravated the existing nuclear instability. Some of the national expressions of responsible nuclear stewardship and restraint dating back to 1998 in India and Pakistan looked strained, if not jaded, in 2003.[6]

---

achieve a marginal advantage along the LoC, not only by India but also by the international community after the demonstration of nuclear weapons on both sides in 1998.

[2] The threat of expanded war was referred to in local terminology as the option of "horizontal escalation."

[3] For accounts of the US role, see Strobe Talbott, *Engaging India: Diplomacy, Democracy, and the Bomb* (Washington DC: The Brookings Institution, 2004), chps. 8-9; and Rodney W. Jones and Joseph McMillan, "The Kargil Crisis: Lessons Learned by the United States," in Peter Lavoy and Sumit Ganguly, eds., *Asymmetric Warfare in South Asia: The Causes and Consequences of the Kargil Conflict* (Monterey, CA: Naval Postgraduate School) (forthcoming).

[4] India's full-scale military mobilization along the borders with Pakistan in Operation *Parakram* (meaning "valor") reportedly was poised both for a limited war across the Kashmir LoC and a major invasion of Pakistan, allowing policy makers to choose from a wide spectrum of options. See Lt. Gen. (retd.) V. K. Sood and Pravin Sawhney, *Operation Parakram: The War Unfinished* (New Delhi/Thousand Oaks/London: Sage Publications, 2003).

[5] Indian and Pakistani efforts to manage their nuclear instability were visible even in the years before May 1998 when each side's nuclear weapons programs were denied, but their existence was presumed. These management efforts have become more explicit and varied since the overt demonstration of nuclear weapons. See the companion essays by Rahul Roy-Chaudhury, "Nuclear Doctrine, Declaratory Policy, and Escalation Control," and Feroz Hassan Khan, "Nuclear Signaling, Missiles, and Escalation Control in South Asia."

[6] The resumption of Indo-Pakistan diplomatic ties and transportation links in the winter of 2003-2004, and joint commitments to a composite dialogue on bilateral issues and disputes on the margins of the Islamabad South Asian Association for Regional Cooperation (SAARC) summit in January 2004, could be the opening of a more hopeful, new chapter in relations between the two countries. But to the degree the core problems between India and Pakistan remain unresolved, or in the event frictions resume or are intensified once again, the nuclear instability problems examined here are likely to remain serious and will need to be addressed directly with appropriate remedies. See "Only Kashmir: Time is not on the negotiator's side," and "Putting it bluntly," *The Economist*, September 11-17, 2004, pp. 11, 38.

STRUCTURAL CHALLENGES TO NUCLEAR STABILITY

Nuclear stability challenges in South Asia are exceptionally formidable due not only to the intractability of the longstanding Indo-Pakistan rivalry but also because both countries are contiguous and nuclear reaction times are very short. This essay focuses on the structural factors in the Indo-Pakistan security relationship that make it very different from what experts became accustomed to in the global stand-off between the superpowers, especially towards the end of the Cold War. The structural factors in South Asia appear to be especially conducive to military instability, accentuation of crises, and potential nuclear escalation. At bottom, the structural factors add up to an acute imbalance of military power to Pakistan's disadvantage, a condition more likely to worsen than improve. The structural factors as measures of capability, size, or vulnerability are relational between adversaries. They include for either side its defense resources and capabilities, geography and strategic depth, characteristics of military systems and organization, and availability of external allies, as these relate to those of the opponent.[7]

The risks inherent in how these structural factors tend to operate in a competitive relationship need to be understood in order to have the best chance of promoting stable conditions that reduce the chances of nuclear escalation from lesser levels of conflict in the subcontinent. This means showing how structural factors tend to influence the evolution of warfare in plausible Indo-Pakistan conflict scenarios at different levels of conflict, measured in scale and intensity.

The analysis here discounts "bolt out of the blue" nuclear attack scenarios as implausible in the foreseeable future in South Asia -- for political as well as technical reasons. But there are three levels of conventional conflict that recent events make entirely plausible between India and Pakistan (whatever the relative probabilities for the outbreak of conflict in each category) that could sow the seeds of nuclear escalation: (1) all-out conventional war; (2) limited conventional war for circumscribed purposes; and (3) unconventional or low-intensity war, employing guerilla warfare and clandestine methods. Intensity and scale of operations can vary within each category, to be sure, but the point to return to is that the disadvantaged side at any level of conflict will be under pressure to submit, stand its ground, or find a way to escalate.

An escalatory response may be designed to achieve a stalemate, but just as likely would be an attempt to restore initiative and seize an advantage -- through

[7] Each side's nuclear force characteristics, early warning capabilities, and nuclear command and control features also come into play as structural factors that may partially determine how a military crisis plays out and whether mutual nuclear deterrence enables the sides to avoid nuclear escalation or retaliation. The structural features of military capability -- offensive and defensive -- that increase incentives for preemptive attack or that give rise to "use them or lose them" nuclear force dilemmas are, by definition, conducive to nuclear instability and escalation. They can be critical determinants in a fast-paced crisis.

maneuver, by broadening the front, or by application of greater force. Thus an unconventional or low-intensity conflict may escalate to a limited conventional conflict, as did Kargil through India's response in 1999, and a war that opens as a circumscribed conventional operation may escalate to one that broadens into a major conventional war -- the potential manifested in India's *Parakram* mobilization in 2002, and in Pakistan's counter-mobilization.

Some South Asia watchers are inclined to dismiss the possibility of an all-out conventional war between India and Pakistan as a fictional scenario lifted uncritically from "worst case" Cold War analogies. This line of thought seems to assume that it is nearly inconceivable that Pakistan would, as a premeditated action, initiate a major conventional conflict, which may well be true. This line of thought also rules out India initiating such a conflict because India's democratic political establishment would not entertain an offensive war. The latter may or may not be true (the *Parakram* mobilization surely leaves room for skepticism) but in any case this reasoning is a *non sequitur*. The scenario of all-out conventional war must be taken seriously as the basis for both Indian and Pakistani military force size planning and acquisitions. That backdrop, therefore, is the one to start with in this analysis.

The all-out conventional war scenario better highlights the structural factors of nuclear instability, but they do not recede to insignificance at lower levels of conflict and would be easily animated by escalation from lower to higher levels of conventional conflict -- even if decision-makers believe they are not trespassing on the opponent's presumed nuclear deterrent-activating "red lines." But examining the lesser scenarios, especially those of pre-meditated "limited war" is also important not only because of the general escalatory potentials, but also because military planners who believe it necessary to attempt to deter the other side's freedom to initiate "limited war" with impunity are virtually bound to consider the acquisition and deployment of tactical nuclear weapons, among other options, to the existing arsenals.[8]

CONVENTIONAL MILITARY IMBALANCE

In terms of overall national resources and derivative military power, India and Pakistan are obviously far from evenly matched. India, with over a billion people and 1.27 million square miles of territory, is a large power, a giant compared to Pakistan. For the last decade, India's economy has been growing more rapidly than Pakistan's. For conventional defense, India enjoys a naturally extended strategic depth, covering most of the subcontinent. Pakistan is much smaller, but still has a population of over 150 million, roughly equal to Russia's, and a territory of over 310,000 square miles, nearly twice the size of California. For territorial defense purposes, the land border between India and Pakistan extends some 1,800 kilometers. Together with each country's long coastlines,

[8] See the companion essay by Michael Krepon, Ziad Haider, and Charles Thornton, "Are Tactical Nuclear Weapons Needed in South Asia?"

these distances stretch both sides' conventional air, ground, and naval forces. Except for the Kashmir region, the terrain along the Indo-Pakistan border is flat and open to armored penetration.

Today, the conventional military balance between India and Pakistan is highly asymmetrical. It is imbalanced in India's favor against Pakistan, a conventional disparity that continues to widen. This is a pivotal structural factor in assessing conventional and nuclear military instability in South Asia. The implications of this gradual but cumulatively important change in conventional military capabilities for nuclear stability in South Asia are not fully recognized or thought through, and in some circles the facts are even resisted. In the west, this issue has been sidelined by the new preoccupations of the Global War on Terrorism and the coalition's hard slog in post-war Iraq. For Pakistan, as is often the case of a lesser power facing a larger one, national leaders are inclined as a matter of political prudence to emphasize their defense capabilities and their resolve rather than advertise their vulnerabilities. In India's case, not unlike the United States at certain junctures before the Soviet collapse, domestic political debate and competing opinion leaders often highlight and exaggerate defense shortcomings, masking the implications of emerging capabilities. A brief retrospective on the milestones of deterioration in the military balance in South Asia may be instructive.

Pakistan's Deteriorating Posture

In the late 1950s and 1960s, Pakistan was powerful enough militarily to imagine it could shake India's hold over Kashmir, as it tried to do, albeit unsuccessfully, in the 1965 war. But Pakistan never enjoyed an offensive military capacity to invade India deeply, or to press for anything like a strategic advantage, notwithstanding the bravado attributed to Pakistani soldiers in the past. Any former illusions about this in the Pakistani high command were discarded after Pakistan's military humiliation by India in the 1971 war. Even after 1971, however, Pakistan's defensive military capacity to block a sustained conventional assault by India was robust and substantial.[9] But Pakistan's defensive capability has been challenged slowly but steadily, beginning with India's ambitious military modernization of the 1980s and 1990s. By the late 1990s, the Pakistan Army and Air Force could not longer be assured of their ability to force mobilized Indian ground forces to a standstill close to the borders, precluding a deep invasion and buying time to mobilize international pressures for a cease-fire. Pakistani leaders presumably hoped that nuclear weapons would compensate for Islamabad's widening conventional disadvantage.

[9] Ironically, the loss of East Pakistan actually made West Pakistan, the country we know as Pakistan today, more defensible because the bulk of the military manpower and defense resource base was originally from the western portion, and remained essentially intact, especially after a peace agreement permitted the return of Pakistani prisoners of war detained in India after the conflict. Defending East Pakistan was never viable against a determined Indian assault.

Nuclear weapons brought the potential for catastrophic conflict in South Asia to the fore. Total war is now possible and that prospect will shadow and increase the urgency of containing lesser conflicts. Past military conflicts between India and Pakistan (over Kashmir and the secession of East Pakistan, now Bangladesh) were limited in scale and brief in duration. None exacted heavy attrition or involved intense urban bombardment, and none were pursued as a "fight to the finish." Except for the 1971 surrender of Pakistani forces isolated in East Pakistan, none of the past conflicts imposed conditions similar to unconditional surrender, let alone direct occupation or subjugation. On each occasion, casualties and collateral damage were quite limited.

Given Pakistan's continued nurturing of conventional ground forces whose primary mission is withstanding a strategic Indian assault, India still would find it difficult for economic and logistical reasons to pursue an all-out conventional war against Pakistan. It would not be a cakewalk. The economic costs to India of large-scale operations against Pakistan would be severe. But the size and growing lethality of India's modernized conventional forces projects the impression that New Delhi could sustain a high-tempo and potentially decisive war against Pakistan. Islamabad's apprehensions are compounded by India's successful acceleration of economic growth rates and potential economic capacity to sustain a long war.

India's Growing Offensive Capacity

India's extensive military modernization in recent years has greatly improved its capability for modern, fast-paced conventional warfare along its land borders with Pakistan, and this has accentuated Pakistan's vulnerabilities to the effects of a major conventional conflict.[10] India has many suppliers of advanced conventional arms and military technologies and has enjoyed increasing momentum in indigenous defense research and development, and arms production. Subject to Pressler Amendment sanctions between 1990 and 2002, Pakistan has had far slimmer options and much less financial wherewithal to acquire advanced military goods from western sources and has become increasingly dependent on China for major weapons systems, which are cheaper but technologically inferior to those of Russia and the western powers. This has accentuated the disparity between India and Pakistan's leading edge conventional military forces, whether air, ground or naval forces. This disparity is particularly severe in air power.

---

[10] For earlier studies charting India's conventional force modernization and the balance with Pakistan, see Rodney W. Jones, "Old Quarrels and New Realities: Security in Southern Asia after the Cold War, " *The Washington Quarterly* (Winter 1992), pp. 105-128; republished in Brad Roberts, ed., *Foreign Policy after the Cold War* (Cambridge, MA: MIT Press, 1992), pp. 109-132; and Rodney W. Jones, "Principal Purchasers and Recipient Regions -- South Asia," in Andrew Pierre, ed., *Cascade of Arms: Managing Conventional Weapons Proliferation* (Washington DC: The Brookings Institution, World Peace Foundation, 1997), pp. 305-339.

Simple numerical ratios between armed forces personnel and major weapons systems in the Indian and Pakistani order of battle, while invariably at least 2:1 and usually more in India's favor historically, have not themselves changed sharply, except in the naval area where India's forces have expanded and Pakistan's forces have shrunk. What has changed sharply in India's favor are the ability to mobilize rapidly and the ratios of expected combat effectiveness embedded in less easily measured qualitative factors of armaments, organization, and resupply capabilities. The qualitative factors include the characteristics of major weapon systems, the proportions of vintage versus state-of-the-art systems, and their allocation towards offensive strike and defensive missions; the acquisition of high-intensity, offensive war-fighting capabilities that rely on high performance aircraft; the acquisition of mechanized units supported by advanced surveillance and communications, enabling rapid movement, situational awareness, and organizational connectivity; the ability to support war plans that genuinely exploit combined arms coordination; the quality of training of officers and rank and file; and the motivation and morale of personnel. Pakistan's military personnel have maintained a high level of motivation and morale, but the Indian military have made strides in this area too, as demonstrated at Kargil in 1999.

India has forged well ahead of Pakistan in a wide range of conventional military force upgrades.[11] In ground forces the combat capability improvements include: extensive mechanization and mobility, longer-range and heavier armored and artillery firepower, some degree of integrated air defense, mobile sensors, airborne surveillance, and wide-area communications. If employed effectively, these upgrades could enable Indian forces to conduct large-scale, armored, battlefield maneuvers, outflank static defenses, and project firepower and airborne units well behind the forward edge of the battlefield. In air forces, India has acquired leading edge, ground-attack aircraft with laser-guided bombs; high performance fighters with better sensors and fire control; and longer-range air-to-air munitions. India already has rudimentary airborne warning and surveillance aircraft, and will acquire at least three sophisticated Israeli Phalcon airborne early warning and control system (AWACS) aircraft over the next three or four years.[12] India's naval capabilities are also increasing in range and combat support as well as bombardment and anti-submarine warfare capabilities. In broader terms, India has been advancing further and faster than Pakistan along

[11] For numerical trend data in the Indo-Pakistan military balance, separately tracking vintage and modern military systems, see Rodney W. Jones, "Force Modernization Trends - India and Pakistan," in *Conventional Arms Modernization in Asia and the Pacific* (Honolulu: Asia-Pacific Center for Security Studies) (forthcoming). Illustrative graphs may be found at http://www.policyarchitects.org/pdf/ForceModern_IndiaPakistan2.pdf. Also see Rodney W. Jones, "Conventional Military Asymmetry and Regional Stability Among Emerging Nuclear States: India and Pakistan," *Fourth Nuclear Stability Roundtable: Conference on Strategic Stability and Global Change*, March 12-13, 2002, http://www.policyarchitects.org/pdf/NucStability_IndiaPakistan1.pdf.

[12] This naturally has stirred up considerable Pakistani military concern. See Air Commodore Tariq Mahmud Ashraf, "IAF induction of AEW&C^2 aircraft: A paradigm shift in South Asian Air Power Scenario," *Defence Journal* 76 (December 2003), pp. 31-37.

the path of developing combined arms war-fighting capabilities in which the air and ground forces, and special force units, pursue common strategic, tactical, and battlefield objectives rather than merely those that play to the specialties of a single military service. Integrating forces in this manner, when realized operationally, adds significant force multipliers to each facet of combat.

Pakistan, by comparison, has been able to sustain and even gradually improve a substantial array of mechanized ground forces and its internal military communications, but has not been able to modernize or enlarge its air force to keep pace with India. Pakistan's main remaining advantages in blocking Indian ground force penetration are its shorter lines of supply and internal communications, the dug-in fortifications along canals and rivers in the Punjab corridor, and the capacity to re-deploy armored units quickly. Pakistan's facility with redeployment of armored forces is primarily applicable to the Punjab, or northern Pakistan, and to a lesser extent in Kashmir.

Air Power Imbalance

The worst deterioration in Pakistan's ability to fend off a large conventional assault by India, as mentioned earlier, is in the increasing air power imbalance. Pakistan has never had (leaving nuclear weapons aside) more than a pinprick airborne bombing or ground-attack capability against Indian cities or military airfields, as illustrated by the ineffectual Pakistani bombing mission against airfields around Agra during the 1971 war -- the only long-range air strike Pakistan ever attempted. Still, in the 1970s, Pakistan's air force probably could have acquitted itself well enough to defend and maintain control over its own airspace and airfields. This capability could have ensured air cover to ground forces back then to withstand major assaults in Punjab and Sind, but Pakistan's capability for assuring air defense of its own territory has been eroding.

India's ongoing acquisition of high-performance ground-attack and fighter interceptor aircraft (e.g., Jaguar, Mirage-2000, Su-30K and Su-30MKI on the attack side, and upgraded Mig-23s and -29s on the interceptor side), along with laser-guided bombs, beyond visual range (BVR) air-to-air missiles, new air-to-air refueling capabilities (to increase sortie rates) and airborne surveillance platforms, means India has assembled a formidable capacity to attack and potentially disable Pakistan's airfields, and wrest control over Pakistan's airspace. [13] The range of Indian aircraft and Pakistan's narrow strategic depth would enable India to attack most urban areas and airfields in Pakistan within a few minutes of crossing the border. The air distances and times of travel for high-performance aircraft to these targets in Pakistan are minimal. If India

[13] India reportedly has an agreement with Russia to lease four or five Backfire bombers, a supersonic medium-range bomber with large payload capacity that could also reach Chinese cities, especially with air refueling and standoff attack capability. Against Pakistan, this system not only has obvious nuclear implications but also provides India with a platform to drop large payloads of conventional bombs on concentrated military targets.

achieved its objectives of striking Pakistan's airfields and caught a large number of aircraft on the ground, it would leave Pakistan's ground forces exposed to disruptive and potentially crippling air and ground attacks. [14] This objective has been nurtured in Indian air force doctrine for over twenty years, but trends today make this objective increasingly credible.

In short, the growing asymmetry between Pakistani and Indian conventional capabilities from India's incremental but substantial conventional arms build up, and the related capabilities to pursue warfare at higher tempo, at longer range, and with focused firepower, technically means that India probably could -- albeit at high economic cost and heavy international disapprobrium -- conduct a conventional war against Pakistan designed to destroy its conventional military capacity and deprive it of political independence. Prosecution of such a war could, at some point, threaten the collapse of Pakistan's conventional defense capabilities. This in turn would push Pakistan, in order to avert national collapse and presumably as a last resort, to consider the deliberate use of nuclear weapons strategically against India. The increasingly lopsided conventional military balance is the core structural basis of nuclear instability between India and Pakistan today.

Effects of the War on Terrorism

Military instability resulting from the contention over Kashmir has been accentuated by the Global War on Terrorism. Muslim extremists from the Kashmir insurgency can launch terrorist strikes in India's heartland provoking India to engage in punitive retaliation against Pakistan, as India threatened by its mobilization after the December 2001 terrorist attack on India's parliament. The structural aspects of military instability are thus acutely sensitive to terrorist activity. The Bush doctrine of preemption that targets not only terrorists but also the states that harbor them gives India opportune political cover for military action against Pakistan when Muslim terrorists hurt India. Punitive Indian military actions against Pakistan, even if limited in scope, are virtually certain to produce a commensurate military riposte and thus have the potential to expand horizontally into a wider conventional conflict, climbing an escalation ladder whose final rungs imply the use of nuclear weapons.

Shifting External Alliance Relationships

The Indo-Pakistan military balance today has also been altered by shifts in alliance relationships. India's traditional calculation of Pakistan's military weight took Pakistan's Cold War security relationship with the United States into account, as well as Pakistan's friendship with China that began in the

[14] India also has a growing airborne transport capacity to put troops and light equipment on the ground behind interior lines where air superiority may have been established. See Air Commodore Tariq Mahmud Ashraf, "Air Power imbalance and Strategic Instability in South Asia," prepared for conference on Strategic Stability in South Asia, Naval Postgraduate School, Monterey, CA, June 30-July 1, 2004.

1960s. Similarly, Pakistan weighed India's friendship with the Soviet Union and Soviet military assistance in its threat perception. After a hiatus the former Soviet arms transfer relationship with India was revived by Russian arms sales in the mid-1990s. The once close US relationship with Pakistan waned, reaching a low ebb in the 1990s due to friction over Pakistan's nuclear weapons and ballistic missile development programs.

US-Pakistan military cooperation was revived after 2001, in the context of the Global War on Terrorism, but the scope of this cooperation is conditioned by the development of a much closer US-India security relationship than ever before. US interest in India's security concerns builds on India's own support for the Global War on Terrorism as well as on India's regional power potential. In this light, the prospects of India acquiring advanced military equipment from the United States are greater than for Pakistan. Moreover, while China remains a steadfast friend and arms supplier to Pakistan, China and India have evolved a more constructive bilateral relationship that accentuates trade benefits and negotiations on border disputes, downplaying former grounds for hostility. Meanwhile, China's support for Pakistan's claims to Kashmir has abated. The net effect of these political shifts on the Indo-Pakistan military balance is more advantageous to India than Pakistan, and thus reinforces the trends toward greater conventional imbalance described earlier. The United States seeks to balance its interests in the region, recognizing that Pakistani cooperation in pursuing the Global War on Terrorism is vital. Thus, US efforts in the region demand constructive relations with Pakistan as well as India. Nevertheless, longer-range trends are likely to deepen US-Indian cooperation more than US cooperation with Pakistan.

CONVENTIONAL CONFLICT SCENARIOS

As long as the Indo-Pakistan relationship remains hostile and driven by mutual insecurity, war may reoccur. The growing salience of terrorism and the potential for a catalytic act of terrorism almost certainly have increased the near-term chances of war. Three levels of conflict already mentioned -- unconventional, limited conventional, and major conventional -- each carry potentials for escalation from one level of conflict to another, and ultimately to the grim prospect of nuclear exchange. A major conventional war launched by India as a strategic venture to destroy Pakistan's military capacity and presumably subordinate Pakistan permanently remains the key contingency for both side's military requirements and force planning. India's Brasstacks exercise of 1986-87 and its *Parakram* mobilization of 2001-2002 both assembled forces that could have been employed from a standing start to support such a major conventional war effort.

Since India eventually withdrew many of the forces assembled by *Parakram* to peacetime locations, standing down from the confrontation, it has become fashionable for observers to believe that India had decided from the beginning not to launch a major war but rather endeavored to project a credible

threat that could, coupled with anticipated US pressure on Islamabad, compel Pakistan's military leadership to stop the infiltration of Pakistani extremists into Kashmir. It is easier to argue that case in retrospect, particularly since India and Pakistan have returned to negotiations since January 2004. At the time, Indian decision makers probably were not certain of the course of action they would settle on, and there is no doubt that punitive military actions which could have triggered a major war were seriously contemplated.[15] Moreover, another highly visible terrorist attack in New Delhi like that against parliament in December 2001 could have ignited sufficient anger to induce Indian leaders to unleash the forward-based forces assembled in *Parakram*.

The assiduous development in India's domestic military discourse of "limited war" thinking since the Kargil war, and the very recent surfacing this year of "cold start" concepts -- essentially a proactive and punitive use of rapid-action conventional forces for limited objectives, sidestepping a major conventional war and thus stopping well short of Pakistan's presumed nuclear "red lines" -- requires assessment of limited conventional war scenarios and their nuclear escalatory implications. Arguably, the probability of conflict beginning at this level in the foreseeable future is considerably higher than a premeditated launch of a major conventional war. Tracing the relationships between the structural factors in the Indo-Pakistan security environment and those in cold start or limited war initiatives, to the extent that escalation may be avoided, is more challenging. By limiting objectives and scale of attack, India would stop short of pushing Pakistan to the wall, which means not exploiting Pakistan's structural disadvantages fully. But certainly, the structural issues will return to the fore if limited war initiatives by the attacking side provoke innovative responses by the defender, prompting subsequent operations by both sides that spiral into major conventional operations.

Major Conventional War Scenario

Despite its overall size, Pakistan is strategically vulnerable to a fully mobilized Indian conventional invasion mounted simultaneously in separate corridors along Pakistan's north-south axis, and also vulnerable to naval action that could embargo traffic into and out of Pakistan's ports. Pakistan's geographically confined trunk lines of communication between the main international port of Karachi in Sind province to the south and the Punjab

[15] Sood and Sawhney's account has New Delhi coming very close to initiating a limited war across the LoC in Kashmir in the first week of January 2002, and then again in June 2002, with a military offensive both in Kashmir and with armored strike corps in the Thar Desert. (*Operation Parakram*, op. cit., pp. 59-63) They note, "Vajpayee publicly regretted not going to war with Pakistan after December 13 [2001, after the attack on parliament], admitting that it was a mistake [not to do so]." (Ibid., p. 60) "In hindsight," they conclude, "three observations could be made about India's plans in June. First, the army did not believe in the concept of a limited conventional war [but rather in a major conventional war]. Two, the army believed that Pakistan would not use its nukes early in a war. Most importantly, it appears that the Indian political leadership was deterred by Pakistan's nukes more than Pakistan was by India's putative nuclear second-strike capability." (Ibid., pp. 82-83)

heartland in the north could be severed by a large-scale, air-supported, armored incursion. The vulnerability is further accentuated by the proximity to India of Pakistan's key urban centers in Punjab, particularly Lahore -- which is hardly thirty miles from the border opposite Amritsar, and potentially subject to long-range artillery bombardment from Indian soil. This sector of central Punjab has been the favored avenue for India's past armored incursions into Pakistan. While border areas are fortified on both sides, taking advantage of the main rivers and many feeder canals in that sector, the distances to vital centers in Pakistan's interior are short, and obstacles can be surmounted by combined arms operations.

From India's border in Rajasthan to Pakistan's trunk lines of communication at the junction of southern Punjab and Sind is a mere fifty to sixty miles of essentially flat, desert terrain. Traversing this distance with armored columns given close air support, Indian forces could sever Pakistan's north-south trunk railway and road links between Rahim Yar Khan and Sukkur. Unresisted and with the offensive force well prepared, such an operation on the desert flats could be carried out in two or three days. With expected fierce resistance, it is still possible that Indian forces could break through and squeeze Pakistan's jugular within two or three weeks. Such operations have been part of Indian military force planning, doctrine, and exercises since the tenure of General K. Sundarji, Indian Chief of Army Staff, in the mid-1980s.

The strategically disabling major conventional war scenario of cutting Pakistan in two could be amplified by an Indian naval blockade of Karachi and Gwadar, stopping imports of petroleum, oil, and lubricants (POL) as well as other seaborne strategic goods.[16] Such action was hinted at by Indian naval

[16] Pakistan's vulnerability of having a single international shipping port at Karachi, and all its combat ships potentially "bottled-up" at adjacent Qasim Naval Base, has long been a concern for Pakistan. Plans have been explored over the years for the development of new international-class port facilities at Gwadar (little more than a fishing village) and for additional naval facilities, northwest of Karachi on the 700-kilometer Makran coast in Baluchistan province, which borders Iran. Implementing these objectives was hampered by the large capital costs for enlisting foreign construction companies not only to create and dredge new shipping facilities and channels along the desert terrain of the Baluchistan coast, but also the additional cost of building urban infrastructure, e.g., power and fresh water facilities, jet-handling airfields, and solid highways across the arid terrain, to interconnect these coastal areas with roads on a northward axis directly to the interior as well as with Karachi to the southeast. Engaging western contractors and financing was also set back by the Pakistani nuclear testing in the Chagai Hills of Baluchistan in 1998. In the late 1990s, however, implementation moved forward on a 1992 plan to build a second naval facility, the Jinnah Naval Base, capable of handling submarines and surface ships, 240 kilometers from Karachi at Ormara. Construction was in the hands of the Turkish firm, STFA. General Pervez Musharraf inaugurated the Jinnah Naval Base in June 2000, after the first phase of construction and channel dredging had been completed. Report from Pakistan Television (PTV) National News Bureau, June 22, 2000, available at http://www.globalsecurity.org/wmd/library/news/pakistan/2000/000622-pak-ptv1.html. In a May 2001 visit to Pakistan, Zhu Rongji, then China's Prime Minister, pledged $240 million in assistance to the 1992 plan to build a deep-water port at Gwadar, and an additional $200 million to build a 650 kilometer coastal highway linking Karachi and Gwadar, apparently in return for certain Pakistani commitments related to Chinese mineral extraction concessions in Baluchistan. A former Indian intelligence analyst has written that China was lured to make these pledges by

preparation and movements in the Kargil limited war in the summer of 1999, and on a larger scale during the full military mobilization of 2001-2002.

If a major conventional war scenario unfolded along these lines, intense international pressure would be exerted on India to stand down its invasion and withdraw forces behind the international border. This expectation of intervening pressure from abroad is one of Pakistan's expected lifelines, although not regarded as a substitute for attending to its own means of defense. International pressures might well prevail, but they might also fail.[17] If India were to brush aside international pressure and continue, or step up, its conventional combat efforts and try to pursue them to a quick conclusion -- which could imply Pakistani loss of territory, a Pakistani military defeat, or Pakistani political submission -- the Pakistani leadership almost certainly would deploy combat-ready nuclear forces and seriously consider how to employ their nuclear options.

A nuclear "bolt out of the blue" scenario of the sort imagined by US and Soviet planners at the apex of the Cold War seems highly improbable in a South Asia context. Such a scenario also seems unlikely between China and India. Several Cold War political and technical conditions that affected superpower confrontational dynamics are missing in Asia. No relentless ideological rivalry exists in Asia today and, unlike divided Europe after World War II, China and the two South Asian powers do not exercise extended deterrence over other states in far-reaching alliance systems. All three Asian states lack the intelligence assets and large inventories of highly accurate, long-range, nuclear-strike systems that posed a strategic surprise attack threat during the Cold War. If reports are to be believed, India and Pakistan have not, so far, deployed nuclear strike systems in prompt response modes. This last condition, however, is subject to change with time.

Almost all plausible scenarios in South Asia for the deliberate initiation of planned strategic nuclear strikes would arise after the outbreak of conventional war, and generally would become realistic only when one side is winning and the other side appears to be losing badly. The deployment and readiness to use tactical or air-delivered nuclear weapons to offset or preempt major

---

Pakistani promises to grant China concessions to build a naval signals monitoring facility on the Makran coast (opposite the Strait of Hormuz on the Arabian Sea), and assurances for berthing facilities for its naval vessels at Ormara as well as Gwadar. See B. Raman, "Chinese Activities in Balochistan," South Asia Analysis Group, paper no. 259, June 18, 2001, available at http://www.saag.org/papers3/paper259.html.

[17] The brevity of past Indo-Pakistan conflicts has been dictated, in part, by both sides having insufficient wartime consumables (e.g., ammunition and equipment spare parts) for a sustained war. Both have also faced shortages or logistical bottlenecks in the supply of POL to active forces. It is quite likely that these would remain serious constraints on India's capacity to pursue an intense conventional war for more than a few weeks. International reactions could also ensure that these constraints would be felt earlier rather than later. While these constraints can be anticipated, there is no guarantee that New Delhi's calculating them in advance would prevent the launch of a major conventional war or that a sorely provoked India would be halted by their effects within a few weeks of the onset of war.

conventional setbacks would complicate the picture considerably, making it possible for nuclear crises to arise very early after a conventional conflict has begun. Were Pakistan to announce that it was deploying tactical nuclear weapons and did so among selected armored or infantry units, for example, a nuclear crisis would be in full swing. Any notional Indian calculations of where Pakistan's red lines might be crossed by Indian operations in a limited conventional war, or a cold start type of operation, could become more mobile and blurred.[18] If Pakistan's actions did not cause India to pause in its conventional offensive operations, and if India similarly were to declare and deploy tactical nuclear weapons, and show signs of bringing nuclear weapons to a high state of readiness, Pakistan's options in response would be stark: either to attempt to force the conventional action to a stalemate by conventional means (aided by international support if it is available), to fire a nuclear weapon in an uninhabited area as a warning shot, or devise a tactical nuclear attack against Indian conventional military forces to break their momentum. Once any nuclear strike is carried out, the odds of escalation probably far outweigh chances of halting that conflict without further nuclear attacks.

Nuclear crises not triggered by the onset of conventional warfare (with or without the tactical nuclear weapons deployed in the order of battle) are conceivable in South Asia from at least three other sources. One is a general military crisis in which forces have been mobilized for rapid action and one side mistakenly believes that the other is preparing for strategic nuclear strikes early in an impending conflict. Another is the possibility that a terrorist attack would inflict large-scale destruction on an urban locality on one side, after stealing or covertly assembling and successfully detonating a nuclear weapon. A third, although perhaps the least likely to trigger an immediate nuclear retaliatory response, would be an act of sabotage at a nuclear installation that disperses nuclear materials, or a terrorist incident that disperses radioactivity by detonating chemical explosives enclosing a radiation source.[19]

The second and third scenarios of high-profile terrorist or saboteur action clearly would generate much more intense pressure on decision makers if they were to occur when the opposing armed forces are already mobilized and ready for conventional war, or have actually begun hostilities. The pressure exerted would be even greater if tactical nuclear weapons were deployed or if there were

---

[18] Lt. Gen. Khalid Kidwai, chief of Pakistan's Strategic Plans Division in the nuclear command and control hierarchy, outlined criteria describing in general terms thresholds at which Indian conventional aggression could force Pakistan to consider a nuclear response. See the report by Italian visitors of their interviews with Pakistani officials and experts: Paolo Cotta-Ramusino and Maurizio Martellini, *Nuclear Safety, Nuclear Stability and Nuclear Strategy in Pakistan* (Como: Landau Network, January 2002). For an assessment of Kidwai's points, see Rodney W. Jones, "South Asia Under the Nuclear Shadow: Is Stable Nuclear Deterrence Feasible?" *The Friday Times* (Lahore), February 22-28, 2002, available at http://www.policyarchitects.org/pdf/stablenucleardeterrence.pdf.

[19] See Kishore Kuchibhotla and Matthew McKinzie, "Nuclear Terrorism and Nuclear Accidents in South Asia," in Michael Krepon and Ziad Haider, eds., *Reducing Nuclear Dangers in South Asia* (Washington DC: The Henry L. Stimson Center, January 2004).

signs that strategic nuclear weapons were being readied for use. There would be a temptation to assume that terrorist or sabotage acts were covert extensions of the other side's military campaign, even though the terrorist or saboteur operation could be quite independent in origin.

While a nuclear "bolt out of the blue" between India and Pakistan is highly unlikely, once a major conventional conflict is under way, the side that believes itself most likely to lose could decide to prepare itself to carry out a pre-planned strategic nuclear strike as retaliation for the heavy toll it would have absorbed. In response to the inception of a full-scale conventional war begun by its opponent, in order to try to get the opponent to scale down its offensive or even to stand down, it could threaten its adversary's survival. This is the position that Pakistani military planners apparently believe they must be prepared for as a possible outcome of a full-scale war launched by India.

Moreover, in this scenario -- with conventional warfare already underway and Pakistan's defenses coming under acute strain -- it is conceivable that both Indian and Pakistani military planners would feel compelled to take precautions against the other side escalating to the nuclear level. Pakistan would fear an Indian conventional preemptive campaign to destroy its nuclear assets before they could be used.[20] India, similarly, would worry about Pakistani leaders contemplating a nuclear decapitation attack.[21] A decapitation scenario would mean attacking the other side's national capital and targeting its leadership nodes with nuclear weapons to shut down its central decision-making system, either to halt its offensive campaign abruptly, or failing that, to preempt coherent nuclear retaliation, or limit its scale and effectiveness. If either side becomes convinced that its opponent is preparing a nuclear decapitation attack, however

[20] The threat of Indian airborne conventional preemption of Pakistan's nuclear assets first surfaced in the 1980s as an attack on the uranium enrichment facility at Kahuta and has been an underlying theme in press and think tank commentary. President Musharraf's September 18, 2001 address to the nation touched on this Indian threat as justification for Pakistan's decision to join the US-led Global War on Terrorism without delay. See *Dawn*, "Highlights of President Musharraf's Address to the Nation," on-line edition, Sept. 19, 2001. Of the several reasons he set forth, the most graphic was India's unprecedented offer of the use of its air bases for US and coalition operations against the Taliban regime in Afghanistan. This would have meant foreign military overflights of Pakistan's territory to Afghanistan, but could also have masked Indian surprise air attacks on northern Pakistan. Allowing US use of Pakistani air bases closer to Afghanistan obviated the Indian offer.

[21] A senior Indian journalist, Raj Chengappa, who interviewed insiders after the 1998 nuclear tests on their recollections of milestones in India's development of nuclear weapons and delivery systems, reports that prime minister Rajiv Gandhi took the first steps to protect India's national leadership against a nuclear decapitation attack from Pakistan. Chengappa writes, "After Rajiv's orders in 1986, [defense R&D chief] Arunachalam launched a cautious drive to enhance India's state of nuclear preparedness. ... [Rajiv] wanted a command and control centre setup which could not only withstand a nuclear attack but have sophisticated communications systems from which the prime minister could direct the country's armed forces during a war. Arun Singh [then minister of state for defense] was told to set up a national command post at a secure location near the capital." See Chengappa, *Weapons of Peace: The Secret Story of India's Quest to be a Nuclear Power* (New Delhi: Harper Collins Publishers India, 2000), p. 304.

remote that contingency might seem prior to hostilities, that side might feel compelled to strike first.

Given air power trends, a future Indian preemptive or disarming strike need not necessarily be nuclear. A conventional disarming strike against those Pakistani strategic nuclear assets that may be stored in fixed sites -- based on initial surprise, and then on an extended air campaign -- is at least theoretically conceivable. Such a campaign probably could not quickly find and target mobile nuclear missiles that had already been dispersed in the field or even camouflaged nuclear-capable aircraft at dispersed airstrips. But such a campaign might be aimed at destroying strategic nuclear weapon components in storage sites -- if all those sites are known or can be identified early in the course of operations. The objective would be to prevent nuclear weapon assembly and mating with strategic delivery systems. Indian conventional air strikes against air bases and other high-value military facilities in Pakistan are part of routine Indian military planning and could be unleashed as punitive measures to a severe provocation, as a prelude to a punitive invasion on the ground, or as further retaliation for a Pakistani conventional response to an Indian punitive attack. Pakistan's efforts in recent years to augment its anti-aircraft defenses could make a difference, but it is not clear they could blunt a determined offensive air campaign. Air defense systems would also be early targets for suppression in an air campaign.

This scenario not only is theoretically conceivable but also conforms to India's military air mission objectives in a full-scale conventional war with Pakistan. How successful India would be in attacking airfields and crippling Pakistan's aircraft inventory, or in destroying nuclear weapons or missile delivery systems in storage, faces a number of imponderables. Pakistan's nuclear storage facilities presumably are below ground and well camouflaged; and they probably are concentrated in northern Punjab, amidst ground forces that could be mobilized quickly to counter commando raids. In addition, Indian intelligence means might be successful over time in identifying critical sites that have distinctive signatures associated with nuclear weapons. For Pakistan to be sure it can defeat this Indian objective, it presumably has emergency dispersal procedures for dedicated aircraft and missile delivery systems, and may be prepared, even under attack, to keep moving nuclear weapon assets and delivery systems out of harm's way. But movement of these systems under such duress could shorten their fuse.

If these Pakistani aircraft and mobile missile system dispersal and concealment efforts were only partially successful and significant attrition of those strategic assets occurred, the Pakistani leadership would almost certainly consider threatening to use surviving strategic assets for retaliation, before all were lost. If India contemplates conventional preemptive attacks on air bases and other ground-based military facilities, one may surmise that Pakistani strategic nuclear assets are likely to come under attack as well. It then follows

that Indian conventional posture and doctrine are intrinsically destabilizing. For its part, Pakistan would not have the conventional bombing reach to present a similar threat, either to interior Indian air bases or to sensitive Indian strategic facilities -- unless, in the course of a crisis, some of the latter are located near the borders.

Limited Conventional War Scenarios

The chances of nuclear escalation arising out of a limited conventional conflict clearly would be much less than from a major or all-out conventional conflict. Much would depend on whether a limited conventional conflict escalates in steps toward a major one, due to either side seeking to redress setbacks suffered from the other's offensive, with iterative expansion of the war. The process of escalation of conventional conflicts from one level to another is the issue of immediate concern here.

Not surprisingly, most of the contemporary public discussion of limited conventional war as a viable offensive option surfaces in India. Pakistan does not have a large menu of plausible options for limited offensive military actions against India. Pakistan certainly could organize and employ limited conventional thrusts that would have a chance of inflicting damage, occupying salients across the Punjab border, and tying down some opposing forces, but not without risk of impairing its main blocking capacity against a major Indian invasion. If India conducted limited operations with the advantage of surprise and suffered few losses, Pakistan would likely respond, at least in proportion to the provocation, and would attempt to exploit gaps in Indian defenses at points of Pakistani choice. More likely than not, this would be seen by India as escalatory, and perhaps begin a chain of actions and reactions.

Indian military thinking has been evolving since Kargil toward concepts of limited conventional military action against Pakistan that proponents believe would not cross Pakistan's nuclear red lines, and therefore would discount Pakistan's nuclear deterrence. The US shift after September 11 to explicit policies of military preemption against international terrorism provides natural cover for this new Indian military thinking.

The principal focus of limited war options when they first surfaced in Indian debate in 1999 was along the LoC regions of Kashmir, with the effects of the Kargil mini-war fresh in mind. The main thrust was on the feasibility of using limited military strikes to interdict infiltrators from Pakistan, and to attempt to destroy or shut down so-called "terrorist training camps" believed to be located around Muzaffarabad in the western and most heavily populated part of Pakistan-held (Azad) Kashmir, adjoining Punjab province. The operational concept for such strikes apparently involved combined fighter aircraft ground-attack sorties and helicopter-borne special force operations intruding across the

LoC without warning.[22] These strikes might be accompanied by artillery barrages immediately across the LoC, ostensibly attacking infiltration routes but also tying down opposition infantry forces locally. In the aftermath of such strikes, India naturally would draw attention to US precedents before and after September 11 in using cruise missile strikes against al Qaeda and Taliban training camps in the mountains of Afghanistan.[23]

Doubts that such strikes would be effective against infiltrators or disruptive of training activities must have affected calculations on the Indian side. The primary objective of such strikes would have been political -- to draw world attention in a graphic way to the problem as India sees it of terrorist infiltration into India, and to ramp up leverage on Pakistan to clamp down on *jihadi* organizations. Precisely because the effects would be more political than military, proponents might argue that Pakistan could afford to absorb such strikes without a direct military response. But the odds are that Pakistan would retaliate with some form of artillery and air strikes at least on Indian military posts near the LoC, and perhaps with fighter aircraft sorties against Indian security force staging areas deeper in Kashmir, to satisfy its own public that it has means and the will to retaliate against India.

After September 11, and particularly after December 13, 2001, when India ramped up Operation *Parakram*, the concept of Indian surprise air attacks on training camps in Azad Kashmir assumed a far higher sensitivity. Surprise air attacks on localities near Muzaffarabad (using mountainous terrain to conceal the approach) would bring Indian aircraft or helicopters only minutes away from such sensitive defense-related facilities in Pakistan as the Kahuta uranium enrichment plant, and co-located or nearby nuclear storage facilities, not to speak of the constellation of Pakistani military infrastructure nearby in Rawalpindi and satellite areas. There was palpable concern in Islamabad at that time -- partly because of sensational articles in the western media speculating about foreign intervention to lock down Pakistani nuclear assets thought to be in danger of diversion to terrorist entities -- that Indian attacks directed ostensibly against terrorist targets might provide cover for expanded strategic attacks on Pakistan's nuclear assets.[24] Pakistan would have had to confront the question whether air retaliation against Indian military positions in Kashmir would have invited Indian escalation against strategic targets.

---

[22] Sood and Sawhney, *Operation Parakram*, op. cit.
[23] "Clinton Defends Military Strikes," *BBC News*, August 20, 1998, available at http://news.bbc.co.uk/1/hi/world/africa/155252.stm; "U.S. missiles pound targets in Afghanistan, Sudan: Retaliation for bombing of U.S. embassies in Eastern Africa," *CNN.COM*, August 20, 1998, available at http://www.cnn.com/US/9808/20/us.strikes.01/; Andrew Koch, "Air and missile strikes herald new phase in the fight against terrorism," *Jane's Defence Weekly*, October 7, 2001, available at http://www.janes.com/security/international_security/news/jdw/jdw011007_1_n.shtml.
[24] Seymour Hersh, "Watching the Warheads: The Risks to Pakistan's Nuclear Arsenal" *The New Yorker*, October 29, 2001.

India stood down Operation *Parakram* in the fall of 2002 without consummating any combat military operation against Pakistan. While Pakistanis and most westerners breathed a sigh of relief, the military discourse in India continued. Critics of India's withdrawal without launching even limited strikes opened up a new line of thinking, characterized as cold start operations in the Indian media.[25] This concept trades on the value of having mobilized operational forces always ready to conduct limited punitive strikes against Pakistan, sliding as suggested earlier under the threshold of Pakistan's red lines. In the case of cold start, however, the focus was no longer on striking terrorist training camps in Pakistan-held Kashmir but rather on striking high-value Pakistani military facilities in Pakistan proper.

Ostensibly, the cold start concept places a premium on elite strike force units of the Indian Army and Air Force cooperating in a combined arms framework, to reach across, or circle around, the opponent's concentrated defensive positions, to concentrate firepower on selected targets deeper in the opponent's territory, and to do so quickly. After achieving their initial objectives, the intruding forces would either secure, hold, and facilitate reinforcement of a band of occupied territory -- or withdraw -- before the main conventional ground forces (corps organizations with multiple divisions and ancillary brigades) could move to engage. The assumption, highly debatable, is that this would avoid the outbreak of a major conventional war.[26]

Whether this cold start thinking is a form of public relations, a heuristic tool for military self-education, an exercise in feinting and the art of psychological warfare, or merely wishful thinking remains to be seen. Or like *ju jitsu*, it could be interpreted as a real military thought process that seeks a new operational concept that could draw the opponent's strike and defensive formations off balance. Pakistan's reliance on heavy ground forces and lackluster air force may have difficulty responding to rapid maneuvers that reached beyond their normal staging areas further into Pakistan's interior, even briefly. Those who dream of making India a so-called "hard state," and believe they must pursue that objective indirectly might view cold start as a vehicle for doing so.

While we may not know for some time whether the cold start concept will actually be adopted by the Indian military as the basis for operational planning, the thought process is indicative of a desire in at least some circles to be able to respond actively and militarily to Pakistani unconventional war provocations. This will affect Pakistani perceptions of contingencies that require military responses. It would not be surprising to find Pakistan's military doctrine

---

[25] Shishir Gupta, "No Eyeball to Eyeball Any More in New War Doctrine," *Indian Express,* March 6, 2004; "'Cold Start' to new war doctrine," *Times New Network*, April 14, 2004, http://times of india.indiatimes.com/articleshow/616847.cms.

[26] For a Pakistani military critique, see Brig. (retd.) Shaukat Qadir, "India's 'Cold Start' strategy," *The Daily Times* (Lahore), May 8, 2004 and "Cold Start: the nuclear side," *The Daily Times*, May 16, 2004.

becoming more receptive to the development and deployment of tactical nuclear weapons to counter India's cold start options.[27]

NUCLEAR FORCE STRUCTURE AND STABILITY

Since May 1998, fragmentary information about Indian and Pakistani nuclear forces, operational capacity, and elements of command and control have emerged, although the numbers, readiness status, and employment plans for these nuclear delivery capabilities remain murky in many respects.[28] Currently, one can assume that each side has stockpiled at least fifty to sixty nuclear weapons (perhaps up to 100 in India's case) that can be prepared for use on short notice.[29] It is now generally accepted that both India and Pakistan initially developed airborne nuclear weapons suitable for external carriage by tactical ground-attack aircraft, while pursuing missile development programs. By 1998, both evidently were developing or had developed nuclear warheads shaped to fit the cylindrical confines of the front sections of short- and medium-range ballistic missiles, and these designs may have been validated in the May 1998 nuclear tests.

For airborne nuclear delivery, India apparently chose to configure the Mirage-2000H with pods for external carriage under the airframe belly, and possibly considered options to employ the Jaguar S(I), MiG-27M, and Su-30MKI as nuclear platforms, as well. For its part, Pakistan presumably relies on the F-16 (and has options to employ the older Mirage-5) for airborne atomic bomb delivery.[30]

India and Pakistan also have developed and tested nuclear-capable, ground-based ballistic missiles, mounted on mobile launchers. India's existing missiles for missions against Pakistan are the single-stage, liquid-fueled *Prithvi* (a

---

[27] See the companion essay by Michael Krepon, Ziad Haider, and Charles Thornton, "Are Tactical Nuclear Weapons Needed in South Asia?"

[28] For a study of India's and Pakistan's nuclear capabilities, postures, and policies, see Rodney W. Jones, *Minimum Nuclear Deterrence Postures in South Asia - An Overview*, Final Report by Policy Architects International for DTRA/ASCO, October 2001, available at http://www.dtra.mil/about/organization/south_asia.pdf.

[29] Estimates of the annual output of weapons-grade nuclear material, quantifiable as "nuclear weapon equivalents," are compiled for both Pakistan and India through 2000 in Jones, *Minimum Nuclear Deterrence Postures,* Ibid. Projecting these numbers out to the year 2004 by the same methodology would suggest even higher figures could be achieved than the conservative stockpile estimates used here. *The Military Balance, 2003-04*, (London: IISS, 2003), Table 3, "Operational Nuclear Warheads," p. 229, attributes to India and to Pakistan forty-plus "sub-strategic" nuclear warheads each.

[30] Raj Chengappa's account suggests that India first attempted to mate externally carried nuclear weapons pods with the Jaguar and later shifted to the Mirage-2000 for this mission. See Chengappa, *Weapons for Peace*, op. cit., pp. 327 and 382-84. There is no reason to assume that India has limited its airborne nuclear strike weaponization to the Mirage-2000H. For Pakistan's nuclear-capable F-16, see Tariq Mahmud Ashraf, "Air Power Imbalance and Strategic Instability in South Asia," prepared for conference on Strategic Stability in South Asia, Naval Postgraduate School, Monterey, CA, June 30-July 1, 2004.

surface-to-surface adaptation of the Soviet SA-2 air defense missile in two versions, one rated for 150 km with a 1,000 kg payload, and the other for 250 km with a 500 kg payload), the two-stage *Agni* missile (demonstrated to ranges upwards of 1,200 km) that probably is to be based on railroad car launchers, and a more recently developed, Pakistan-specific, *Agni I* variant.[31] India reportedly intends to retrofit its *Brahmos* adaptation of the Russian-supplied *Yakhont* anti-ship, cruise missile so that it can be fired either from naval ships or from Su-30 MK-I attack aircraft. This cruise missile apparently could be used as a standoff system with either conventional or nuclear weapons.[32]

Pakistan has acquired several types of road-mobile, nuclear-capable ballistic missiles, shorter-range types being solid-fueled, and longer-range types that are liquid-fueled.[33] Comparable in range to the *Prithvi*, the *Hatf II (Abdali)* single-stage, solid-fuel missile probably has a range of between 180 and 200 km. The *Hatf III* single-stage, solid-fuel missile with a range of about 300 km, and the *Hatf IV (Shaheen)* single-stage, solid-fuel missile with a range of about 600 km, resemble the Chinese export types designated M-11 and M-9, respectively.[34]

---

[31] The *Agni* missile has been developed, reportedly, with distant China as well as nearby Pakistan in mind and has been tested in three versions, with a fourth, intended to be of longer range, under development. *Agni* originally was built in the late 1980s as a hybrid, using much the same liquid-fuel motors as the *Prithvi* for the second stage, and a solid rocket motor similar in size to the Scout Space Launch Vehicle for the first stage. The first variant (*Agni I*) was demonstrated in various tests to ranges between 900 and 1,200 km, and the second variant (*Agni II*) to ranges between 1,200 and 2,000 km, each with notional payloads of one ton (or 1000 kg). A third variant now officially (and confusingly) referred to as *Agni I* is specifically designated for missions against Pakistan and was tested with a one-ton payload on January 8, 2003 to a range of 700 km. This Pakistan-specific missile reportedly weighs twelve tons and evidently uses only solid-fuel propulsion. It presumably is lighter in weight than the variants with the liquid-fuel engines, and easier to mount on road-mobile transporter-erector launchers (TELs), or on the railroad launch cars India reportedly has been developing. A fourth variant (*Agni III*) intended for ranges closer to 3,000 km (using three solid-fuel stages) with a one-ton payload reportedly is under development. See *The Military Balance, 2003-2004*, (London: IISS, 2003), p. 131.

[32] Ibid. The Russian *Yakhont* (and India's *Brahmos* variant) is a subsonic cruise missile carrying a solid-fuel kick-stage for a final boost of the payload to supersonic speed. Rated at 290 km in range when surface-launched using the supersonic boost-stage, the missile airframe may be capable of longer ranges if used only in a subsonic mode or when launched from aircraft. One may assume this cruise missile is nuclear-capable, if equipped with a small enough nuclear warhead. Whether India could deploy a nuclear-armed cruise missile without further warhead testing is unclear, but India claimed that low-yield (possibly miniaturized) nuclear weapon devices were included in the series of Indian nuclear tests on May 16 and 18, 1998.

[33] The *Hatf I* was based on a French-origin solid-fuel "sounding rocket," and was developed as a short-range battlefield missile with a range of about 60 km carrying a 500 kg payload. This system theoretically could be nuclear-capable but there are no credible reports that this is (or ever was) a nuclear-equipped missile. Although *The Military Balance, 2003-04,* op. cit., p. 140, lists an inventory of 80+ *Hatf I* missiles, others doubt that it is even in military service. The *Hatf II* may be a two-stage, end-to-end version of the *Hatf I* boosters, and, like the Indian *Prithvi*, would be considered nuclear-capable. It is possible that the inventory of 80+ missiles that *The Military Balance* reported actually should be attributed to the *Hatf II*.

[34] The Chinese designation of the M-9 is DF-15, and of the M-11 is DF-11. Note that some confusion exists in the various published sources regarding the Pakistani designations of its own missiles (e.g., on *Hatf* sequence numbers, and on the names *Shaheen*, *Shaheen II, Shadoz, Abdali,* and *Ghaznavi*). See the Federation of American Scientists website for discussion of the

Pakistan's longer-range *Ghauri I* (single-stage, 1,000-1,500 km range), reportedly now operational, and *Ghauri II* (two-stage, 2,500 km range), still in development testing, are liquid-fueled missiles that are believed to be based on the North Korean *No-dong* and *Taepo-dong* missiles, derived originally from Soviet Scud technology.

Classical strategic deterrence theory has tended to suggest that a robust level of nuclear deterrent stability between a pair of nuclear-armed rivals would depend on two interrelated conditions. First, each must have a credible capability for delivering nuclear weapons against valued targets in the opponent's homeland in sufficient numbers to dissuade the opponent from believing it could gain critical advantage by initiating nuclear war. Second, each must be able to count on the survivability of sufficient strategic nuclear assets in the event of a hypothetical preemptive strike by the opponent to be able to conduct a retaliatory strike that inflicts unacceptable damage.

This nuclear deterrence reasoning evolved from superpower experience during the Cold War. It also rested, in part, on extensive tactical nuclear weapons deployments and the credibility of extended deterrence protecting allies. Deterrence theorists did not suggest that limited conventional wars between the superpowers or allied coalitions were impossible, but that they would be too dangerous to initiate in Central Europe for fear of nuclear escalation. The result was the division of Europe in a political stalemate, until the Warsaw Pact and Soviet Union collapsed. Central strategic deterrence did not suspend geopolitical and military competition in other forms, nor did it preclude local wars through proxy states and entities outside Central Europe. But under the nuclear deterrence conditions then prevailing, especially after the Cuban missile crisis, the superpowers self-consciously steered away from initiating limited wars in Europe or direct collisions between their regular armed forces and those of European allies, even devising maritime rules to limit the risks of accidental naval military engagement on the high seas. They also eventually developed arms control agreements that served, among other purposes, to reduce the perceived risk of strategic preemption.

These conditions are clearly quite different from the situation that prevails in South Asia. While the east-west strategic confrontation was essentially bipolar, the Indo-Pakistan nuclear relationship is not isolated, at least in Indian perceptions, from China as a major Asian nuclear power. Another key difference between nuclear South Asia and the former superpower nuclear relationship is that a rough parity was established between the latter at both strategic nuclear and conventional levels. In South Asia, the conventional military relationship between Pakistan and India is asymmetrical and likely to become more so over time. Consequently, whatever tolerance each side may believe it has for

---

characteristics of these Chinese missile systems and what is believed to have been exported to Pakistan. For the M-9, http://www.fas.org/nuke/guide/china/theater/df-15.htm, and for the M-11, http://www.fas.org/nuke/guide/china/theater/df-11.htm.

experimentation with limited conventional conflict, this practice is exceedingly dangerous from the standpoint of nuclear stability, and absent a normalization of relations, it is likely to become more so. In a context in which limited conventional war is considered acceptable, it would seem likely that deployment of tactical and battlefield nuclear weapons in South Asia would further contribute to crisis instability.

The characteristics of Indian and Pakistani weapon systems, deployment procedures, and force structures generate other sources of instability. One is that India relies on calculated ambiguity regarding the warheads for its short-range *Prithvi* missiles.[35] Pakistan's ballistic missiles are inherently dual-capable as well, particularly the solid-fueled types with ranges between 200 and 600 kilometers. The Indian *Prithvi* was developed as a platform for both conventional and nuclear warheads by civilian technologists and imposed on the military, rather than designed or procured to support objective military requirements.[36] As far as India's Army and Air Force were concerned in the 1980s, the *Prithvi* would be militarily useful as an offensive bombardment missile for air base suppression, using conventional submunition warheads to destroy exposed aircraft, blast through hangars, and disrupt runways. But *Prithvi* also has been reported as having been tested and weaponized as a nuclear delivery system. When nuclear-capable *Prithvis* are launched with conventional ordnance against air bases, how would Pakistan know from its ground-based radar system that nuclear weapons are not on the way, or would not immediately follow? If Pakistan launches one or more M-11s or M-9s in the general direction of cities as well as military facilities in India, will Indian operators hold back action until they land to see if they are conventional or nuclear?

Theoretically, aircraft have the advantage of being recallable, unlike ballistic missiles. Aircraft can be scrambled for survivability or launched in a particular direction to warn of the preparedness to attack, but can turn around and return to airfields or dispersed landing strips, rather than actually carry out an attack. Once ballistic missiles are launched at real targets, they are committed; the recall option does not exist. This distinction between aircraft and missiles often discussed in the US-Soviet context means much less in the subcontinent, where India and Pakistan are contiguous and the flight distances between aircraft launch points and key targets on both sides are counted in a few minutes rather than in hours.

---

[35] The Indian government apparently has not officially declared the *Prithvi* missile to be a nuclear system, nor has it declared the missile to be an exclusively conventional system. Most of those who have followed *Prithvi's* development, however, including well-informed Indian journalists, have concluded that it is a nuclear-capable system and intended to send that message. Chengappa's account clarifies that the policy makers and the designers intended it to be a nuclear delivery system and he refers to work done to mate nuclear weapons to the Prithvi in 1996-97, just prior to its initial deployment at Jalandhar, near the Punjab border, in September 1997. (*Weapons of Peace,* Ibid., see pp. 319-320, 361, 418).

[36] See Raj Chengappa, *Weapons of Peace*, op. cit., pp. 374-75.

India's inclusion in its nuclear force structure of the *Prithvi* as a short-range, dual-capable, ballistic missile is inherently destabilizing. This missile has doubtful military utility unless equipped with a nuclear warhead and it has poor survivability characteristics. *Prithvi* must be positioned fairly close to the borders to be able to target air bases in Pakistan, but is, when so deployed, visible to air surveillance. A *Prithvi* system could easily be targeted and destroyed at its launch site by any state-of-the-art, ground-attack aircraft. Being liquid-fueled, it is slow to move to a pre-surveyed site and to prepare for a launch. Its liquid fuel makes the system highly combustible under attack. Although described as a mobile system, it is not easy to hide or move in a "shoot-and-scoot" mode, because of its ungainly design and large retinue of about a dozen support vehicles. Once in the field, it is a lucrative and vulnerable target for conventional attack.[37]

Given that *Prithvi's* commonly advertised mission is suppressing air bases with conventional munitions, Pakistan's Air Force would be virtually compelled, in the event India begins hostilities, to attack any *Prithvi* batteries it discovers near the border. Would such a strike cross an internally determined but never explicitly announced Indian red line? What if one or more *Prithvi* missiles were nuclear-tipped, and the bombing discharged a *Prithvi* nuclear warhead on Indian soil?

Forthcoming additions to India's conventional and nuclear-related force structure include the Israeli-supplied Phalcon airborne warning and surveillance system, and perhaps the Israeli Arrow ballistic missile defense system.[38] India and the United States are reported to have discussed the possibility of US supply of Patriot tactical ballistic missile interceptor systems.[39] Whether the Phalcon surveillance platform would be able to detect and track flights of Pakistani ballistic missiles in their boost, midcourse, or terminal phases (which involve different velocities and radar cross-sections) has not been disclosed, but seems doubtful. The Phalcon would enable India, however, to detect and track flights of Pakistani aircraft within a radius of up to 300 or 400 km from its flight position, providing warning of Pakistani air attack and intercept data for Indian

[37] Writing before the Indian and Pakistani nuclear tests in May 1998, Neil Joeck's trenchant critique of *Prithvi* is worth reviewing. See his *Maintaining Nuclear Stability in South Asia*, *Adelphi Paper* No. 312, (London: International Institute of Strategic Studies, 1997), pp. 68-69.

[38] The Arrow interceptor uses US-origin components and US approval is required for transfer. At this writing, no US approval has been announced. Israel reportedly has been transferring to India some version of its indigenously developed Green Pine phased array radar that Israel uses to detect and track the incoming missiles that Arrow interceptors are designed to engage.

[39] The first version of the American Patriot system was developed for air defense only. Currently, two Patriot systems, which represent distinct technological generations, are deployed or being produced as tactical anti-ballistic missile systems. The Patriot II interceptor uses a fragmentation (high-explosive) warhead as the kill vehicle, operates within the atmosphere, and would be considered a point-defense system. Patriot III uses a "hit-to-kill" (kinetic) kill vehicle with infrared sensors that function above the atmosphere, at higher altitudes, and thus provides limited area coverage. It's not clear whether Washington would be prepared to transfer Patriot III or share its kill vehicle technology with India.

fighter aircraft.[40] Pakistan has no comparable capability on order vis-à-vis India, although both fly unmanned air vehicles (UAVs) for surveillance close to the border.[41] At the very least, India's Phalcon capability would be seen in Pakistan as increasing Pakistan's uncertainty about the penetration rate of its nuclear-delivery aircraft in the event they are called upon, and a strong incentive to acquire long-range surface-to-air missiles.[42] These acquisitions reflect the existence of an ongoing arms competition that impinges on the nuclear balance, and therefore on the degree of mutual nuclear deterrent stability that might be achieved.

While the Phalcon would pose a new obstacle to Pakistani aircraft penetration, India's acquisition of theater anti-ballistic missile defense systems could reduce Pakistani missile penetration rates and thus could erode, at least marginally, the credibility of its missile deterrent. Depending on what missile interceptor systems India actually acquires and whether they could be used in ascent-phase and therefore area defense, as well as point defense, their deployment could shrink somewhat the areas from which Pakistani missiles would be safely launched and shorten their reach towards targets deep inside India. A greater Pakistani concern might be that these technology transfers would open the door for India to obtain even more sophisticated military technologies, offensive as well as defensive. Since Pakistan might not be able to acquire or afford active missile defenses of its own, its incentives in response would be to increase its inventory of offensive missiles, diversify the areas of mobile missile dispersal, develop penetration aids, procure sea-based launch platforms -- as India already plans -- and probably add cruise missiles as nuclear delivery platforms. If a competitive dynamic persists between India and Pakistan under these conditions, deterrent stability calculations would become more complex, the demands on command and control more severe, and the chances of accident and miscalculation greater.

NUCLEAR COMMAND AND CONTROL

An effective nuclear command and control system is vital to the projection of nuclear deterrent stability and exercise of escalation control during a military

---

[40] Precise figures for the power and range of the Phalcon's phased array radars and emission detection and location sensors are not publicly advertised but those for the aircraft detection and tracking radar are given as "several hundred kilometers," even for low-flying aircraft. See http://www.globalsecurity.org/military/world/israel/phalcon.htm.

[41] Pakistan could, in principle, obtain some high-altitude surveillance functions from sensors held aloft by tethered balloons, and from other high-altitude, light aircraft with long loiter capability.

[42] The response proposed by an experienced Pakistani Air Force pilot is acquisition of the Chinese mobile FT-2000/HQ-9 anti-radiation SAM system with a slant range of about 100 km, up to an altitude of 18 km, which would force Indian AWACS aircraft to stay well behind the international border and reduce the depth of their visibility into Pakistan. See Tariq Mahmud Ashraf, "Countering IAF AEW Capability: Options for the PAF," *Defence Journal* 81 (May 2004), pp. 111-115. For advertised characteristics of this Chinese high-altitude SAM system, see http://www.sinodefence.com/airforce/airdefence/ft2000.asp and http://www.globalsecurity.org/military/world/china/ft-2000.htm.

crisis.[43] The nuclear command and control system is the interface between political authority and nuclear weapons systems. The command and control system consists of personnel and hardware or related technologies. Failures can be either human or mechanical, or both. The objectives of a nuclear command and control system are to ensure even under the threat of impending war or initial hostilities that threat assessments, warnings of attack, and damage assessments are conveyed promptly and meaningfully to the top decision levels and that decisions made to alert or exercise nuclear weapons, or arm and launch them against assigned targets, if necessary, are implemented reliably and on time-sensitive schedules. Normally, a nuclear command and control system must integrate operators in different military services, each with distinct weapon systems and often with distinct organizational cultures, under a unified command. Command and control systems are vulnerable to failure or breakdown, and failures or breakdown during a time of crisis could be sources of catastrophic decisions or operational errors.

A robust command and control system is one that has built-in buffers to review and confirm intelligence assessments, redundant and hardened communication channels, protection against communication intercepts, methods to verify that communications are functioning throughout the system, and procedures to ensure safe and secure nuclear weapon custody and operation of delivery systems. But command and control centers may themselves be designated targets of nuclear attack, and even if they are not, are vulnerable to conventional war damage as well as nuclear effects. No modern nuclear command and control system has ever been tested under realistic conditions. Over time, new technologies and hardware were invented to help prevent unauthorized access or arming of nuclear weapons, to make nuclear weapons less sensitive to shock and fire, to ensure reliable communications over long distances, and to improve the survivability of weapons and communications links under attack.[44] The learning curve for developing and employing these technologies and procedures, and instilling them in personnel was incremental, long, and costly.

Western anxieties about Indian and Pakistani nuclear command and control reflect decades-long experience with nuclear safety, and other technical and procedural issues, coupled with uncertainty as to whether these generic difficulties are recognized and are being addressed effectively. One well-publicized western fear after September 11, 2001 was that al Qaeda or other terrorist networks might penetrate Pakistan's nuclear establishment and steal nuclear weapons or nuclear material. Another stems from the extraordinary doubts raised about the reliability of Pakistani physical security and personnel

[43] Military command and control systems today are often referred to in abbreviated form as C^4I^2 which denotes "command, control, communications, computers, intelligence and (digital) information." The simpler formulation of "command and control" is used throughout this essay.
[44] For an overview, see Ashton B. Carter, John D. Steinbruner, and Charles A. Zraket, eds., *Managing Nuclear Operations* (Washington DC: The Brookings Institution, 1987).

reliability procedures following the disclosures in 2003-04 of Abdul Qadeer Khan's black market sales of Pakistani nuclear technology to Libya, Iran, and North Korea. While sensational disclosures of this kind have not arisen in the Indian context, concerns also exist about the generic integrity of Indian nuclear security measures against insider threats.

Little is known beyond anecdotal accounts whether, or specifically how, India or Pakistan may have resolved such generic nuclear command and control issues as assuring unbroken communications and central control over nuclear release authority in a crisis; ensuring nuclear weapons safety and security against handling accidents or inadvertent detonation of weapons in transit; executing alerting procedures of nuclear delivery systems without causing the other side to assume that an attack is imminent; and effectively sealing off access to nuclear weapon components and sensitive information from insider as well as outsider threats.

Much is made in Pakistan of the fact that a dedicated national command authority and nuclear command and control organization has been set up with multi-service involvement, suggesting that stored nuclear weapons are already under professional military custody and a designated organizational chain provides for their operational control by trained military units in the event of emergency. In India, much has been made of the fact that stored nuclear weapons components have been kept under civilian control and custody, the fissile cores in the Department of Atomic Energy's constellation of facilities, and the other components in the Defense Research and Development Organization (DRDO) facilities. Practitioners hint that operational procedures for military command and control over nuclear weapons at a time of need have been conceived and are being worked out pragmatically behind the scenes. India and Pakistan are understandably reticent about disclosing their technical approaches in this area for fear that public disclosures would compromise their nuclear security vis-à-vis each other and create risks of penetration by malefactors within their respective societies or international criminal networks.

Four potential structural challenges to escalation control under current command and control arrangements are worthy of comment. One already discussed is the limited geographical space for operations, especially for Pakistan, and the short flight times of delivery systems to targets, which place tremendous stress on intelligence and early warning. Another derives from existing limitations on national technical means of intelligence and surveillance that deprives both of adequate early warning. A third arises from the likelihood that the reported low-readiness status of nuclear weapons in India, and perhaps in Pakistan as well, would be transformed into permanently deployed systems at higher levels of readiness. The fourth arises from the potential temptation to deploy tactical and battlefield nuclear weapons, in addition to strategic forces that are presumably reserved for deterrence.

Feroz Khan in his companion essay provides an extensive discussion of the natural tension between centralized (assertive) control and decentralized (delegated) responsibility in the command and control hierarchy, as it relates to the precautionary dispersal of mobile ballistic missiles and stored nuclear warheads during a crisis, to protect the deterrent against possible preemptive attack. The same tension presumably exists with aircraft nuclear delivery systems, since dedicated aircraft and their armaments are also subject to dispersal in crisis. The issue is applicable to India as well, although perhaps less urgently in a crisis, because most Indian delivery systems -- with the exception of the *Prithvi* -- are likely to be located in India's interior beyond Pakistan's easy reach.

Ensuring the retention of central control (release authority) over mobile delivery systems -- whether aircraft or missiles -- becomes problematic in decapitation scenarios. In a nuclear war, communication links between central authorities and decentralized aircraft squadrons or missile units are likely to be disrupted. The desired central control criterion is to be able to preclude arming of air-delivered bombs or missile warheads until a positive command, presumably an encrypted one, is transmitted through secure channels. But if this communication on which field units depend could be disrupted, the usability and credibility of the deterrent forces may decline. To resolve this problem could entail delegating release authority, and whatever technical prerequisites that involves, ahead of time to the local commander. In the event national command links are broken, this could free the local commander to decide on his own initiative to dispatch aircraft (or, if airborne, to drop ordnance on targets) or launch live missiles, following predetermined plans. But this pre-delegation of launch authority also increases the chances that local commanders would make mistakes, panic, or take matters into their own hands. Pre-delegation also could play into the hands of a faction within the armed forces, or a rogue commander who has a war-triggering agenda, remote though these dangers may be. Being able to maintain a known capability for assured retaliation, even through pre-delegation, may be a critical ingredient in convincing an adversary to back away from continued confrontation, and to pursue de-escalatory actions instead.

Deployment of nuclear-equipped short-range missiles and gravity bombs as tactical nuclear weapons, or even closer-in battlefield nuclear weapons, would place much greater stresses on nuclear command and control systems by compressing response timelines further and by involving a much larger array of military operators. Aircraft squadrons and mobile missile units dedicated to strategic response would normally be segregated operationally from conventional battlefields, free to concentrate on a single deterrent mission. The use of nuclear weapons on the battlefield would inherently be escalatory and probably unpredictable in its impact on centralized decision-making.

MOVING FORWARD: PRACTICAL STEPS

The dispute over Kashmir and each side's jockeying to advance a solution on its own terms, using force to hold the line or to change the *status quo*, is the crux of the political and military conflict between India and Pakistan. The most fruitful way to avoid the negative consequences of structural imbalance between the two powers is to avoid military crises and limited war ventures, conventional and unconventional.

Nothing would do more to shrink the role of military crises and dampen enthusiasm for limited war initiatives in Indo-Pakistan relations than a durable solution on Kashmir. A durable solution would need to reflect the interests of Kashmiris. A step in this direction would be two-way freedom of Kashmiri movement, e.g., by opening the Srinagar-Muzaffarabad road to individual and legitimate commercial transit. Progress in negotiating a solution would be furthered by convincing Pakistani steps to disengage from the armed insurgency in the Indian-held areas. This could be demonstrated by active efforts to shut down the infiltration of armed Pakistani volunteers across the LoC, linked with equally convincing steps by India to scale down its extraordinarily large military and paramilitary presence deployed in the Valley and along the LoC to suppress the insurgency.[45] Genuine efforts by New Delhi are needed to find common ground with the mainstream dissident as well as militant indigenous Kashmiri groups on the future of Kashmir.

The United States has eschewed a mediating role in the Kashmir dispute, but has intervened politically during crises, as in Kargil, to facilitate disengagement of clashing forces. In mid-2002, the United States obtained implicitly linked commitments from Pakistan to block infiltration across the LoC, and from India to begin dialogue with Pakistan on Kashmir. With improved, if not always intimate relations with both sides, the United States should discreetly, patiently, and methodically encourage further conciliatory movement and negotiations by both countries.

With the Global War on Terrorism, US forces are now present in the region and PACOM and CENTCOM detachments carry out joint military exercises with India and Pakistan. It should be unmistakably clear that US military activities or support in no way signifies implicit approval for unilateral offensive operations, conventional or unconventional, by one country against the other. US security cooperation managers should quietly stress Washington's aversion to military exercises, plans, and pronouncements that have obvious escalatory potential, or are likely to put stress on nuclear use thresholds in either country.

---

[45] Ironically, redeployment of main line Indian Army units from Kashmir to the plains could actually increase the conventional ground force invasion threat to Pakistan, e.g., in the Punjab sector, at least in the near term, unless redressed by negotiated limits on conventional force concentrations near the border in peacetime.

The fact that the military structural imbalance in South Asia exists and is likely to widen suggests strong reasons for finding ways to assure the systemic safety, security, and stability of strategic and nuclear command and control arrangements. Cooperation in this area has been delicate, almost taboo, for legal and political reasons, and US or western actions would have to be carefully formulated and implemented to avoid treaty impediments. Nuclear Nonproliferation Treaty (NPT) restrictions forbid parties from assisting states to acquire or take control over nuclear weapons. This would prohibit direct assistance to new nuclear-weapon states with nuclear command and control. NPT obligations stand in the way of offering technical improvements or mechanisms for nuclear weapons, even to improve their safety against accidents or to retrofit safeguards against unauthorized use, because it is difficult to differentiate these features from ones that would also enhance the host's capability to deploy and use nuclear weapons. These restrictions would not necessarily stand in the way, however, of expert consultations focused on good practices and earlier lessons learned that could be applied to organizational, training, and safety procedures. Nuclear security consultations could provide an avenue for improving personnel screening and physical security practices. They could also provide an avenue for objective discussions on historical incidents, close calls, and things that could go wrong in foreseeable contexts, stimulating Indian and Pakistani examination and scrutiny of their approaches.

Cooperative threat reduction measures that might take hold in bilateral discussions between India and Pakistan should be encouraged. These could provide indirect buffers against certain command and control shortcomings, and generate commitments on both sides to develop effective accident-response, risk-reduction, and crisis management tools and procedures. Dialogue already exists on confidence-building measures that could serve these purposes, e.g., jointly staffed risk-reduction centers and regulations governing notification of missile flight tests, or tests of other systems, to forestall false nuclear alerts. The revitalization of certain confidence-building measures, such as the agreement concerning non-intrusion zones for military flights along the borders, could well serve nuclear stability purposes, as would agreed restrictions on the proximity to the borders of strike force concentrations. A variety of confidence-building and demilitarization measures related to reducing military tension and infiltration across the LoC in Kashmir have been circulated in bilateral working papers and reviewed in the analytical literature, and should be given serious consideration.

Given that the natural geographical and demographic basis of the military imbalance cannot be altered and that the imbalance will grow, it is necessary to think through the consequences of any major arms and technology transactions that would tilt the military imbalance even further. It would be reckless for the major supplier countries to ignore the effects on local military stability of major arms and military technology transfers to regions defined by new nuclear rivalries. Analyzing and adjudicating the effects on military balances and nonproliferation incentives of transactions in this issue area is not easy, but

failure to address these issues in comprehensive policy evaluations would be imprudent.

Russia, the United States, China, Iran, Saudi Arabia, and Israel each have major cards in their hands, whether in energy resources, financial capability, or arms transfer options that could affect nuclear stability concerns in South Asia. Ballistic missile and submarine acquisitions were important story lines in the 1990s, each having a nuclear subtext. Ballistic missile defense and airborne or overhead surveillance systems are at the head of the queue today. The introduction of cruise missiles has begun. Gaining improved means of early warning could contribute to crisis-prevention and nuclear stability, but this can depend in practice on whether the early warning is available to both sides, and on whether the instruments that serve early warning purposes are employed instead as offensive force multipliers, to guide missiles or aircraft to newly found targets. Missile defense is intrinsically appealing if it can buy time for crisis decision-making and bilateral communication, or for leadership and asset survivability, thus restraining the impulse to respond at the nuclear level. If, however, missile defense deployment is perceived to erode one side's deterrence credibility in favor of the other, or to multiply offensive options, it would have destabilizing effects.

The United States should seek better-calibrated policies towards its partners in South Asia than those in effect, following the twin shocks of the 1998 nuclear tests and of 9/11. Washington has had leverage in this region since 1999 that it did not have in the decade before, due to its improved post-Kargil relations with India and its post-9/11 relations with Pakistan. The United States cannot escape the national security priorities of the Global War on Terrorism, or the fact that key perpetrators of that terrorism were and still are embedded in this region. But nuclear security issues of the subcontinent need to be placed on at least an equal plane with the Global War on Terrorism. No one can afford to suffer through the consequences of a nuclear war in South Asia, or allow the peril of nuclear-armed terrorists to arise and migrate from this region. The chances of both are inextricably connected with the degree of continued nuclear rivalry and military confrontation between India and Pakistan. Winding down their mutual threats cannot be done without their willing engagement in cooperative objectives that can captivate popular support. This in turn is unlikely to crystallize without strong international affirmation and incentives. American leadership should endeavor to set that direction.

– 3 –

India's Escalation-Resistant Nuclear Posture

Rajesh M. Basrur*

The nuclearization of South Asia has inevitably raised the fear that deterrence might not be stable enough to sustain the kind of strategic equilibrium that developed during the Cold War. The possibilities for escalation, many of which have been discussed elsewhere in this volume, are indeed numerous. But while there is certainly reason for concern, there is ground for optimism as well. Critics justifiably point to the periodic eruption of crises between India and Pakistan both before and after the 1998 tests. But the fact remains that despite their intractable rivalry, despite a history of repeated wars and crises, and despite the very high level of tension that nearly brought full-scale conventional war in 1999 and 2002-03, neither India nor Pakistan has gone beyond nuclear rhetoric and symbolism to actually brandish its nuclear hardware at the other. That South Asia, possessing as it does all the ingredients that evoke fears of crisis, war, and nuclear conflagration, has yet to see the actual deployment of nuclear weapons presents a puzzle that has yet to be adequately explained. Below, I attempt to unravel one major part of this puzzle by showing how Indian thinking about nuclear weapons and India's nuclear posture are essentially restrained, durable, and resistant to pressures for escalation. Though the focus here is on India, it is noteworthy that in many respects Pakistan's nuclear thinking and practice have been very similar.

India's declared doctrine of "credible minimum deterrence" does not articulate clearly what is meant by the terms "credible" and "minimum." Public discussions and statements have been Spartan in content, saying little about hardware requirements, deployment, thresholds, and the relationship between different levels of sub-nuclear and nuclear conflict.[1] Interviews suggest a picture of considerable ambiguity about these and related issues. This leaves open the question of what India's nuclear posture might look like a decade or two from now. On one hand, the Indian position is minimalist, opting for a small and (so

* The author would like to thank Michael Krepon and Arpit Rajain for their valuable comments.

[1] For major official and quasi-official statements, see Prakash Nanda, "PM Unveils Doctrine of Minimum Credible Deterrence," *Times of India*, August 5, 1998; Government of India, Ministry of External Affairs, *Draft Report of National Security Advisory Board on Indian Nuclear Doctrine*, August 17, 1999; "India Not to Engage in A Nuclear Arms Race: Jaswant," (Interview), *Hindu*, November 29, 1999, http://meadev.nic.in/govt/indnucld.htm (accessed on January 15, 2002); and "The Cabinet Committee on Security Reviews Operationalization of India's Nuclear Doctrine," Press Release, Ministry of External Affairs, Government of India, January 4, 2003, http://meadev.nic.in/news/official/20030104/official.htm (accessed on February 19, 2003).

far) non-deployed arsenal. On the other, as critics have pointed out, Indian nuclear doctrine is open-ended in its unhurried search for a range of capabilities, notably the development of a triad and the acquisition of missile defense capability.[2]

The essential features of Indian thinking about nuclear weapons may be outlined as follows: 1) nuclear weapons are not central to national security; 2) a nuclear arsenal does not require large, ready-to-use forces to deter an adversary; 3) apparent imbalances in capabilities are tolerable; and 4) nuclear confidence building and arms control are desirable if strategic stability is to be obtained. Accordingly, in the nuclear era – which, if one excludes the 1974 test, dates back to the late 1980s, when India began to accumulate the first of its bombs in the basement – governments across the political spectrum in New Delhi have sought no more than a relatively small and non-deployed capability. Non-deployment greatly reduces the risk of crisis escalation, while tolerance of imbalances inhibits the long-term escalatory process of arms racing. The latter is complemented by a persistent interest in institutionalized restraint. It is notable that, unlike the United States and the Soviet Union, which came to the brink of nuclear war in 1962 before they began to build bridges of restraint, India and Pakistan signed their first nuclear-related confidence-building measure (CBM) not to attack each other's nuclear facilities as early as 1988, when they had scarcely crossed the Rubicon of acquiring nuclear weapons.

Might this change? As India's nuclear edifice grows, the inconsistent elements in its doctrine could well be subject to pressures that cause New Delhi to drift away from nuclear minimalism to a more expansionary form of doctrine and practice. The pulls and pushes of newly perceived threats and organizational interests may be the drivers of change. Below, I assess the potentialities for change in India's choices about nuclear hardware and posture, particularly with respect to the question of deployment. The appraisal is based on a series of interviews with individuals closely connected to policymaking conducted between mid-2003 and mid-2004.[3] I attempt to gauge whether policy makers today are satisfied with national deterrence capabilities, and whether they see a need for enhancing capabilities or changing India's nuclear posture. Changes such as active deployment or competitive acquisitions are likely to invite strategic repercussions in India's relationships with both Pakistan and China. I follow this up by assessing the prospects for change should environmental conditions be transformed.

---

[2] See, e.g., P. R. Chari, "India's Nuclear Doctrine: Confused Ambitions," *Nonproliferation Review* 7, no. 3 (Fall-Winter 2000), pp. 123-135. Notably, official doctrinal statements do not even mention critical issues such as missile defense and the relationship between nuclear and sub-nuclear levels of conflict.

[3] Because many of the conversations were conducted in confidence, I avoid citing names, with some exceptions. Of those that can be named, I owe thanks to Bharat Karnad, General V. P. Malik (retd), Rajesh Rajagopalan, Arpit Rajain, and Air Commodore Jasjit Singh (retd).

CURRENT PERCEPTIONS OF SUFFICIENCY OR INSUFFICIENCY

The formulation of nuclear doctrine and strategy in India involves inputs from a number of sources. From the military side, inputs are routed through the Ministry of Defense (MoD), which pulls together thinking in the Perspective Planning Division and the Directorate of Net Assessment, Integrated Defense Staff. The military is also represented in the National Command Authority (NCA) and, less directly, in the National Security Advisory Board (NSAB) that has a staff function. The civilian side is more strongly represented. Apart from the MoD, the Disarmament Division of the Ministry of External Affairs (MEA), the National Security Council Secretariat (NSCN), and the NSAB play a role, with some inputs from the Cabinet Secretariat and the Prime Minister's Office. The National Security Council (NSC) constitutes the upper level of decision-making, and final decisions are made by the Cabinet Committee on Security (CCS), chaired by the Prime Minister. A key person in this structure is the National Security Adviser (NSA). Under the National Democratic Alliance (NDA) coalition of Prime Minister Atal Behari Vajpayee, one individual played a key role. Brajesh Mishra, Principal Secretary to the government, not only headed the NSAB, but also sat in the NSC and the CCS and was a member of the inner circle of the Prime Minister's advisors. Following the formation of the United Progressive Alliance (UPA) coalition government of Prime Minister Manmohan Singh in 2004, the national security advisory function has been divided. Former Foreign Secretary J. N. Dixit, the new NSA, is in charge of external security, while a former intelligence official, M. K. Narayanan, as Special Advisor to the Prime Minister, is responsible for advising on internal security. The latter has, at his own request, a purely advisory function.

It is too early to say what these changes might mean for nuclear strategy except that the NSA's narrowed jurisdiction should allow him to pay greater attention to nuclear issues than was the case with his predecessor.[4] The new Minister for External Affairs, Natwar Singh, is also a former Foreign Secretary and is likely to play a significant role in nuclear policy formulation. None of this implies any significant change in policy orientations. India's minimalist strategic culture with respect to nuclear weapons, established by its first Prime Minister, Jawaharlal Nehru of the Congress party (which today leads the UPA coalition), is likely to remain largely unchanged under the Singh government.[5]

The armed forces have in practice a relatively limited role in doctrinal decisions or in determining posture. This is largely the result of a deeply rooted

[4] I have argued elsewhere that Indian strategy during the Kargil crisis of 1999 and the India-Pakistan crisis of 2001-02 failed to comprehend the complex linkage between nuclear, conventional and sub-conventional conflict despite attention having been drawn to this by non-government experts. See Rajesh M. Basrur, "Coercive Diplomacy in A Nuclear Environment: The December 13 Crisis," in Rafiq Dossani and Henry Rowen, eds., *Prospects for Peace in South Asia* (Stanford, CA: Stanford University Press) (forthcoming).

[5] Rajesh M. Basrur, "Nuclear Weapons and Indian Strategic Culture," *Journal of Peace Research* 38, no. 2 (March 2001), pp. 181-198.

reluctance on the part of the ruling political elite to permit them to play a major part in determining security policy. Both these aspects of nuclear policy are civilian-driven, dominated by the NSA. However, it appears that the civilian bodies which have a nuts-and-bolts understanding of nuclear strategy, the NSAB and the NSCN, play a relatively limited role in formulating India's nuclear stance today.[6] Though time will tell, there is some expectation that the UPA government will review and revamp the NSC and give it a more prominent role in policy making than before.[7] The nuclear-scientific community is often credited with a significant role in policy making. In practice, while it is true that nuclear scientists have generally been strong advocates of the bomb, there is no evidence of their being able to determine the agenda of even relatively weak political leaders. Nuclear decisions have always been political decisions.[8] However, nuclear scientists associated with the development of missiles do push for expanding capabilities and will continue to do so. If the threat environment deteriorates, they are likely to find a sympathetic ear in the policymaking community.

This brief overview provides the basis for an assessment of official thinking today, which is fundamentally minimalist and hence both stable and escalation-resistant. Because the military does not have a significant say, operational pressures relating to issues such as deployment and force expansion are very limited. Have the requirements for minimum deterrence been met? In the main, official circles do not feel that they have. In particular, there is a widely felt need for three components of a minimal deterrence capability. The first is a capacity to deter China effectively, for which the 3,000 km-range *Agni III* intermediate-range missile, still under development, is seen as a necessity. China is not currently seen as a threat, but there are significant concerns about its intent in aiding Pakistan's missile and nuclear programs. Some feel there is a need to target Beijing specifically, while others do not see this as a necessary requirement. After all, as the respected thinker K. Subrahmanyam, has noted, "Will the Chinese risk Kunming and Chengdu at present and even Shanghai and Guangzu later…for any conceivable political, military and strategic objective?"[9] But the push for a China-specific deterrent is not characterized by a sense of urgency, which is not surprising considering the positive trend in Sino-Indian relations. The *Agni III* is slated for testing in 2004.

So far, China has not taken India's nuclearization seriously but that will almost certainly change. Once the *Agni III* is inducted into the Indian arsenal, there is likely to be a new dynamic in Sino-Indian relations. Chinese threat

---

[6] The first NSAB, which put together the Draft Nuclear Doctrine of August 1999, was more influential, but its successors have not enjoyed a similar stature.
[7] Siddharth Varadarajan, "Revamp of National Security Council on Cards," *Times of India*, May 31, 2004.
[8] Basrur, "Nuclear Weapons and Indian Strategic Culture," pp. 189-190.
[9] K. Subrahmanyam, "Not A Numbers Game: Minimum Cost of N-Deterrence," *Times of India*, December 7, 1998.

perceptions and targeting policies are bound to be reassessed and changes therein will inevitably call for a response from the Indian side. However, barring an unforeseen downturn in Sino-Indian relations, not much change may be expected. It is unlikely that technical dynamics will drive nuclear strategy toward major changes in either country. Their relationship now rests on a political foundation that envisages setting difficult issues like their boundary dispute aside and focusing on areas of mutual benefit such as trade and investment. New Delhi does not express an interest in catching up with China, and India is unlikely to seek more than a minimal deterrence capacity against that country. The possibility of an escalation in tensions driven by nuclear-technological competition is remote. It should be noted that there is no serious perception in India of a need to develop intercontinental-missiles in the foreseeable future because no threat requiring this capability is anticipated.

A second felt need is for a triad. It is not quite clear as to why this is considered necessary. The usual argument, based on thinking drawn from western assured destruction literature, is that submarine-based warheads are least vulnerable to a first strike. This is by no means deducible from a specifically minimum deterrence standpoint in which deterrence rests on the risk faced by the adversary rather than on one's own invulnerability.[10] In practice, organizational interests and perceptions do seem to play an unacknowledged role in bolstering such arguments. The scientific community is certainly interested in the development of a sea-based platform, while the politics of inter-service rivalry ensures that all three arms of the military get a piece of the cake.

More generally, there is no clearly enunciated basis for the requirements of minimum deterrence as yet. While Indian strategic culture acts as a restraining factor, the lack of a well thought out and consistent doctrine allows considerable open-endedness in Indian nuclear thinking and practice. The question "how much is enough?" is not yet being asked in policymaking circles. In part, this reflects an awareness that to make any quantifiable commitment is to render oneself vulnerable to pressures from the international "nonproliferation lobby," which is viewed with much contempt but also a degree of apprehension. In part, it is also the result of an unarticulated perception that nuclear weapons are not really a problem area because India has enough to deter Pakistan and because China is not a major worry for the foreseeable future. The result is that future uncertainties are the basis of a hedging strategy that is open-ended but not driven by a desire to get anywhere quickly. As things stand, this is not worrisome. But if India's strategic relationships with China or Pakistan were to deteriorate, there would be scope for an expansionary, arms-racing process of the Cold War type, though within the constraints posed by strategic culture and

[10] The obvious criticism is how can an adversary be certain that one will not be able to retaliate with even one weapon from a single leg? Minimum deterrence, after all, is based on the contention that "one bomb on one city is unacceptable." K. Subrahmanyam, "A Credible Deterrent: Logic of the Nuclear Doctrine," *Times of India*, October 4, 1999.

cost. There is a need – as yet unrecognized by officialdom – for a clearer conception of minimum deterrence doctrine to prevent this from happening.

The third area where the necessity for improved capability is sensed is command and control. The need for integrating command and control capability more fully is a subject of some concern, and organizational matters are still being sorted out. While precise information on this is not available, it appears that technical requirements relating to more effective command and control, such as permissive action links (PALs), are still to be obtained. Western thinking is dominated by the fear that the attainment of such capability is likely to result in active deployment, but that is very unlikely as there is a strong awareness of the associated risks. Missile defense capability is also considered necessary to protect major assets and has been sought persistently for some years. More about this is discussed below.

The overall picture is that barring unexpected changes in the nature of external threats, there is no likelihood of internally driven shifts in doctrine or practice. Even at the height of tension with Pakistan, during both the 1999 Kargil conflict and the 2001-02 compound crisis, nuclear weapons never seriously entered the picture other than verbally. Like Sherlock Holmes's dog that did not bark (in this case twice), this absence was significant. It reflected well-entrenched Indian (and Pakistani) inhibitions about nuclear weapons based on an acute awareness of the risks accompanying them. There seems to be a sense that there is already second-strike stability vis-à-vis Pakistan, and that this will be achieved relatively soon with respect to China. Above all, there is no sign of significant civilian-military differences over nuclear matters. As mentioned earlier, civilian control remains tight. Beyond that, while military officers do seek greater inputs into policy, their perspective on major issues like deployment and hardware is not very different from that of the civilian leadership. Notably, there is no pressure from the armed forces for tactical or "battlefield" weapons and "warfighting" capability, nor for testing to ensure greater reliability of weapons systems. The possibility of small nuclear weapons for use against military targets has been raised within the armed forces, but has found no support from senior military officers, let alone the political leadership.

What does this imply for escalation control? There is a certain element of instability in the existence of a hedging strategy that could drive rapid armament in a more insecure environment. Similarly, the persistent interest in obtaining a fully developed triad because it would allegedly make the Indian deterrent force less vulnerable is not only of dubious merit, but also expansionary in its implications. Arguments about vulnerability (recall the "bomber gap" and the "missile gap") were the prime propellants of the arms race during the Cold War. The absence of a fully thought out doctrine of minimum deterrence leaves some space – again more likely in a deteriorating environment – for expansionary pressures on grounds such as "vulnerability" or "credibility." For a truly minimum deterrence posture, such gaps should not matter, nor should issues of

vulnerability or credibility, since, from this perspective, deterrence rests on the enemy's unwillingness to accept even a small risk of large-scale damage. This is a lacuna that needs to be addressed since it allows escalation under changed external conditions. On the other hand, India's tolerance of a high level of tension (and even the actual outbreak of armed conflict in the case of Kargil) without recourse to direct nuclear escalation encourages a more sanguine perspective, as does the refusal to consider nuclear warfighting seriously.

POTENTIAL SOURCES OF CHANGE

While change seems unlikely to result primarily from domestic drivers of policy, there is still the possibility of shifts in doctrine or posture arising from alterations in the external environment. These can be divided into two categories: those resulting from general threat perceptions relating to existing or potential adversaries, and those consequent upon specific and/or more immediate threats to national security. General threats or concerns are likely to affect issues such as the size and sophistication of the nuclear arsenal. Threats more pressing in nature are likely to affect the vital question of deployment.

Broad-spectrum Concerns

The major concerns in this category, of course, are India's relationships with China and Pakistan. Though these are at present very different in nature, there are some common elements. For India, both relationships encompass long-standing territorial disputes; a history of subconventional interventions, war, and periodic crises; and nuclear threat perceptions. Besides, the existence of a strategic nexus between China and Pakistan, particularly the repeated reports of Chinese nuclear and missile assistance to Pakistan, adds to Indian threat perceptions in both cases.[11] Yet the general tenor and trend of the two are very different. The Sino-Indian relationship can be regarded as a form of oligopolistic competition, in which rivals compete in a stable environment, cooperating in numerous ways to ensure a fundamentally stable relationship. In contrast, the Indo-Pakistan relationship is a model of spiraling hostility in which the use of force or threat of force is continually present.[12] China does, however, remain a significant long-term concern for Indian strategy.

How do Indian policy makers view China today? There is little doubt that Sino-Indian relations have come a long way since the 1962 war and the prolonged tensions that followed in its wake. Despite the chill caused by India's citing of the Chinese threat to justify its 1998 nuclear tests, trade grew from $1.1

[11] T. V. Paul, "Chinese-Pakistani Missile Ties and the Balance of Power," *Nonproliferation Review* 10, no. 2 (Summer 2003), pp. 1-9.
[12] For a discussion of the contrast, see Rajesh M. Basrur, "Nuclear India at the Crossroads," *Arms Control Today* 33, no. 7 (September 2003), pp. 7-11.

billion in 1995 to nearly $3.5 billion in 2001.[13] Border confrontations in 1987 and 2003 were resolved by political negotiations. The shrill rhetoric of the past has given way to an unprecedented degree of bonhomie and expressions of goodwill. Current thinking in India is that the main issues of the border dispute and China's defense relationship with Pakistan do not constitute a near-term threat, and that, notwithstanding China's much larger nuclear inventory, a stable strategic relationship is likely to be sustained. Once Indian deterrent capability is augmented by the induction of the *Agni III* missile, a major step toward deterrence stability will have been achieved.

The China-Pakistan connection, however, remains the main obstacle to a truly warm relationship. There is still considerable concern that Chinese strategy harbors a desire to contain India through Pakistan and through a more active military presence in Myanmar and the northern Indian Ocean. An underlying cause for caution is the perception that China is still to demonstrate its commitment to non-violent resolution of disputes, and that this in turn reflects a proclivity for the use of force, which may be constrained only temporarily by the exigencies of current economic policies. In short, while China is not viewed as a problem today, the possibility that it will become one remains open. A renewed challenge might be military-strategic or geopolitical. In the former case, what if China deploys multiple-warhead missiles? Alternatively, how would India react if China began a rapid enhancement of capabilities in response to US deployment of missile defense or the weaponization of space? Leaving aside the question of these developments actually occurring, it is doubtful that they would in themselves evoke alarm in India. So long as Sino-Indian relations remain on the present path of growing closeness, there will be relatively little concern. True, defense threat planning will likely respond to the enhancement of Chinese capabilities. But Indian thinking is less inclined to hard military realpolitik and more to the view that politics is the primary driver of strategy. This approach, which might be called soft realism, understands that policies do not change overnight, and that in any case, India's ability to deter China remains.

If there is political cause for worry, for instance if Sino-Indian relations were to deteriorate, the Indian response would be less relaxed. An armed Chinese engagement with Taiwan, violent repression of a Tibetan uprising, or an aggressive shift in China's external stance under a new leadership would cause deep unease. Then, in the event of renewed military-strategic tensions, there would be pressure to respond by enhancing nuclear capability qualitatively or quantitatively, and perhaps by a shift to active deployment. Indian thinking about how much nuclear hardware is adequate rests upon a sufficiently unclear basis to permit the possibility that an enhanced Chinese threat will cause a major reassessment. A more careful understanding of the fundamentals of minimum deterrence should help forestall the kind of drift into nuclear expansion that this

[13] "Sino-Indian Trade Statistics, Table 1: Sino-Indian Trade(1995-2001)," *Ministry of External Affairs*, available at http://www.meadev.nic.in/foreign/ind-china.htm (accessed May 28, 2003).

might engender. But, to reiterate, there is no present concern in this regard, nor does there seem to be reason for it.

The Pakistani threat is more immediate. Pakistan is viewed with considerable distrust after the Kargil conflict, which Prime Minister Atal Behari Vajpayee once described as a stab in the back.[14] Besides, Pakistani support for terrorists operating in Kashmir over the years has been the source of constant tension between the two countries. After 1998, the escalation of terrorist activity – and particularly the attack on India's parliament in December 2001 – has led to a sharp rise in hostility toward Pakistan. The ten-month long confrontation of large-scale forces that followed brought mutual threats of nuclear strikes and counter-strikes. Even though neither side went beyond spoken threats and tit-for-tat missile testing, the nuclear factor remained in the forefront. There was a perception among Indian leaders that Pakistan was able to take full advantage of the "stability-instability paradox" partly because India's nuclear capability was stymied by Pakistan's.[15]

In this context, my conversations frequently brought forth the response that minimum deterrence is not a fixed position, and that its requirement depends on the degree of threat. Several interlocutors argued that a raised threat level would necessitate an appropriate response in terms of nuclear posture. Despite the understanding that minimum deterrence does not require that forces be balanced, a visibly enhanced threat, it was held, would require a visible response. In the case of Pakistan in particular, such a response would be a political necessity, partly because Pakistani leaders would be prone to act upon a perceived advantage (as in their exploitation of the stability-instability paradox with regard to Kargil), and partly because no government could risk the domestic political repercussions of a failure to act. The same argument was not usually made with regard to China, largely because the Chinese threat is not viewed as imminent, but the logic clearly applies here as well. An enhanced Chinese threat would likely invite an expansionary response.

Such views reflect an unclear conception of the fundamentals of minimum deterrence doctrine. While any fixed position on the question "how much is enough?" is bound to be arbitrary, minimum deterrence as seen in the context of India's nuclear history and strategic culture must surely approach this question from the standpoint of the costs or risks of possessing nuclear weapons and the deterrent benefits derived from them. From the historical evidence, no matter what specific doctrine states officially adhere to, their actual strategic behavior corresponds to the tenets of minimum deterrence. That is, no matter what doctrine states claim to adhere to, they are in practice easily deterred from using

[14] Harjinder Sidhu, "Ansari Arrest Proves Pak Hand: PM," *Hindustan Times*, February 11, 2002.
[15] On the "stability-instability paradox," see Michael Krepon and Chris Gagné, eds., *The Stability-Instability Paradox: Nuclear Weapons and Brinksmanship in South Asia* (Washington DC: The Henry L. Stimson Center, June 2001).

nuclear weapons. Numerical balances or those relating to technical sophistication mean little when a state contemplates the prospect of nuclear damage, even on a relatively "small" scale (say, one bomb on one city). This reality applied to American policy makers in the Cuban missile crisis, and to Soviet policy makers during the Sino-Soviet border clashes of 1969.

Arguably, an expansionary Indian response to a Chinese or Pakistani upgrading of capabilities, including that undertaken in the garb of "strategic modernization," would go against the fundamentals of minimum deterrence, which holds that once deterrence has been established, the acquisition of more or "better" weapons is of no utility. For the enemy, the "one bomb on one city" problem would not change. Acquisition of more or bigger or "better" weapons does not add to deterrence. It has only a symbolic meaning. On the other hand, the attitude which regards such acquisition as necessary is problematic. Such an approach leaves the door open to indefinite growth and is hostage to the preferences of others and to the exigencies of domestic politics (including demands for "strategic modernization").

One area which appears to have received inadequate attention is the threat posed by nuclear/radiological terrorism. Given the history of tension between India and Pakistan over the latter's support for radical Islamic groups active in India, there are important reasons for concern. First, neither country seems able to control the activity of such groups. The Jaish-e-Muhammad (JeM), which has been fighting in the Indian-held portion of Kashmir, has also been connected with attempts to assassinate President Pervez Musharraf.[16] Second, the JeM and other groups are linked to Al Qaeda, which has a known interest in obtaining nuclear capability.[17] And third, Pakistan has a history of nuclear leakages emanating from its nuclear-scientific establishment.[18] The terrorist attack on India's parliament in December 2001 led to a major military confrontation between the two countries. If a nuclear or even a radiological attack (by means of a "dirty bomb") were to occur, the effect would be far worse.[19] This time, the Indian government would find it very difficult to stop short of military action, with potentially horrendous consequences.

Though the Sino-Pakistan connection is often cited as a threat, there does not appear to be much disquiet about a two-front nuclear problem. This is in

---

[16] Kamran Khan and John Lancaster, "Pearl Accomplice Tied to Attempts on Musharraf," *Washington Post*, May 28, 2004.
[17] Rohan Gunaratna, *Inside Al Qaeda: Global Network of Terror* (New York: Columbia University Press, 2002), pp. 208-209;
[18] Leonard Weiss, "Pakistan: It's Deja Vu All over Again," *Bulletin of the Atomic Scientists* 60, no. 3 (May/June 2004), pp. 52-59.
[19] For a detailed analysis of the potential consequences of nuclear terrorism in the subcontinent, see Kishore Kuchibhotla and Matthew McKinzie, "Nuclear Terrorism and Nuclear Accidents in South Asia" in Michael Krepon and Ziad Haider, eds., *Reducing Nuclear Dangers in South Asia* (Washington DC: The Henry L. Stimson Center, January 2004).

accord with the minimum deterrence principle that balances do not matter very much. Nor is there much concern that imbalances in conventional forces can drive nuclear acquisitions. This, too, is reasonable. Contrary to the oft-expressed view that conventional imbalance increases reliance on nuclear weapons,[20] the role of conventional weapons actually decreases in a nuclear environment as full-scale conventional conflict becomes non-viable. If nuclear weapons deter "regular" war, why should conventional balances matter?

On the global strategic canvas, there is no serious apprehension in India that a nuclear threat is present or approaching. Though they are uncomfortable with the concept of "proliferation" because it is cast in a west-centric mould, Indian policy makers are just as concerned about the spread of nuclear capability through covert means, particularly as it has been happening from Pakistan. However, they are not particularly anxious about North Korea or, closer to home, Iran. The hedging approach takes unknowable developments into account. US interest in earth penetrating or bunker-busting warheads, Russian development of new long-range missiles, and the prospect of an indefinite era of nuclear weapons all confirm the validity of hedging. There is no sentiment in favor of capping capabilities. At the same time, there is virtually none in favor of galloping growth. Given the anarchic, self-help character of the international system and the lack of a universal regime regulating nuclear weapons, the decision to maintain a small deterrent force and to conduct limited research and development on nuclear capabilities is reasonable and pragmatic. Absent a severe threat to India's deterrent capability, the expansion of weapon systems much beyond those available at present would be needlessly expensive, superfluous and strategically counterproductive.

What if the incipient Comprehensive Test Ban Treaty (CTBT) disintegrates? If the United States and others resume testing, pressure to test would certainly come from some members of the nuclear-scientific community. An alliance may develop between them and likeminded individuals from the political right, hardliners in the strategic elite, and possibly the armed services. This alone is unlikely to bring policy change. Policy makers are aware that a fresh round of tests will detract from regional strategic stability. But in combination with the perception of a rising threat from one of the sources discussed above, it would almost certainly create great pressure for testing, force expansion, and the refinement of capabilities. In the absence of testing triggered by another country, a universal test ban that is compatible with Indian interests will retain its appeal.

[20] For a contrary view, see Rodney Jones' companion essay in this book.

Missile defense is an area in which India seeks to enhance its capability.[21] Government officials are aware of the possibility that the acquisition of missile defenses may trigger an expansionary response in Pakistan. But their interest remains strong, primarily because of uncertainty with regard to Pakistan, including the possibility of a "rogue launch." There is less concern about the possible cascading effect of the planned US missile defense deployment via China. While there may be good arguments for this relaxed view of missile defense, those are not usually discernible in official thinking.[22] Official understanding of the full implications of missile defense does not seem to be very lucid. There is no clarity as to how much can be defended and to what effect in the context of deterrence stability. One senior bureaucrat closely associated with nuclear policy rather simplistically described missile defense as "an extension of air defense."

Interestingly, missile defense draws considerable support from the scientific community, and not much from the armed forces. One factor which has not been adequately appreciated is that if India obtains significant missile defense capability, Pakistan may well respond by enhancing its penetration capabilities, which in turn would invite a counter-response from India. There is scope here for arms racing, or at least an accelerated crawl. Strictly speaking, since no one is claiming that missile defense will ever be anywhere close to perfect, and since minimum deterrence rests on the principle that even one bomb getting through is too many, this should not matter. Besides, both countries offer each other so many targets along their border that missile defenses will make little difference to deterrence except to those who hold the indefensible view that some targets are expendable or, even more untenably, that only some targets must be defended at all costs. But there is something about the Indo-Pakistan relationship that goes beyond dry logic. Even if the risk of a consequent change in actual posture is not great, the prospect of arms racing hovers in the wings.[23] This is clearly an area that needs close attention in forthcoming negotiations. At some point in the future, differences over missile defense might become a sticking point in Indo-Pakistan negotiations for strategic stability. Pakistan will want to press for Indian restraint on this issue. But the problem is not likely to be serious. The relatively mild reactions of Russia and China to American plans for

[21] Though India's interest in missile defense is often associated with the BJP-led government that was voted out of office in 2004, the Indian search for missile defense capability is a long-standing one which cuts across party lines. The present Congress-led government has affirmed continuity in this respect. See Amit Baruah, "UPA Continuing NDA Policy on Missile Defence," *Hindu*, August 20, 2004.

[22] For a sanguine view of missile defense, including its potential impact on Indian security, see Rajesh M. Basrur, "Missile Defense: An Indian Perspective," in Chris Gagné and Michael Krepon, eds., *The Impact of Missile Defenses on Southern Asia* (Washington, DC: The Henry L. Stimson Center, 2002). The remaining papers in the volume are less optimistic.

[23] Something of the sort is already happening with respect to Pakistan, which is developing missiles with longer ranges – such as the 3,500-km-range *Ghauri III* – apparently in the belief that more is better.

missile defense deployment, which reflect their perception that substantive political relations are paramount, are indicative in this respect.

Looking to the Future

There is a strong commitment in India to the present posture of not deploying nuclear weapons and keeping warheads in a disassembled condition. Since this is a key feature of nuclear posture, and the basis of a high degree of stability, I sought to gauge the conditions under which the policy might change. This could occur in different ways. First, the government might decide to assemble warheads and hand them over to the armed forces for mating with delivery vehicles during peacetime. Second, the same may be done only if there is a crisis and the specter of war is in the air. Non-deployment in peacetime has the advantage of stabilizing strategic relationships that are under sustained tension, as is the case between India and Pakistan. It constitutes the nuclear version of non-offensive defense.[24] While most policy makers are supportive of non-deployment for this reason, some do feel that a modicum of "transparency" or visibility would send stronger signals of a soundly organized deterrent. This would include, for instance, a greater synergy of the political, scientific, and military branches of government through regular exercises. But the need for credibility is an inadequate reason for deployment during peaceful times. An adversary's knowledge that India possesses nuclear weapons, and that these can be assembled in short order, suffices to deter it.

The stability-from-experience argument is a better one. Should a crisis occur, the experience derived from regular exercises with deployed weapons (including practice in the mating of warheads within a given time frame) would be invaluable in ensuring a smooth transition to deployment. In the absence of such preparation, the transition to deployment could be problematic, subject to errors and accidents. A stronger objection to non-deployed forces is that a decision to deploy during a crisis could be wrongly interpreted as preparation to go to war. However, the tradeoff between the advantages and disadvantages of deployment is, in my judgment, correctly deemed an acceptable one: the safety and stability aspects of non-deployment in peacetime outweigh the risks. Besides, there is a keen sense among the civilian leadership that handing over nuclear weapons to the armed forces other than in exceptional circumstances is undesirable. For its part, the military has not displayed a strong inclination to obtain direct jurisdiction over the weapons.

How would India react if Pakistan were to deploy unilaterally, perhaps covertly? The almost automatic response, if such deployments are detected, would be a matching Indian deployment, to a large extent driven by a sense that Pakistani leaders, with their obsessive revanchism, are not entirely "rational"

[24] On non-offensive defense, see Bjørn Møller, *Common Security and Nonoffensive Defense: A Neorealist Perspective* (Boulder, CO: Lynne Rienner, 1992).

(which I understand to mean "sensible"). India would have to respond in an observable way to convey resolve to the adversary, and to reduce the time for a response.

What if Pakistan has adopted, or were to adopt, a decapitation strategy? This would be hard for India to confirm, and would probably not be taken seriously. Indeed, one Indian official's response to this question was that Pakistanis are not that irrational! The possibility is generally discounted, reflecting the view that such an argument is typical of Cold War logic and not rooted in South Asian reality. There is uniform agreement that deployment will occur only in the event of a severe crisis. Given the fact that neither the 1999 Kargil conflict nor the 2001-2002 compound crisis brought a nuclear confrontation, a decapitation strike is generally viewed as an unlikely event. One interlocutor pointed out that even in a grave crisis, the government would be inclined to explore pre-deployment options such as strong verbal signaling warning of impending deployment. The Indian reasoning seems basically sound. Pakistan has shown an inclination to use unconventional strategies against India under the nuclear umbrella, but not nuclear ones.

It is sometime argued that Pakistan's rejection of a no first use (NFU) posture bespeaks a readiness to cross the nuclear threshold. But that does not explain its nuclear restraint, mirroring India's, in 1999 and 2001-02. Analysts have paid little attention to the remarkable fact that, notwithstanding the differences in Indian and Pakistani leaderships (the one civilian, the other military) and nuclear doctrines (on NFU, and possibly on tactical weapons, which Indian policy makers largely reject), there has been much similarity in their strategic behavior in the nuclear era.[25] Like India, Pakistan has exercised great restraint in not deploying nuclear weapons, and in stopping well short of using conventional force fully, even at the height of confrontation. There is no incentive for Pakistan to seek nuclear advantage vis-à-vis India through early deployment since that would inevitably be neutralized by a matching Indian response. A decapitation strategy is unfeasible because it would prompt an early annihilating response. The fact that a tacit agreement on non-deployment exists reflects a common appreciation in the two countries that the risks associated with nuclear possession are not to be taken lightly.

The relationship between nuclear weapon deployment and terrorism has not been sufficiently appreciated. In a neighborhood rife with terrorist activity, deployment – let alone a launch-on-warning or a hair-trigger posture – would offer new and tempting targets to terrorists. A terrorist attack on deployed Indian nuclear forces would almost certainly have a profoundly destabilizing impact on Indo-Pakistan strategic relations. This could occur in at least two ways. First, it could lead to the same sort of reaction that brought the military confrontation of

[25] For the view that future acquisition of tactical weapons by both cannot be ruled out, see the essay in this volume by Michael Krepon, Ziad Haider, and Charles Thornton.

2001-02. Second, and worse, it could trigger a nuclear response under the misapprehension that a Pakistani attack is under way. The same argument applies to Pakistan.

On balance, it seems highly unlikely that Indian forces will change from the present posture of peacetime storage to active deployment, i.e., to a status where the time taken to launch is a matter of a few minutes. The fillip to such a shift, if it comes at all, is expected to come from Pakistan. Given the reality that Pakistan's nuclear policy in most respects has been responsive to India's, stability on this score is to be expected. However, if there is a well-founded perception in India that Pakistan has "cheated," say by covertly mating warheads with launch vehicles and deploying them, India is likely to follow suit (and vice versa). Such possibilities, which highlight the strategic interdependence of the two states, underscore the need for nuclear confidence building between the two countries. It is worth pointing out that although Indians do not often think in similar terms about China today, much of the above would apply to that country as well in the event that the Sino-Indian relationship deteriorates.

THE PROSPECTS FOR STABILIZATION

Despite its history of war and tensions with Pakistan and China – or perhaps because of this – India has had a consistent interest in nuclear stability. Indians, long accustomed to think and speak of universal disarmament, do not often use the term "arms control," even today. In any case, interest in arms control, which has much to do with specific technical and numerical limitations on weapons systems, is limited. There are two main reasons for this. First, regardless of the widely expressed fear that South Asia has recurrently teetered on the edge of the nuclear precipice, the actual prospect of nuclear conflict has remained relatively distant. There is no real evidence that nuclear weapon use has ever been contemplated during any crisis in the region. Hence the incentives for arms control have been limited. Second, the potential for specific arms control restrictions is complicated by the fact that India has two nuclear adversaries, one of which, China, refuses to acknowledge India's *de facto* nuclear power status and negotiate with it. Hence, nuclear stabilization efforts have been confined to confidence-building measures (CBMs) with Pakistan. These are in large measure aimed at mutual reassurance and the cultivation of political ground for stability. As noted earlier, the agreement not to attack each other's nuclear facilities came a decade before the 1998 tests. Less than a year after the tests, India and Pakistan in February 1999 signed the Lahore Memorandum of Understanding (MoU) on nuclear restraint measures.[26] After the post-Kargil downturn, India and Pakistan resumed negotiations in June 2004. The initial results were incremental: improved lines of communication, movement toward a test notification agreement, and reaffirmation of individual moratoria on testing.

[26] For a brief discussion, see Raja Menon, "Nuclear Doctrine in South Asia," in P. R. Chari, Sonika Gupta, and Arpit Rajain, eds., *Nuclear Stability in Southern Asia* (New Delhi: Manohar, 2003), pp. 106-7.

Though many have expressed disappointment at the limited progress at the time of writing (mid-September 2004), the fact that negotiations have taken place at all is encouraging.

If Indo-Pakistan relations improve, progress can be expected along the lines identified by the Lahore MoU.[27] Given the less than cordial strategic history of the two countries, sustained progress along these lines is far from certain. Much will depend on whether the political relationship between India and Pakistan proceeds on a more even tenor. There are three main possible trends. In the unlikely event that the Kashmir issue is satisfactorily resolved, there would be rapid strides in escalation control, confidence building, and nuclear risk-reduction measures (NRRMs). Extensive arms control is still unlikely to be acceptable to India unless China is ready to negotiate as well, which is difficult to foresee today. A second possibility is the replication of the Sino-Indian model in Indo-Pakistan relations. Such a situation would leave the border issue on the backburner, bring stabilizing measures (CBMs, NRRMs) to front stage, and revive the prospect of economic cooperation. A third possibility is a return to the seesaw of crisis and negotiations, with the threat of war and nuclear conflagration ever present in the background. Of the three, the first seems least likely because political elites in both countries are not well placed to compromise on Kashmir, even were they inclined to do so. The third is possible, but seems nevertheless unlikely: the elites in both countries have failed to obtain success in pressurizing each other in 1999 and 2001-02 through strategies of compellence and appear to have acknowledged this by dropping their non-negotiable preconditions to talks.[28]

The second possibility remains the most likely one. The intensity of the Kashmir problem and the baggage of history will make the shift from a spiraling hostility model to an oligopolistic competition model difficult, slow, and uneven. What would be the nature of the nuclear-strategic relationship under such conditions? Overall, there would be a preference for escalation-resistant competition and continued non-deployment; low-key development of delivery capability by way of an "arms crawl;" and improvement of command and control systems to improve stability. As noted above, the three main areas where the Indian strategic community feels the need for improved capability are missile capability against China; the acquisition of a triad; and enhancement of command and control systems. Of these, only the second has the potential to provoke Pakistan, but this too is a capability that is unlikely to be developed for

[27] The road map laid down by the Lahore MoU focuses on bilateral consultations on security concepts and nuclear doctrines; advance notification of ballistic missile tests; national measures to prevent unauthorized use, and notification in case such use occurs; an agreement on avoidance of further testing; measures to prevent incidents at sea; a mechanism to review the implementation of CBMs; enhanced communication channels; and consultations on disarmament issues.

[28] Prior to the fresh round of negotiations in 2004, India insisted that cross-border terrorism must cease first, while Pakistan maintained that the resolution of the Kashmir problem came first. On the use of compellence strategies in the subcontinent, see Basrur, "Coercive Diplomacy in A Nuclear Environment," op. cit.

some time to come. A fourth area of tension, also mentioned above, is missile defense. Here, the technological capability achieved, even if relatively sophisticated systems were acquired, would not significantly affect Pakistan's ability to threaten a large number of Indian targets. There would be no need for Pakistan to respond by greatly enhancing its offensive capabilities.

The most threatening and escalation-inducing development would be a decision by India or Pakistan to deploy nuclear forces. This would greatly increase the probability of accidental war (owing to false alarms, command failure, or human error) because if one were to deploy, the other would inevitably respond likewise. A second possible concern is the development and acquisition of tactical weapons. Tactical nuclear weapons would have a destabilizing effect in two ways. First, they would increase the risk of the nuclear threshold being crossed, for they are by their very nature relatively more "usable" than strategic nuclear weapons. Second, a tactical arms race would have a destabilizing effect on the Indo-Pakistan relationship. More generally, a nuclear modernization program that spends large sums on the acquisition of offensive capabilities will tend to have a destabilizing effect. If changes in these three aspects of strategic capability are eschewed, the stability thus engendered can strengthen the oligopolistic competition model by permitting the diversion of resources and energies to more constructive avenues of engagement.

Ideally, over time, India and Pakistan would exercise much greater transparency, allow each other to inspect nuclear facilities, formalize an agreement not to deploy nuclear weapons, concur on eliminating short-range missiles, and accept specified no-sail and no-fly zones for their respective naval and air forces. Strictly speaking, there is nothing in any of this that would adversely affect the fundamental security interests of either country. The obstacles are mainly political. Pakistan may find it difficult to sign on to such agreements without concessions on Kashmir, which India will find it even more difficult to make. India, for its part, will not want to be permanently bracketed with Pakistan and will want to balance its position by means of nuclear CBMs with China. Significant movement toward these matters is unlikely in the near future, since Beijing will not find it expedient to "recognize" India's nuclear status by negotiating nuclear CBMs, let alone nuclear arms control agreements, with New Delhi. Given present trends, what is more likely is incremental progress in CBMs with Pakistan and none with China. That in itself is not cause for pessimism since the trends are toward increased political stability.

The Indian outlook toward nuclear stabilization is primarily a political one, oriented toward mutual assurance rather than to agreeing on verified limits relating to quantifiable categories. Arms control will enter the agenda only if nuclear forces are deployed. The most significant arms control agreement – on non-deployment – is a tacit one between India and Pakistan. Both countries recognize the crucial watershed between disaggregated forces (in which warheads are kept unassembled and stored separately from delivery vehicles)

and those that are deployed in the field. This is likely to remain a tacit understanding partly because India will not want to make a commitment that does not include China, and because, the current situation, is, in any case, working well.

On the global front, the Indian approach is ambivalent. The NPT-based nonproliferation regime is a major stumbling block, since it keeps India outside the charmed circle of recognized nuclear weapons states. India is unlikely to enter into any formal multilateral agreements (other than universal ones that do not discriminate between nuclear haves and have-nots) without some sort of implicit acceptance into the nuclear club, for instance by its inclusion in the Missile Technology Control Regime (MTCR) or the Nuclear Suppliers Group (NSG). Hence its reluctance to join the US-led Proliferation Security Initiative (PSI), and its qualified support for the April 2004 Security Council resolution requiring states not to support proliferation to non-state actors, both of which are basically in accord with its interests.

At the same time, Indian interest in the Fissile Material Cutoff Treaty and, in a more acceptable form, of the Comprehensive Test Ban Treaty (CTBT) remains alive. On the latter, which was much debated in the media, the main Indian complaint was not against the basic provisions of the Treaty itself as much as against its evident intent to close the Indian nuclear option. After the 1998 tests, the Indian government explicitly accepted the idea of a CTBT so long as it was not discriminatory. In terms of practical politics, there is little doubt that some sort of indirect legitimization of India's *de facto* status as a nuclear weapon power will suffice to obtain a change in India's position, as did in fact happen with respect to the Antarctic Treaty in the early 1980s, when India dropped its criticisms and became a party to what it had long held to be a discriminatory treaty.

CONCLUSION

Barring a serious negative turn in relationships with Pakistan and China, or the emergence of an unanticipated threat, the pace of India's nuclear evolution is likely to remain glacial, picking up some moraine by way of incremental additions to hardware, but not deviating significantly from its doctrine of minimum deterrence. In this projection, Indian forces will remain in a non-deployed state, intermediate-range missiles targeting China will be inducted in due course, a sea-based deterrent will be pursued without any sense of urgency, and steady improvements will be made in command and control. In the main, the trend will constrain the scope for escalation of nuclear tensions with both Pakistan and China, though some hiccups may occur with Pakistan over missile defense.

However, a significant deterioration in its security environment is likely to invite changes in India's nuclear thinking and practice. The kinds of change that may occur are: a shift to deployment in response to a Pakistani initiative to

deploy (an unlikely event); an imminent threat apprehended during a crisis, either with China (again unlikely) or with Pakistan; and an accelerated program to expand capabilities, both in quantity and quality, in response to a sharp rise in the general threat level from either or both its nuclear adversaries.

The likelihood of a threat emanating from China appears low for the foreseeable future. Though reasons for optimism about the Indo-Pakistan relationship have been outlined above, its prospects still remain somewhat uncertain. The revival of tensions, followed by nuclear altercations and crises, would bring great risks, even the possibility of war, though it could also induce the kind of extensive arms control that has been absent so far. But a more steady and prudent course of stabilization is surely to be preferred. Fortunately, there appears to be a process of learning from previous failures on the part of both leaderships. But one more area of learning is still needed, and this is with respect to doctrine, on which nuclear posture rests. Even if external conditions deteriorate, an effective deterrence posture does not require the augmentation of capabilities. A more thorough understanding of the fundamentals of minimum deterrence – that a little is enough to create unacceptable risks for the enemy, and hence to deter it – will go a long way to constrain inflationary tendencies built on Cold War type arguments about credibility and vulnerability. One inescapable reality is that of strategic interdependence, especially when a relationship is hostile, since that sharply raises the cost of failure for both sides.

Overall, there is a strong possibility that India's predilection for nuclear and strategic stability through confidence building and risk-reduction measures will remain undiminished. Contrary to widespread characterizations about the influence of nuclear hawks, there is virtually no constituency for a truly hard-line, expansive nuclear program in India. While there does not appear to be a great deal of creative thinking at present on arms control, the Indian commitment to nuclear risk reduction and escalation control is unquestionably durable.

— 4 —

Nuclear Signaling, Missiles, and Escalation Control in South Asia

Feroz Hassan Khan*

"India is not impressed with 'missile antics' by Pakistan."
Nirupama Rao, Ministry of External Affairs spokeswoman, May 26, 2002.

"W*e were compelled to show then, in May 1998 that we were not bluffing and in May 2002, we were compelled to show that we do not bluff."*
President Pervez Musharraf, June 17, 2002

Ballistic missiles were introduced into the South Asian security environment just over two decades ago. Missile development programs in the 1980s proceeded in tandem with covert nuclear weapons development. In the 1990s, missile programs raised proliferation concerns; after the open testing of nuclear weapons in 1998, missile flight tests raised new concerns of escalation control and regional stability. In South Asia, threat making, provocative military maneuvers, displays of offensive force capabilities, and large military exercises close to the borders have been common. Public displays of military equipment and defense exhibitions have become routine, but flight tests of missiles accompanying military confrontations are recent phenomena, associated with the development of new missiles. Missile parading on national days in India and Pakistan announce the existence of these new missiles, but missile flight testing confirms and enhances their deterrent capability.

The ordinary purpose of missile flight-testing is to validate technical designs, but when flight tests are timed with other developments, they can tacitly convey the message of determination to use a missile, if required. Missile flight-testing in a crisis may also serve to instill confidence in a domestic audience that national security is intact. Missile testing activities may also be used to induce outside diplomatic intervention. Indeed, over the last five years, Indian and

* This essay was prepared for a Track-II meeting on "Escalation Control in South Asia" hosted by the Henry L. Stimson Center at Woodstock, United Kingdom in May 2003. Acknowledgement and thanks are due to the conference participants for comments. The author acknowledges valuable comments, inputs, and review from Michael Krepon, Chris Clary, and Michael Vannoni. Special thanks are due to Rodney W. Jones for his insightful comments, review, and editing. The views expressed here are entirely the responsibility of the author and are not attributable to the Pakistan government or any of its agencies.

Pakistani officials have attempted to master the technique of using missiles to further political objectives and deterrence signaling during crises. On that note, an Indian government official has selectively referred to these activities as "missile antics."

This essay assesses the challenges ballistic missiles in South Asia present to efforts by both countries to deal with the problems of nuclear crisis stability and escalation control. I argue that missile flight tests are dangerous when conducted primarily to send political messages and therefore could have particularly serious escalatory consequences during an unfolding military crisis. This essay analyzes the impact of missiles on deterrence stability and potential escalation during periods of peace, crisis, and war. It examines the following questions in light of recent cases of missile testing, pre-deployment activity, and operational requirements in the regional environment:

- Why has high value been attached to the acquisition of ballistic missiles in South Asia?
- Why do missiles cause more concern than other ways to deliver nuclear weapons?
- What effects do missiles have on regional stability and instability in South Asia?
- How do missiles shape crisis behavior in South Asia?
- How have missiles been applied as tools of policy and for conveying signals to the opponent in South Asia?
- What lessons do these practices suggest for the reduction of nuclear risks in the region?

WHY MISSILES ARE VALUED IN SOUTH ASIA

Ballistic missiles have been given high importance by both India and Pakistan because they are generally believed to be the most reliable vehicles for the delivery of nuclear weapons in a retaliatory strike intended to inflict mass destruction. Ballistic missiles are relatively inexpensive and their speed and accuracy make it virtually impossible to take effective defensive measures against them. These characteristics of ballistic missiles enhance the credibility of a nuclear deterrent based on their assured delivery capacity. The inherent vulnerability to a ballistic missile attack also endows a missile-based offensive nuclear force with exceptional psychological influence. By their nature, attacking missiles project terror.[1]

[1] Observing the terrifying impact of the relatively inaccurate, non-nuclear V-2 ballistic missiles launched by Nazi Germany against Great Britain in World War II, British Air Force Chief R.V. Jones noted, "[N]o weapon yet produced has a comparable romantic appeal. Here is a 13-ton missile, which traces out a flaming ascent to heights hitherto beyond the reach of man, and hurls itself 200 miles across the stratosphere at unparalleled speed to descend - with luck - on a defenseless target." R. V. Jones, *Most Secret War: British Scientific Intelligence: 1939-45* (London: Hamish Hamilton, 1978), p. 455.

Reinforcing their awesome reputation is the fact that once launched, ballistic missiles cannot be recalled. Aircraft, by contrast, can be scrambled for a "just in case" contingency. If scrambled by mistake, miscalculation or false warning, they can be recalled to their bases, avoiding the outbreak of war. A missile launched by mistake would require sophisticated control systems to disarm or disable it during flight. Self-destruct features could be incorporated but this has not been the practice with operational strategic missiles, even in the United States.[2] Nor are there reported plans to do so in the Pakistani or Indian missile development programs.[3]

Reliance on ballistic missiles in South Asia means little or no time to clarify ambiguous intelligence or communicate with the opponent. If ballistic missiles were launched in a conflict between India and Pakistan, the short distances to targets combined with the missiles' high-speed results in warning times of five to ten minutes at best. During the Cold War, intercontinental ballistic missile flight time between the United States and the Soviet Union was approximately thirty minutes, itself a very brief interval. Both superpowers, however, developed early warning systems that they believed were sufficient to alert their forces for a retaliatory strike before the first incoming missile struck. They also introduced communication systems for rapid consultation in the event of an accidental military launch or misinterpreted civilian launch.

It is worth noting that in Europe, the intermediate-range nuclear missiles deployed by the opposing alliances provided short warning times similar to those in South Asia. Factors that helped Europe escape escalation during major crises involving missiles were the absence of a tinderbox conflict like Kashmir, well developed surveillance and early warning systems (particularly in NATO), and the redundancy of long-range and theater nuclear forces that provided confidence in second-strike retaliatory capabilities. India and Pakistan do not have these advantages today and are unlikely to for many years.

The unavailability of effective passive or active measures of self-defense against nuclear attack (implying the prospect of assured mutual destruction) usually contributes to crisis stability between nuclear-armed opponents. In other words, because of mutual vulnerability, neither side has an incentive to strike preemptively during a crisis. However, in the South Asian environment, while the vulnerability is mutual, it is not symmetrical. One party - Pakistan - is far more vulnerable to preemption than the other. This asymmetry could become

---

[2] Kent Biringer, "Missile Threat Reduction and Monitoring in South Asia" in Michael Krepon and Chris Gagne, eds., *The Stability - Instability Paradox: Nuclear weapons and Brinksmanship in South Asia* (Washington DC: The Henry L. Stimson Center, 2001), p. 76.

[3] The irrevocability of a ballistic missile launch decision puts a very high premium on command and control measures that safeguard against inadvertent launch. Soviet and US ICBMs presumably have long had positive control systems to guard against unauthorized launch by operators or saboteurs. In South Asia, however, operational missiles do not necessarily have reliable positive control mechanisms to prevent accidental or unauthorized launch and this can be regarded as a technical but serious source of instability.

more pronounced if India acquires missile defenses in the future.[4] This instability is more dangerous in South Asia because the region is crisis-prone, and because each military crisis has been more intense than the last.

India and Pakistan lack the resources and ability to adopt launch-on-warning postures. The best remaining option is to have the capability to disperse mobile missiles during a crisis in order to protect them from preemptive strikes. Although this missile dispersal capability helps maintain general deterrence against nuclear attack, it can also be destabilizing because neither India nor Pakistan has an independent and sophisticated ability to distinguish between defensive missile moves and combat-ready missile dispersal. Defensive movement implies that the missile is not mated with the warhead, while combat-readiness measures would include mating. This intelligence dilemma is compounded by still evolving command and control systems in both countries.

Planners usually assume that ballistic missiles would be key targets for preemptive strikes by an adversary. Two general defensive strategies, each with particular advantages and risks, have been adopted elsewhere to counter this threat. One is the hardening of missiles in fixed sites, typically by housing the missiles in silos. The other is to mate ballistic missiles with mobile transporter systems. Fixed sites are likely to be detected by an adversary, so their survivability depends on being able to withstand attack. Mobile systems are vulnerable to attack if their storage locations are detected, so their survivability depends on dispersal, camouflage, concealment, deception, and mobility. To date, both India and Pakistan rely on the second strategy of integrating their strategic ballistic missiles and mobile launchers for mobility and survivability, rather than on deployment at fixed, hardened sites.

Maintenance of mobile missile systems, along with nuclear warhead safety and security measures, normally requires that the missiles and mobile launchers be kept in garrisons. During periods of crisis, mobile missiles are dispersed to counter the risk of preemptive strikes. Keeping nuclear-capable missile systems both safe and dispersed places an extraordinary strain on national command and control systems. Scott Sagan calls this dilemma the "vulnerability-invulnerability" paradox.[5] Sagan contends that nuclear weapons dispersed under crisis to increase survivability become vulnerable to terrorist predators, thereby

[4] The question of the overall impact of missile defenses on stability in South Asia is not examined at length here. Point-based missile defenses could marginally increase stability but only if both sides could defend their national command centers, thereby complicating potential decapitating attacks. While area-based defenses have little chance of defending the region's mega cities, they could still spur the additional employment of more missiles and warheads by the other side to counter their effect. See Michael Krepon and Chris Gagne, eds., *The Impact of US Ballistic Missile Defenses on Southern Asia* (Washington DC: The Henry L. Stimson Center, 2002).

[5] See Scott Sagan, "Nuclear Dangers in South Asia," reprinted in part from "The Perils of Proliferation in South Asia," *Asian Survey* (November/December 2001), pp. 1064-1086, available at http://iisdb.stanford.edu/pubs/20573/sagan_nuc_sasia.pdf.

risking the loss of military control over nuclear weapons by the National Command Authority (NCA) -- at the very same time that tensions are high and both sides fear the other might initiate war.[6] Although Sagan's assessment of such a risk is hypothetical, nevertheless the command system could be vulnerable to loss of control whenever the weapons are dispersed, which necessitates negative technical controls and redundant communications to guard against theft or sabotage and to prevent unauthorized or inadvertent missile launches.[7]

The military utility of dispersed missiles, on the other hand, implies that they are self-sufficient and capable of being launched at pre-designated targets should communication with the central authority be lost due to decapitation or jamming. Missile units under threat of attack, in the event their higher command links are disrupted, might be prone to act in unpredictable ways, regardless of the level of discipline and training of the crews. Clearly this dispersed mobile missile posture has inherent instability. But it is also regarded in the subcontinent as a realistically and operationally justified means of maintaining nuclear deterrence against the expansion of any conventional war.

Perhaps the most destabilizing factor related to ballistic missiles in South Asia is the ambiguity that arises because Indian and Pakistani ballistic missiles are designed to be capable of carrying either a conventional or a nuclear warhead. An adversary might presume that any missile launched against it might be carrying a nuclear warhead.[8] This ambiguity is preserved as an operational requirement because it helps mask the numbers and locations of missiles that support nuclear deterrence objectives. Dual-capable ballistic missile systems carry greater dangers of hasty decisions and fateful mistakes in a crisis because the opposing command may be unable to ascertain that missiles launched for conventional battlefield objectives, or launched by accident, are not the beginning of a strategic nuclear attack. Without suitable and effectively verifiable arms control and restraint agreements that segregate nuclear-equipped ballistic missiles, this inherently destabilizing problem will persist.[9] As the former Indian Ambassador to the United States, Lalit Mansingh, has warned, "We do not have the means to verify whether or not the missile warheads are nuclear tipped or not. It means danger." This raises the strategic policy question

---

[6] Term used in a presentation by Scott Sagan in a South Asia Conference arranged by Arête Associates, Washington DC June 25- 26,2003. See Chapter Three of the revised edition of Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons, A Debate* (New York: W.W. Norton, 1995), p. 100.

[7] For a detailed discussion see Feroz Hassan Khan, "Challenges to Nuclear Stability in South Asia," *The Nonproliferation Review* 10, no. 1, (Spring 2003), pp. 67-68.

[8] Naeem Ahmad Salik, "Missile Issues in South Asia," *The Nonproliferation Review* 9, no. 2, (Summer 2002), pp. 47-48 and Feroz Hassan Khan with Gaurav Rajen and Michael Vannoni, "A Missile Stability Regime for South Asia," Sandia National Laboratories, Cooperative Monitoring Center Occasional Paper 35, June 2004.

[9] See transcript of the Public Broadcasting System's series, "Avoiding Armageddon," broadcast on April 15, 2003. Also see transcript of "The NewsHour with Jim Lehrer," broadcast on May 31, 2002, available at http://www.pbs.org/newshour/bb/asia/jan-june02/nuclear_5-31.html.

about whether any conventionally-armed, offensive ballistic missiles should be deployed in South Asia.

MISSILES ON THE SUBCONTINENT

Both India and Pakistan have maintained civilian space programs since the 1960s, but it was only after India began the Integrated Guided Missile Development Program (IGMP) in 1983 that the missile arms race actually got underway in earnest. India began this missile development program with a modest technological base. India combined technologies from the civilian space program with reverse engineering of military missile technology from Russia to develop the *Agni* and *Prithvi* ballistic missiles. The short-range *Prithvi* (first tested in 1986) was derived from a high-altitude Soviet air defense interceptor missile (SA-2), and the medium-range *Agni* (first tested in 1989) was partly based on the US Scout (a civilian space program vehicle) and partly on the Russian SA-2.[10]

The beginnings of the Indian missile program paralleled a series of crises that disturbed Indo-Pakistan relations in the mid-1980s. The first was triggered by India's military occupation of the un-demarcated Siachen Glacier in the disputed territory of Kashmir in 1984. Code-named *Meghdoot* (Cloud Messenger), this operation was conducted during tensions fueled by Prime Minister Indira Gandhi's enforcement action (Operation Blue Star) against armed Sikh separatists who had occupied the Golden Temple of Amritsar in the Indian state of Punjab bordering Pakistan.

The second crisis came two years later, when India authorized the ambitious Brasstacks military exercise over the winter of 1986-87. The provocative nature of that exercise (corps-sized forces and mobile maneuvers, reportedly with live ammunition, close to the international boundary) brought the two countries very close to war. In each of these two crises, India reportedly weighed contingency plans for a preventive strike against Kahuta, Pakistan's uranium enrichment facility, but later decided against this dangerous action.[11]

A third, less widely reported crisis occurred in 1990, as the Cold War came to an end. The Soviets had recently withdrawn from Afghanistan. Concurrently, Kashmir became the location of a renewed freedom struggle, with an armed insurgency that continues to date. Meanwhile, conditions affecting Pakistan in the global and regional environment had changed significantly. Once the Soviet withdrawal from Afghanistan was complete, the United States began to distance itself from its partnership with Pakistan. The most abrupt manifestation of this

---

[10] For details see Rodney W. Jones et al., *Tracking Nuclear Proliferation: A Guide in Maps and Charts* (Washington DC: Carnegie Endowment for International Peace, 1998), pp. 127-129.
[11] See Scott Sagan, "The Perils of Proliferation," CISAC Stanford University workshop on *Preventing War in South Asia*, Bangkok, August 2001. Also see Raj Chengappa, *Weapons for Peace: The Secret Story of India's Quest to be a Nuclear Power* (New Delhi: Harper Collins Publishers, 2000), pp. 322-323.

change was the US imposition of nuclear non-proliferation sanctions (the Pressler Amendment) on Pakistan due to concerns over Pakistani uranium enrichment to weapon-grade material. The sanctions cut off the delivery to Pakistan of previously purchased F-16 aircraft. At the time, aircraft were the only operationally viable delivery means for nuclear weapons by either India or Pakistan. It was against this backdrop that operationally viable, nuclear-capable ballistic missiles were introduced into the region.

The Kashmir uprising that began in 1989 further complicated the already tense security situation in the region. By 1990, Pakistan found itself trapped in a bind. Assuming Pakistan's nuclear capability was to be the ultimate guarantor of deterrence against India, the F-16 was expected to be the main Pakistani delivery system enabling a measure of military balance with India. The US decision not to deliver the F-16s was a major blow to Pakistan's quest for a security balance, as the air force imbalance worsened from Pakistan's standpoint with India's continued purchases of state-of-the-art fighters and ground-attack aircraft from Russia and France. These factors combined to drive the Pakistani decision to rely on ballistic missiles as a matching response to India's growing military capabilities. The US embargo of the F-16s moved the Pakistani missile program into high gear. The missile program, along with nuclear weapon development, became a top national security priority in Pakistan.

Pakistan faced two major problems: a limited indigenous missile technology base, and the Missile Technology Control Regime (MTCR). At the time, the deficiencies in Pakistan's missile technology base were not in soft technology (know-how, data, designs, organization, technical advice, management techniques, technical staff, finance management, etc.) but rather in the realm of hard technology (reentry vehicles, guidance systems, engines, and launch platforms). Pakistan's level of rocket technology then revolved around its *Hatf I* and *Hatf II* missiles with capabilities not greater than those of the short-range Scud B.

As in the case of its nuclear program, Pakistan was a late starter in missiles and faced similar non-proliferation challenges. India's lead in missiles and its strategy to "indigenize" the technology by reverse engineering and expanding its technical base could not easily be matched by Pakistan. But Pakistan attached a high priority to redressing its security gap quickly, before the window of opportunity for obtaining technical know-how and hardware transfers closed.

Pakistan's quest for the acquisition of missile technology met stiff resistance from western suppliers, most of which had joined the MTCR. Pakistan embarked on two paths for both liquid-fueled and solid-fueled propulsion systems. By the early 1990s, the only suppliers accessible to Pakistan for these two propulsion systems were North Korea and China, respectively. Thus, Pakistan's liquid-fueled and solid-fueled missile acquisition was accomplished despite MTCR strictures. By combining various earlier

technologies such as French Centaur sounding rockets and Soviet Scuds, Pakistan was able to produce *Hatf I* and *Hatf II* missiles in the initial phases. The reverse engineering of M-series missiles from China and *No-dong* missile technology from North Korea enabled Pakistan to develop a sufficient missile technological base independent of MTCR restrictions. Ballistic missiles finally became the mainstay of Pakistan's strategic delivery means.[12]

Pakistan was constrained in its flight test program by two political factors. First, Pakistan wished to avoid triggering MTCR sanctions, not just for itself but also to avoid embarrassing China, its principal ally. Second, Pakistan was under constant diplomatic pressure from the United States to exercise missile "self-restraint." In practical terms, the United States understood this "self-restraint" to mean that Pakistan should: 1) not conduct live missile tests; 2) not carry out field training with missiles; 3) not co-locate warheads and other key missile components at the same sites; 4) not mate warheads and launch vehicles; 5) and not store key systems of missile hardware and components in operational missile bases.

Given the missile developments across the border in India that were not similarly restricted, it was impossible for Pakistan to unilaterally accept such restrictive measures. To placate US non-proliferation concerns, Pakistan proposed a "zero missile" regime in South Asia, but India refused. It was, therefore, not possible to reverse the missile acquisition trend. The United States continued to put singular pressure on Pakistan, but tacitly looked for ways to grandfather past technology transfers if Pakistan agreed to refrain from public displays and flight tests of its missiles. Pakistan's missile development was thus constrained by a restriction on flight-testing and Pakistani officials were always forced to weigh the trade-off between diplomatic costs and developmental imperatives.

India continued to conduct missile flight tests regularly. By 2000, India had conducted sixteen *Prithvi* and four *Agni* flight-tests, confirming missiles as an operationally viable means of nuclear delivery. Each Indian flight test advanced its readiness to deploy nuclear-capable ballistic missiles. In the course of India's tests, India and Pakistan exchanged rhetorical messages. India stressed its own "indigenous" technical prowess and slighted that of Pakistan, arguing that Pakistan's missile program was based on foreign supply and therefore should be subjected to MTCR sanctions. Pakistan in turn emphasized the Russian elements in India's missile technology and the double standard in MTCR leniency on India.

---

[12] For a recent analysis of the Indo-Pakistan nuclear balance covering both aircraft and missile delivery systems, see Rodney W. Jones, *Minimum Nuclear Deterrence Postures in South Asia - An Overview*, Final Report by Policy Architects International for DTRA/ASCO, October 2001, available at http://www.dtra.mil/about/organization/south_asia.pdf.

MISSILE DISPLAYS

Missiles displays in India and Pakistan serve five unstated but distinct purposes. Both countries have become accustomed to parading military equipment and displaying weapon technologies to their countrymen and foreign onlookers annually. First, national day celebrations are used to boost domestic morale, increase national pride, and impress the international community with new levels of military accomplishment. Second, these displays send a latent message to an adversary that can be construed as a deterrence or warning signal. Third, missiles displays demonstrate the promise of scientific progress to the nation. Fourth, military displays symbolize defiance to outside powers, clarifying that technical strides can be made despite the hurdles posed by foreign export control agencies. Fifth, missile displays project a currency of national power.

In India, the aim is prestige and symbolism of parity with the middle-level powers, such as France and Britain.[13] In the case of Pakistan, besides the prestige factor, the displays reflect a matching response to balance India's technological progress militarily.

MISSILE FLIGHT TESTS

Missile displays in ceremonial parades demonstrate capability in a passive sense. A more active way to demonstrate real capabilities is through flight tests that validate designs and are thus proof of technical prowess. Flight tests send three messages. First, because a successful flight test proves the missile in question has been acquired and developed, the domestic audience gains confidence in the nation's technical and defense capacity. Testing wins popular support for the missile program. Second, missile flight tests provide technical validation, which is crucial for confidence in operational capacity. Successful ballistic missile flight tests establish credibility to an adversary for the delivery system, thereby enhancing nuclear deterrence. Separate demonstrations of nuclear warhead tests (May 1998) and flight tests are sufficient to prove capability for the purpose of deterrence.

The third type of message is directed beyond the subcontinent. By the late 1990s, flight tests and public displays aroused great international concern and political repercussions. One memorable example dates to March 1998 when Pakistan was preparing its first major missile validation tests. Pakistan was ready to flight test the liquid-fueled *Ghauri* (*Hatf V*) and was nearly ready to test the solid-fueled *Shaheen I* (*Hatf IV*), both of strategic importance to Pakistan. At just that time, however, the conservative and hawkish Bharatiya Janata Party (BJP) which had campaigned on a pro-nuclear weapons platform won an electoral victory and was forming a coalition government. Hoping to dissuade an

[13] See W.P.S. Siddhu, "India's Nuclear Missile Program," A Presentation at the Carnegie Endowment for International Peace Proliferation Roundtable, June 15, 1995.

overt Indian nuclear weapon declaration or nuclear explosive tests, the US government requested a "strategic pause" from Pakistan. The US State Department formally asked Pakistan not to publicly display missiles and not to conduct flight tests of ballistic missiles.[14] In deference to the US request, Pakistan cancelled the scheduled flight test of *Ghauri* (*Hatf V*) in March 1998 and did not display ballistic missiles on its March 23 national day parade that year. Bellicose Indian rhetoric was greeted by US silence, which in Pakistan was viewed as a US failure to publicly acknowledge Pakistan's restraint. Pakistan thus faced the question of whether it would benefit from a sustained strategic pause. On balance, Pakistan concluded that a unilateral strategic pause was not in its security interests and rescheduled the *Ghauri* test. Thus, on April 6, 1998, its first flight test was conducted successfully.

As expected, the April *Ghauri* test met with immediate MTCR sanctions, the third in the decade for Pakistan and the first for North Korea. India's long series of *Agni* and *Prithvi* flight tests, on the other hand, met with relatively mild western protests and disapproval and escaped direct sanctions. India remained largely immune to sanctions because the MTCR regime targets transfers and not indigenous production. India's program is perceived to be largely indigenous primarily because its imported element was progressively reduced as India's indigenous base expanded.[15]

In the wake of international opprobrium following the conduct of nuclear tests and intense US diplomacy led by Deputy Secretary of State Strobe Talbott, there was a general strategic pause in the region for nearly a year. This pause was broken on April 12, 1999, when India conducted another *Agni* missile test. Within two days Pakistan responded by again flight-testing the liquid-fueled *Ghauri*. On this occasion, Pakistan also successfully flight-tested the solid-fueled *Shaheen I* (*Hatf IV*) missile. Pakistan's introduction of a solid-fueled missile with strategic capability was done in a tit-for-tat manner, engaging India now in a pattern of one-upmanship in flight test demonstrations. Although the ballistic missile tests were conducted essentially to validate designs and technical parameters, domestic expectation grew for a matching response for every flight test by the other side. Both sides notified each other about the tests citing the "spirit of the Memorandum of Understanding" that was signed at Lahore in February 1999.

MISSILE MOVES DURING CRISES

Ballistic missiles became an instrument of public politics and coercive strategy in two major crises in South Asia in 1999 and 2001-2002. An

[14] The US government verbally conveyed this message to the Pakistan Army Chief, General Jehangir Karamat, who was on an official visit to the United States in early March 1998. Subsequently, the US Secretary of State sent a letter to the Pakistan government requesting a "strategic pause."
[15] See Raju C. Thomas, "India's Nuclear and Missile Programs: Strategy, Intentions, and Capabilities," in *India's Nuclear Security* (Colorado: Lynne Rienner Publishers, 2000), pp. 87-89.

examination of the role of ballistic missiles in these two crises reveals a mix of signaling by dispersal moves, flight tests, media leaks of deployments, and precautionary warnings that were intended not to be too provocative.

The movement of missiles during crises is obviously a far more sensitive matter than flight-testing. But moving missiles may be a precautionary operational compulsion rather than a tool for deliberately signaling resolve or intentional brinksmanship. It is unrealistic to expect a freeze on missile movement in an unfolding military crisis, when opposing conventional forces are mobilizing for deployment on the border. Missile movements may be carried out defensively for purposes of dispersal, concealment and security, instead of in preparation for offensive use. Outside powers watching the crisis through their satellite and national technical means of intelligence-gathering may misunderstand these moves even more than the local opponent, even though the opponent's means of intelligence may be technically less sophisticated. Arguably, less sophisticated local intelligence-gathering means might reduce the chances of the crisis spiraling rapidly out of control.

Missiles and the Kargil Crisis

The Kargil crisis began in early May 1999 when India discovered that it had lost control over lightly defended mountainous territory to a covert incursion on the northernmost fringes of the Line of Control (LoC) overlooking the town of Kargil. The incursion interdicted a strategic highway linking Srinagar to the Leh district and onwards to the Siachen Glacier. The fighting escalated vertically in late May when India used combat aircraft, two of which were shot down. Despite the significant escalation, Pakistan did not respond with reciprocal air attacks.

The role of ballistic missiles in the Kargil crisis has become a matter of controversy, as accounts from the United States, India, and Pakistan differ. However, there is general agreement that missiles played a key role, and concerns about their potential use helped diffuse the crisis. It is important to analyze these events in the context of their escalatory potential and identify what might be in store in future crises. Respected Indian journalist Raj Chengappa later claimed that,

> India activated all three types of nuclear delivery vehicles and kept them in what is known as Readiness State 3 – meaning that some nuclear bombs would be ready to be mated with the delivery vehicle at short notice. The air force was asked to keep Mirage fighters on standby. DRDO scientists headed to where Prithvi missiles were deployed and at least four of them were readied for possible nuclear

> strike. Even an *Agni* missile capable of launching a nuclear warhead was moved to a western Indian State and kept in a state of readiness. [16]

While Chengappa's assertions have not been verified by other accounts, these reported missile moves by India, if they were actually carried out, did not elicit a public response from the US administration or were not detected**.** The United States has not publicly stated what it believed India's missile activity to be and whether it concluded that India carried out operational missile deployments.

US officials evidently believed and later openly alleged that Pakistan mounted nuclear weapons on nuclear missiles for deployment during the Kargil crisis. This assertion was made in both print and TV media by former President Bill Clinton.[17]

In another published account, Bruce Riedel, a senior director on the National Security Council (NSC) staff, revealed how President Clinton effectively applied "shock and awe" negotiating tactics on Pakistani Prime Minister Nawaz Sharif in a meeting at Blair House on July 4, 1999. In a one-on-one talk (with Riedel being the sole note taker), President Clinton put the Pakistani Prime Minister on the spot by asking if he had "ordered nuclear missile forces to prepare for action." In Riedel's account, Nawaz Sharif, taken aback, apparently was led to believe that the Pakistani military might be "preparing nuclear-tipped missiles" without his knowledge. In unusually emotional terms, President Clinton reportedly declared that Pakistan was "messing with a nuclear war." In a subsequent interview, President Clinton made the same assertion, leaving the impression that he seriously believed the assertions.[18]

Pakistani military officials consistently denied that they had carried out any nuclear preparations. Preparing missiles for combat readiness is an extensive procedure, which would require mating them with nuclear warheads and would imply operational activities such as the activation of command systems and coordination between combat commands. However, in the last week of June 1999, just days before the Blair House meetings, Pakistani and US experts were meeting in Geneva, Switzerland to discuss arms control negotiations. The Pakistani Director-General of the Strategic Plans Division was present at that

---

[16] Raj Chengappa, *Weapons of Peace* (New Delhi: Harper Collins, 2000), p. 437. The terms "activated" and "deployed" have been used which is often confusing in regard to the actual status of weapons from peace time to crises and wars and the state of alert, i.e., Readiness State 3.

[17] President Clinton's interview in "Avoiding Armageddon;" Bruce Riedel, "American Diplomacy and the 1999 Kargil Summit at Blair House," available at http://www.sas.upenn.edu/casi. Also see Strobe Talbot, *Engaging India: Diplomacy, Democracy and The Bomb* (Washington DC: The Brookings Institution, 2004), p. 161.

[18] Former President Bill Clinton, Former Deputy Secretary of State, Strobe Talbott, and former Assistant Secretary of State for South Asian Affairs, Karl Inderfurth were interviewed in the PBS series "Avoiding Armageddon," op. cit.

Geneva dialogue.[19] It stands to reason that if the Pakistani military were contemplating "deploying nuclear-tipped missiles," the head of the Strategic Plans Division (the secretariat of the NCA) would not have left his post for Geneva to discuss nuclear diplomacy issues that were of no immediate urgency.

Two reasons might explain why ballistic missiles were not made combat ready during the Kargil crisis. First, the crisis was already intense and threatening to become worse. The crisis meant different things to both sides. For Pakistan, the Kargil operation was a remote battle, contemplated as a local probe along the LoC in the long-running, low-intensity conflict in Kashmir. For India it was a "war," albeit a limited one, with Pakistan. Any Pakistani missile flight test or missile unit field maneuvers would have been perceived as escalatory, and likely to trigger a deeper crisis in political and military operational terms. Since two Indian aircraft had already been shot down, offensive moves by Pakistani ballistic missile units could have precipitated escalatory Indian reactions.

The second reason was that both sides had already carried out missile flight tests the month before, and there was no compelling technical reason to undertake further flight tests so soon thereafter. Refraining from flight tests during the crisis, then, could be regarded as a conscious decision not to escalate.

It is sobering to consider the possibility during the Kargil crisis that intelligence agencies misread or misrepresented missile moves. It is possible, for example, that alarming US assessments of Pakistan's missile moves were wrong. And if Chengappa's account is accurate, the absence of this episode in US accounts is equally disturbing. If Chengappa's account is true, this also suggests that Indian professions of a relaxed nuclear posture lack credibility.

Missile moves and missile fears during the Kargil crisis highlighted a new factor in crisis management. It is possible that Pakistani missiles were dispersed under standard operating procedures for their protection. Such defensive moves at the local level are to be expected in a crisis. However, Pakistani ballistic missiles were not made combat-ready nor were public statements made to announce such missile moves, nor were flight tests conducted. The United States seemingly could not distinguish between offensive and defensive moves. Either the intelligence was imperfect or the limited intelligence was purposefully used to achieve a desired effect. Regardless of the explanation, the outcome was clear: Pakistan was forced to withdraw, and heavy casualties occurred as India relentlessly attacked the withdrawing troops.

[19] This author was present at the Geneva meetings assisting the Pakistani team with negotiations on June 25 and 28, 1999. Robert Einhorn, then Assistant Secretary of State for Non-proliferation led the US side.

Missiles and the Compound Crisis of 2001-2002

An even more serious crisis between India and Pakistan arose from a sequence of crisis events (hence the term "compound crisis") beginning with the terrorist attack on the Indian parliament on December 13, 2001. This was followed by India's almost immediate mobilization of the bulk of its regular military forces on or near the border with Pakistan. India and Pakistan were widely perceived to be on the brink of war. Missiles introduced a new dimension to this crisis. Indian commentators spoke freely of India launching a "limited war", a concept that gained currency after the Kargil crisis. Hitherto, missile flight tests accompanying a force mobilization and military standoff had never been carried out in South Asia. The intensity and duration of the confrontation, and the prominence of strategic threats, were unprecedented in South Asia, at least through the first half of 2002.

On the eve of the traditional January 2002 parade, India conducted a flight test of a new version of the *Agni I* – configured in this case as a solid-fueled, single-stage missile with a reported range of 700-900 kilometers (km) and payload of 1,000 kilograms (kg). This version of *Agni I* was openly described as a "Pakistan-specific missile."[20] The flight test and accompanying military standoff conveyed a belligerent political message to Pakistan, particularly since it came on the heels of President Musharraf's unprecedented and conciliatory speech of January 12, denouncing all forms of terrorism. It is possible that the missile test was planned in advance rather than concocted as a response to the attack on parliament. Under the circumstances, however, Indian rhetoric became even more strident, so that two simultaneous messages were read in Pakistan. The first message was that India was not impressed with the January 12 public declaration by President Musharraf and was not ready to scale back the military confrontation. The second message was that India was demonstrating a new version of *Agni* that was not China-specific, as conventional wisdom held, but instead was designed to hold Pakistani targets at risk. Belligerent statements from the External Affairs Ministry in New Delhi were interpreted in Islamabad as more than deterrence signals; they were seen as upping the ante of the war-like atmosphere as India's military mobilization continued.

One traditional way for Pakistan to respond to the *Agni I* test would have been to conduct the traditional armed forces parade on March 23, 2002 and to highlight new military capabilities. But Pakistan had cancelled the parade for two consecutive years for security reasons, and therefore did not have this symbolic response option. In May 2002 when the Indian mobilization was nearing its peak, a second crisis was spearheaded by a terrorist attack on the Indian Army's Kaluchak camp in Jammu. Very rapidly the crisis spiraled. In the last week of May, Pakistan flight-tested three ballistic missiles – the *Ghauri* (*Hatf V*), the *Ghaznavi* (*Hatf III*) and the *Abdali* (*Hatf II*). Coming at the height

[20] See, for example, "Future-Fire – The Shorter Smarter Agni Heralds a New Genre of Missiles Directed Towards Pakistan," *India Today*, January 29, 2002.

of the tension, this was the most explicit signal by Pakistan of the readiness of its missile-deliverable deterrent during the composite crisis period. As with the case of the *Agni* test by India in January 2002, these flight tests originally were scheduled for technical reasons for that time of year, but they were timed and ran almost concurrently for multiple purposes.

Analysts found three probable political messages in those tests, inferring that they were intended to placate domestic critics, who had been accusing President Musharraf of neglecting the nation's defense and endangering national security (an allusion to his support to the US Global War on Terrorism); increase pressure on India to refrain from launching military strikes; and indicate that Pakistan was capable of using short- and intermediate-range ballistic missiles with nuclear warheads, and prepared to do so, if necessary. [21]

The Pakistani leadership certainly believed that the missile flight tests carried deterrence value, conveying a message of technical credibility and national resolve. Addressing scientists on June 17, while the military standoff was still in effect (although diplomatic efforts had by then defused the imminence of war), President Musharraf described the previous month's missile flight tests in the following terms:

> By testing, with outstanding success, the delivery systems of our strategic capability, these men (Pakistani scientists) validated the reliability, accuracy, and the deterrence value of Pakistan's premier surface-to-surface ballistic missile systems of the *Hatf* series, namely – *Ghauri*, *Ghaznavi*, and *Abdali*…[W]e need to ensure that the three basic ingredients of the deterrence – capability, credibility and resolve – never get compromised.[22]

President Musharraf's own words made clear that this missile flight-testing sequence was done for more than merely validating designs or measuring technical parameters.

The success of the Pakistani tests evoked a derogatory response in New Delhi, when India's spokeswoman Nirupama Rao said, "India is not impressed with missile antics of Pakistan." Ironically, in January 2002, when the *Agni I* flight test was carried out, India dismissed any notion of that test being provocative or escalatory. The same Indian spokeswoman said at that time, "This step is not intended to be provocative or destabilizing…while our program is not country specific, it is based on an assessment of our own requirements."[23]

---

[21] *The Military Balance: 2002-2003* (London: International Institute of Strategic Studies, 2003), p. 126.
[22] "Nation Proud of Missile Test Results, Says Musharraf," *The News*, June 18, 2002.
[23] Nirupama Rao, Indian External Ministry Affairs spokeswoman, *Times of India*, January 26, 2002.

MISREADING THE PAST

During the Kargil crisis and compound crisis, both sides used missile flight tests as a tool for signaling and upping the ante. Each country described its tests as necessary to validate technical parameters but accused the other of irresponsibility. If such tests did convey a deterrent message as intended, it does not necessarily follow that the same tactic of missile signaling would work the next time. Instead, missile moves could either be dismissed by the opponent or misread as unnecessarily escalatory.

Moving ballistic missiles after a crisis has flared up, or during an evolving crisis, can cause a great deal of confusion and send the wrong signals. Over a period of time, the surveillance capability of both India and Pakistan will improve and missile movements may then be detected. In a crisis situation, however, there may still be no way to indicate convincingly that the missiles are moving for self-defense rather than moving into operational deployment for combat–ready use on short notice. The response of the adversary to those missile movements could be unpredictable. In a worst-case scenario, the country moving its missiles could come under preemptive attacks. Upon detecting operational deployment by the adversary, a nation might be forced to go beyond a defensive move to initiate combat-ready missile dispersal. In any case the missile moves from normal peacetime locations would contribute to the potential for escalation.

Moving missiles under the shadow of an unfolding crisis could signal very different messages. This could be read as conveying resolve to use the weapons if a critical threshold is crossed. More ominously, it could be read as beginning preparations for a strike. It was, apparently, the latter reading that the United States made in the summer of 1999. The Clinton administration reached a hurried conclusion about the purpose of Pakistan's missile moves, presuming that they involved the "tipping of missiles with nuclear warheads" and that they were being made ready for formal deployment during the Kargil crisis.[24] During the compound crisis in 2001-2002, India's External Affairs Ministry adopted a dismissive attitude towards Pakistan's missile flight tests and possible missile movements. The US reaction in 1999, three years earlier, was anything but dismissive.

RISK REDUCTION MEASURES FOR MISSILES

The record to date regarding missile moves does not inspire confidence that such moves will be interpreted properly within and outside the subcontinent. Clarifying the terminology of missile movements properly could reduce the potential for misreading and anxiety.

[24] Statement by Karl Inderfurth in the PBS series, "Avoiding Armageddon," op. cit.

Terminology

Operational considerations in South Asia regarding missile deployment are different from those applied by the major powers during the Cold War. In South Asia, deployment status for nuclear weapons and delivery vehicles change in an evolutionary fashion as India and Pakistan move from peacetime to crisis or to alert conditions short of war. In Europe, the evolution of a crisis did not affect the pre-positioning of nuclear weapons. To be sure, the alert status of the already deployed nuclear forces would increase as the crisis advanced, following standard operating procedures. For India and Pakistan, however, the deployment status of nuclear weapons varies from peacetime, recessed conditions to various degrees of alert during crises. This raises key questions about stability pertaining to the status of nuclear weapons during an unfolding crisis.

With regard to ballistic missiles in South Asia, at least three major steps and sequential activities would be required in the event of a crisis. First, nuclear warheads and missile frames must be prepared for mating. Second, the fuel systems of the missile frames would be checked out for integrity and, in the case of liquid-fueled missiles, the fueling procedures would ensue. Third, if deemed necessary, the warhead would be mated with the missile delivery vehicle and its launcher at an operational site. (An analogous final step would be applicable using aircraft as the delivery system.) The last step completes the transition to the full deployment of the missile system, and the fully deployed system then proceeds into its operational deployment mode. How far the national command system proceeds along this sequence depends on the state of weaponization called for at any particular stage of the crisis and the level of alert deemed necessary by continuous assessment of the security situation. In Pakistan's case, incremental changes would have to be authorized by the "employment committee" of the NCA. System patterns and procedures of deployment in India might differ somewhat from Pakistan's because of differences in doctrine, command system, and asymmetric conditions.[25]

The movement of mobile ballistic missiles for dispersal and deployment are two different operational conditions and at times the use of these terms and their connotations are quite different (see Table 1). Commonly used terms such as "activation" and "deployment" are often loosely applied in South Asia. "Activation" might simply mean that a missile regiment has been ordered to be operationally prepared, but may not mean that live warheads have been transferred. "Deployment" implies that a militarily useable weapon system has been physically transferred to a military unit with delivery means. There is a nuance to this definition and what it means in Pakistan. Deployment in Pakistan means that live warheads are mated with the delivery means (such as missiles and aircraft). The key distinction is on whether there has been a transfer of the nuclear weapon for custodial purposes or for the more advanced step of actually

[25] One account of how nuclear alert and deployment may have occurred in India during the Kargil crisis in 1999 may be obtained from Raj Chengappa, *Weapons for Peace*, op. cit., pp. 437-438.

Table 1: Possible Definitions of Nuclear Weapon and Delivery Status in South Asia [26]

Weaponization	The process of developing, testing, and integrating components into a militarily deliverable warhead.
Deployment	The process of transferring a militarily deliverable warhead to an operational military unit for mating with the delivery system. Deployment may consist of three or four stages determined by the NCA: 1. Preparing the delivery vehicles and warheads 2. Moving warheads to the operational site of the delivery vehicle (or *vice versa*) 3. Mating the warhead with the delivery vehicle 4. Mating the missile with the launcher (if a missile).
Activation (Indian term)	The process of preparing combat-ready warheads and assigning them to designated military units that are preparing separately for operational deployment during crisis.
Induction (Indian term)	Implies that a weapon or its delivery system has been transferred to a military unit, needing only a short time for technical preparation for use.
Custody (Pakistani term)	A warhead or delivery system (complete or in components) transferred to a military base for the purposes of safe and secure storage. The unit responsible for custody is not authorized to access or to change the status of the stored weapon.
Alerting	Actions taken to prepare a deployed weapon system for launch at pre-designated targets and initiating procedures for delineating the launch authority. Typically a fully deployed and alerted system would be ready for launch.
De-alerting	Reversing the alert actions to increase the time and effort required to launch a weapon system.

[26] These definitions have been derived from the author's experience and other sources, including Bruce Blair, "Alerting in Crisis and Conventional War," op. cit.; Rodney W. Jones, "Pakistan's Nuclear Posture: Quest for Assured Nuclear Deterrence – A Conjecture," in *Spotlight on Regional Affairs* (Islamabad: Institute of Regional Studies, January 2000), reprinted in *Regional Studies* 18, no. 2, (Spring 2000), pp. 3-39; Gregory Jones, "From Testing to Deploying Nuclear Forces: The Hard Choices Facing India and Pakistan," RAND Issue Paper, (Santa Monica: RAND, 2000)**;** and Neil Joeck, "Nuclear Relations in South Asia," in *Repairing the Regime*, op. cit.

mating the weapon with the delivery system. In the latter case in Pakistan, it would imply that the Strategic Forces Command has been put into an active operational mode. Because this could be construed, if detected, as a threatening posture and might encourage a preemptive strike, and almost certainly would precipitate intense international opprobrium, Pakistani officials have taken pains to stop short of deployment in previous crises.

Alert Status

Tensions have increased in South Asia since overt nuclearization in 1998. The United States reportedly brought strategic nuclear weapons and their delivery systems to a heightened state of alert twice during the Cold War. The US strategic alert scale goes from Defense Condition (DefCon)-4 in normal or peacetime conditions up to DefCon-1, when nuclear war could be imminent. During the Cuban missile crisis in 1962 and the 1973 Arab-Israeli War, the state of strategic alert was reportedly increased to DefCon-3, which implied that "troops are on standby to await further orders."[27] During the South Asian crises, although conventional forces were mobilized and put on the highest state of alert, there has been no evidence of increased nuclear alert status or nuclear weapons operational deployment in the manner that the superpowers exhibited in their Cold War crises.

During the 1999 Kargil crisis and the compound crisis of 2001-2002, strategic missiles and weapon components may have been moved to different locations for defensive reasons. Seeking defensive measures is analogous to the actions taken under an "orange terrorism alert" in the United States, where precautionary security measures are exercised when a state of vulnerability is present.[28] Threat perceptions are driven by anticipated probabilities and assessed consequences of past events, and responses may be based on worst-case scenarios. In 1998, immediately after the nuclear tests by India, concern mounted in Pakistan that India might carry out a preemptive strike at Pakistani nuclear installations. Pakistan took defensive measures as a result, and this apparently stimulated a perception in the United States that Pakistan was "reacting to false alarms" and creating undue instability.

The September 11, 2001 attacks may have changed US perspectives about anticipatory defense measures when there is a possibility of attack. Several orange alerts have since taken place, with the adoption of heightened security measures to meet any "just in case" scenario. Security managers in South Asia undertake similar measures in response to what they regard as threats peculiar to their environment. These measures are part of standard operating procedure that

---

[27] See Bruce G. Blair, "Alerting in Crisis and Conventional War" in Ashton Carter, John Steinbrunner, and Charles A. Zraket, eds., *Managing Nuclear Operations* (Washington DC: The Brookings Institution, 1987), pp. 75-120.

[28] Orange alert refers to "high level" or heightened security, terminology employed by the US Department of Homeland Security in the wake of the September 11, 2001 terrorist attacks on US soil.

have evolved over time. Threat perceptions are driven by the hypotheses of a preemptive strike (as conducted by Israel against Iraq's Osiraq nuclear research site in 1981). Security perceptions only change for the better when a structured peace and stable security framework exists and an era of cooperative security dawns. Unfortunately, in South Asia the reverse has happened with both sides having their own narration of "stab in the back" theories: Pakistan over Siachen and Operation Brasstacks, and India over Kargil.

During a crisis, an adversary's overreaction based on misperception could have serious consequences. Currently, there is no way to directly reassure an adversary, which may fear that missiles are being moved for operational deployment rather than defensive dispersal. The goals of crisis stability on one hand, and of operational preparedness and deterrence credibility on the other, present a certain tension. Diplomatic efforts must commence promptly to contain a crisis. Communication links, crisis prevention centers, and third parties can facilitate these efforts. The hotline between the Directors-General of Military Operations (DGMOs) of Pakistan and India might be helpful in routine clarification that peacetime military operations are non-threatening, and this could help prevent an inadvertent crisis.[29] This confidence-building measure, however, is not designed to diffuse an unfolding crisis that has already been triggered.

Missile Operations

Among the operational conditions that may cause instability during missile force operations are the following:

- **Scarcity of Timely Intelligence.** Missile movement during crises is a potential source of anxiety to the opponent, and therefore could contribute to escalation. The command system requires timely and accurate information about changing military dispositions on the other side. At present this capacity is limited. India and Pakistan rely on Remotely Piloted Vehicles (RPVs), human, and electronic intelligence. India also possesses a limited satellite imagery capability.[30] In the absence of complete intelligence, there is a significant probability that an adversary would misinterpret passive dispersal and initiate deployment, starting an action and reaction sequence.

- **The Dilemma of Control.** Wide and flexible dispersal of strategic assets is within the capability of both countries but if exercised this option could give rise to a problem of control. Dispersal of missiles

[29] By common agreement, both DGMOs talk for approximately thirty minutes every Tuesday at a pre-designated time.
[30] The Indian Remote System (IRS) of satellites has achieved progressively improved resolution. See "IRS Series," *Jane's Space Directory* (updated December 23, 2003).

during a crisis is understandable to assure their survivability. In dispersal, the foremost problem facing the command authority could be retaining centralized control. Assertive negative control over dispersed missiles is desirable for stability but could undermine assurance that the missile system operators would respond rapidly, if so ordered.[31] Pre-delegation, which weakens central control but increases assured capability under attack to respond at the unit level, would increase the risk of inadvertent or premature actions.[32] The command system would thus be under extreme stress if dispersal or deployment takes place. The principal decision-making problem is how to make an optimum trade-off between battle effectiveness and safety. The evolving command system in South Asia will have to find an answer to this problem, which was not easily solved in the Cold War.

- **Harsh Geophysical Conditions.** Both countries have sufficient territorial space and variety of terrain for dispersal, camouflage, and concealment. India has vast depth, and the geophysical asymmetry with Pakistan is very obvious. However, the road and railway network is not well developed in either country. Conditions for armored and infantry mobility are harsh and compounded by heat and dust. Missile deployment is logistically challenging. Strategic missile types encompass both liquid- and solid-fueled technologies, each having its own unique problems of handling and safety in movement. The assortment of missiles available with varied ranges could further compound the safety issues of mating them with the warhead – both conventional and nuclear. Tribal, communal, and sectarian problems are endemic, posing extraordinary safety and security problems in outlying areas.

Nuclear Weapon Considerations

The deployment of nuclear weapons forces a paradigm shift in security management. At least six major considerations would play into decisions by both India and Pakistan to undertake frequent or continuous deployment. These are:

- **Political and Technical Control.** National political control is an imperative, yet continuous deployment would pose major control challenges, some highlighted above. If deployment were undertaken, it would be to minimize the vulnerability as the result

[31] This concept is discussed in Peter Feaver, "Command and Control in Emerging Nuclear Nations," *International Security* 17, no. 3 (Winter 1992-1993), pp.160-187.
[32] See Barry Posen, *Inadvertent Escalation: Conventional War and Nuclear Risks* (Ithaca, NY: Cornell University Press, 1999).

of a looming threat. If such a threat were serious enough to prompt deployment, the strategic tendency would be to deploy all rather than leave non-deployed assets at risk. In either case, the command and control requirements are the same. As Michael Quinlan has pointed out, "[nuclear] requirements do not…decrease proportionally with size; it is not to be supposed that a small nuclear force does not need sophisticated control – indeed, small size may entail a potential vulnerability that heightens demands."[33]

Dispersal could involve different configurations ranging from the integration of prepared nuclear weapons with their delivery means to separated nuclear weapon components moving independently from delivery systems. Pressure on the command system to pre-delegate release authority would rise as a crisis spirals. The authority to launch nuclear weapons could be centrally controlled by incorporating permissive action links (PALs) in weapons. A PAL is a coded switch that blocks the arming of the weapon until a positive signal has been transmitted by the strategic command. PALs require the entry of a code in order to open circuits that arm the weapon.[34] Even if PALs were available, the decision to delegate authority and release warheads to military units in the field would be an extremely excruciating one for top leaders in both India and Pakistan.[35]

- **Communication Problems.** National command and control depends upon several redundant layers of communication to ensure effective assertive control over dispersed units. The absence of assured redundancy and secure communication would remain a prime concern. In wars, defeating electronic jamming, and – in the event of outbreak of a nuclear war – overcoming the effects of electromagnetic pulse (EMP) would be crucial features of command and control, as well as deterrence stability.

- **Need for Physical Security.** Almost any level of deployment would increase the importance of physical control by the command system of the nuclear weapons. This would be a profound concern in the event that the nuclear command and control and early warning systems in South Asia lack PAL technology and other sophisticated features. The chances of nuclear weapons being stolen or hijacked have been greatly exaggerated in the western

[33]Michael Quinlan, "How Robust is India-Pakistan Deterrence?" *Survival* 42, no. 4 (Winter 2000-2001), p. 148.
[34] See Thomas Cochran, William Arkin and Milton Hoenig, *US Nuclear Forces and Capabilities* (Cambridge, Massachusetts: Ballinger Publishing Company, 1984).
[35] Paul Bracken has defined two levels of control. He refers to political control for statecraft and strategy and provincial control for efficient use of the armed forces. See *Managing Nuclear Operations*, op. cit., pp. 354-356.

press. This possibility is exceedingly remote due to multiple tiers of security. But in a deployed or dispersed mode, the concerns about safety and security would certainly multiply.

LOOKING AHEAD

An unfolding crisis in South Asia always has a larger political context. Almost all crises stem from the existing poor state of relations compounded by lack of communication. Every crisis has a triggering event, and mutual perceptions of the underlying causes of that event are invariably disparate. Mutual distrust and an extremely low level of understanding of nuclear dangers and each other's doctrine and intentions make the odds of misperceptions very high. Under these circumstances, the deployment of ballistic missiles can be very disturbing. In the last twenty years, several military mobilizations have taken place. These mobilizations of the armed forces did not lead to the outbreak of war, implying to some that nuclear deterrence has worked. But no one can count on this pattern to recur repeatedly without resort to war.

Additional concern arises from concepts of limited war and escalation dominance. Such reasoning in South Asia is foolhardy because the weaker side could resort to counters by unconventional means, including guerilla warfare, stalemating the conventional war, and finally playing aggressively with nuclear brinksmanship, if not contemplating actual nuclear use. Under these circumstances, flight-testing seems unlikely to convey the same degree of resolve as do ballistic missile moves. The use of ballistic missiles in combat would have far greater psychological impact than the use of aircraft or other weapons. Missiles as escalatory weapons could be employed in three possible ways. In each case the reaction of the adversary could be unpredictable. One possibility would be to move warheads closer to the staging site as a means of political signaling. A second possibility would be the use of short-range, conventionally-armed ballistic missiles in the event of hostilities. A third possibility would be the use of nuclear-armed ballistic missiles.

Stephen Cimbala has written about nuclear weapons as tools of provocation and deterrence. He uses the carrot-and-stick analogy, that "both pre-nuclear and nuclear threat making depend for their success on the ability of political leaders and military planners to make specific and limited threats, backed by implicit or explicit reassurances against further crisis deterioration or military escalation."[36] In South Asia, however, neither India nor Pakistan offers much in the way of carrots when they wave their sticks. They often engage in saber rattling, test firing of missiles, and mobilizing troops to underline threatening statements and harsh rhetoric, without offering positive measures that could be pursued for de-escalation. Their threats are general, rather than specific or limited. Neither side provides reassurance against escalation. Missiles as instruments for signaling

[36]Stephen Cimbala, *Military Persuasion: Deterrence and Provocation in Crisis and War* (University Park, PA: The Pennsylvania State University Press, 1994), p. 2.

could convey stronger messages than desired and could be misread. Reciprocal actions and counter moves could spiral the crisis.

STEPS TO REDUCE INSTABILITY

The following concepts, both short- and long-term, could help prevent future escalation if the leadership on both sides wanted to implement them.

Short-term Measures

- **Refrain from Large-Scale Mobilizations.** The deeper sources of instability lie in the realm of politics and unresolved conflicts over coveted assets and disparate values. Both countries need to work towards a commitment that large-scale mobilization of their conventional forces should never again take place. However, in the absence of a formal regime-based arrangement to prohibit such mobilization, a process of peace and security building, if initiated sincerely, could allow temperatures to be reduced. This in turn could enable far-sighted leaders on both sides to build firebreaks against "triggering events."

- **Place Constraints on Flight Tests.** Both countries could refrain from carrying out any ballistic missile flight tests during periods of crises. Beyond providing prior notifications, on which there already is a preliminary understanding, the sides could formally agree that ballistic missile flight tests would be suspended during crises. It would be difficult to define exactly what would constitute a period of crisis, but efforts to agree on criteria would themselves be productive and possibly facilitate more detailed confidence-building measures regulating ballistic missile flight-testing.

- **No Mating of Warheads and Delivery Systems.** India and Pakistan could conclude an agreement not to mate delivery systems and warheads in peacetime, in contrast to US/Soviet practices.

- **No Pre-delegation.** Both countries could agree not to pre-delegate authority to field commanders in normal times.

Long-term Measures

- **Leadership Role.** National leaders must maintain absolute control over the status of nuclear weapons and ballistic missiles. The President, the Prime Minister, and senior leaders must be fully informed by custodians of even passive moves of missiles and/or

nuclear weapons. During crises, missiles would only move after the explicit authorization of the NCA.

- **Communication.** National leaders need to inform allies, major powers, and the adversary about the nature of missile moves contemplated or underway. To the extent possible, greater clarity needs to be provided when missiles moves are of a defensive nature.

- **Central Crisis Centers.** In addition to existing communication channels, Nuclear Risk Reduction Centers could be established in each capital and conveniently located for easy access by top leaders.[37]

- **Arms Control Agreements.** Several conceptual options are available for arms control measures intended to reduce the destabilizing effects of strategic missiles. First, it would be wise to ban flight tests of ballistic missiles with ranges of 150 km or less. Second, it would be wise to create geographic non-deployment zones for mobile missiles in border regions. A third approach would be to eliminate missiles with a range of 150 km or less, because they are perceived to have both conventional and nuclear missions. This ambiguity lowers the nuclear threshold. Fourth, India and Pakistan could designate certain types of missiles as having only conventional missions and armament.

CONCLUSION

Nuclear-weapon states bear a great responsibility, not only to their own people but also to the rest of the world. India and Pakistan have demonstrated their possession of nuclear weapons and their means of delivery. In the past decade, ballistic missiles have become a mainstay of their forces. The direction of technology development is likely to increase range and accuracy and make warheads lighter and more efficient. As the inventories grow and as technology evolves, there will be greater pressures to test missiles and/or nuclear weapons.

Ballistic missiles entail a high degree of risk that is not matched by other delivery means. In the 1999 Kargil crisis, the United States used Pakistan's missile moves as a lever to compel Pakistan to withdraw forces abruptly from a local conflict. In the 2001-2002 compound crisis, both protagonists sent deterrence signals with missile tests. These signals upped the ante and brought the region to a heightened state of alert and tension that had a palpable nuclear escalatory potential.

---

[37] See Robert Einhorn, "Nuclear Risk Reduction Centers in South Asia," CSIS Working Group Report (Washington DC: Center for Strategic & International Studies, 2004).

As responsible nuclear neighbors, India and Pakistan need to carefully evaluate the impact of their growing ballistic missile capabilities and their missile management practices. There is an inevitable tension between ambiguity and transparency in nuclear force posturing. This problem is more acute in the case of mobile ballistic missiles that are being moved during heightened alert conditions. Misperceptions in this regard could deepen a crisis and lead to dangerous gamesmanship.

Some destabilizing ballistic missile moves need to be addressed by both India and Pakistan through structured arms control talks. In addition, both countries would be wise to consider establishing a ballistic missile restraint regime in the region. Restraint measures could improve national and regional security, while retaining the deterrent value of nuclear arsenals.

— 5 —

Nuclear Doctrine, Declaratory Policy, and Escalation Control

Rahul Roy-Chaudhury

Official channels of communication between India and Pakistan were fatally disrupted during the ten-month long military mobilization in 2001-02. New Delhi deliberately downgraded its relations with Islamabad by withdrawing India's High Commissioner to Pakistan, and by halving the strength of Pakistan's diplomatic mission. Pakistan followed suit. This increased the dependence of both states on public diplomacy and rhetoric as the most significant channel of bilateral communication. Such a state of affairs, with inherent possibilities of misperceptions and miscalculations, has dangerous implications for two nuclear-armed states.

During much of the border confrontation, India and Pakistan were communicating with each other on a public basis to convey as well as to assess intent and capabilities i.e. operational readiness of forces. Both countries attempted to send "signals" on nuclear as well as conventional matters by their public statements or deafening silences, by the issuance of provocative and inflammatory statements, and by subsequent denials or clarifications. These signals were multiple in nature, carried out at multiple levels, and addressed to multiple constituencies – internal, regional, and international. For both India and Pakistan, the most important constituencies were the domestic public, each other, and the United States, which had the most influence in the region. New Delhi wanted the United States to help pressurize Pakistan to cease cross-border infiltration of militants into Indian-administered Kashmir. Islamabad wanted the United States to restrain New Delhi from taking military action.

Although India attempted to convey clear messages, its nuclear signals appeared confusing and, at times, were at cross-purposes with one another. It is also not clear whether these signals were even perceived as intended by Pakistan or by other parties. If they were, it is not clear whether they were fully understood, or even taken cognizance of, especially by Pakistan. This essay examines the challenges and complexities of India's nuclear signaling during the 2001-02 border confrontation.

DISRUPTION OF DIPLOMATIC COMMUNICATIONS

Soon after the terrorist attack on the Indian parliament on December 13, 2001, New Delhi began attempting to coerce Islamabad into complying with its

demands, and ending cross-border terrorism in Jammu and Kashmir and in other parts of India. On December 14, New Delhi issued a verbal warning to Pakistan seeking action against the activities of two Pakistan-based terrorist organizations – Jaish-e-Muhammed (JeM) and Lashkar-e-Toiba (LeT) – identified by Indian intelligence agencies as being responsible for the attack on parliament. This was followed by another warning on December 31 seeking the return of twenty fugitives wanted by New Delhi, believed to be living in Pakistan.

As part of its "coercive diplomacy" against Pakistan, India launched Operation *Parakram* (valor) on December 19, which was to constitute the largest and longest mobilization of the Indian armed forces. This was a deliberate move, taking place amidst the Global War on Terrorism, to threaten the use of force against Pakistan. It included the deployment of India's three strike corps (comprising armored and mechanized formations) at forward positions on the international border with Pakistan. All leave to armed forces personnel was restricted, and all training programs and military courses suspended. With Pakistan's counter-mobilization, nearly one million armed personnel were deployed across the Indo-Pakistan border.

In order to further increase pressure on Islamabad, New Delhi systematically began to downgrade its diplomatic relations with Pakistan, along with the ending of all transportation and communication linkages. On December 14, the day after the attack on parliament, New Delhi sought the immediate recall of its High Commissioner in Islamabad, Vijay Nambiar, along with the termination of all bus and train services between the two countries, to be effective from January 1, 2002. While it was widely expected that Pakistan would reciprocate by recalling its High Commissioner in New Delhi, Ashraf Jehangir Qazi, it did not do so. In an astute move that transferred the onus of responsibility for his withdrawal on New Delhi, Qazi remained High Commissioner to India for the next four months, even though he was deliberately ignored by the Indian government during this period.

In continuation of its policy of coercive diplomacy, on December 21, 2001, India ordered the reduction of the strength of the Pakistani High Commission in New Delhi by half within forty-eight hours, and restricted the movement of Pakistani diplomats in New Delhi. It also banned all over-flight of Indian territory by Pakistani aircraft from January 1, 2002. Within an hour, Pakistan announced reciprocal diplomatic measures, including the reduction of the strength of the Indian High Commission in Pakistan, and restrictions on the movement of Indian diplomats in Islamabad. On May 18, 2002, Pakistani High Commissioner Qazi was finally asked to leave India, in the wake of the terrorist attack in Kaluchak, near the city of Jammu. The Indian Government told Pakistan to recall Qazi within a week, "for sake of parity."[1] By early January 2002, both the Indian and Pakistani High Commissions were operating on a

[1] "PM reviews situation, military option open," *The Times of India*, May 19, 2002.

skeletal staff and all transportation links between the two countries were cut off, amidst the growing military mobilization of armed forces personnel.

Although Indian Prime Minister Atal Bihari Vajpayee and Pakistani President Pervez Musharraf met twice during the border confrontation at multilateral summits – the seven-nation South Asian Association for Regional Cooperation (SAARC) Summit in Kathmandu in January 6-7, 2002, and the sixteen-nation Conference on Interaction and Confidence-Building Measures (CICA) at Almaty, Kazakhstan, on June 3-4 - tensions did not ease. Indeed, according to the Indian National Security Adviser, Brajesh Mishra, the five-minute Vajpayee-Musharraf meeting in Kathmandu was merely "a replay of the Agra Summit" of 2001 (where Vajpayee and Musharraf failed to agree on the "core" issues of tension between the two states).[2]

NUCLEAR SIGNALING, PAST AND PRESENT

In view of these developments, it was not surprising that nuclear signaling by both New Delhi and Islamabad was unprecedented – in terms of the duration as well as the variety and multiple levels at which the signals emanated. The ten-month border confrontation was the longest period of military mobilization by both countries since their independence in 1947. Nuclear signaling took place by means of flight tests of ballistic missiles, speeches directed to the public and to the armed forces, and press briefings. These signals were conveyed at multiple levels by the political, military, and bureaucratic leadership.

During the Kargil conflict of May-July 1999, nuclear signaling by Islamabad was restrained. This appears to have been due, in part, to Indian military action being limited to its own side of the Line of Control (the *de facto* border dividing Indian and Pakistan-administered Kashmir), which signaled restraint in the use of force. The official Indian post-conflict review - the Kargil Review Committee Report of December 15, 1999 – reveals that Pakistan conveyed only "veiled" nuclear signals to India during the conflict.[3] However, in May 2002, a former senior Clinton administration official publicly alleged that Pakistan was preparing its nuclear-tipped ballistic missiles for possible deployment in July 1999.[4] Since New Delhi may not have been aware of such a move, it did not impact upon the situation on the ground.

---

[2] Interview of Brajesh Mishra, National Security Adviser and Principal Secretary of India, NDTV, May 17, 2003, available at http://www.outlookindia.com/full.asp?fname=brajesh&fodname=20030526&sid=1.

[3] The Kargil Review Committee, *From Surprise to Reckoning: The Kargil Review Committee Report* (New Delhi: Sage Publications, 2000), p. 243.

[4] Bruce Riedel, "American Diplomacy and the 1999 Kargil Summit at Blair House," available at http://www.sas.upenn.edu/casi; and Strobe Talbot, *Engaging India: Diplomacy, Democracy and the Bomb* (Washington DC: The Brookings Institution, 2004), p. 161.

Prior to the 1998 nuclear tests, there were two prior instances of nuclear signaling - during the spring 1990 Indo-Pakistan military crisis and during India's "Brasstacks" military exercise in 1987. In 1990, Pakistan is believed to have made an "implied" nuclear threat to India, although Robert Gates, then Assistant to the President and Deputy for National Security Affairs, did not make any reference to this nuclear signal during his mission to India in May 1990. During the Brasstacks exercise, Pakistan conveyed two nuclear signals to India – quietly through diplomatic channels to India's High Commissioner in Islamabad, S.K. Singh, and publicly through Dr. Abdul Qadeer Khan, its chief nuclear scientist, in an interview subsequently published after the end of the military exercise in the British *Observer* newspaper.

In an attempt to understand India's nuclear signals during the 2001-02 border confrontation – both in terms of conveying stated intentions, as well as in assessing respective intent and capabilities – it is best to examine them in three phases. The first phase can be defined as the period between the terrorist attack on parliament on December 13, 2001 and the attack on the Army residential camp in Kaluchak on May 14, 2002; the second phase covers the post-Kaluchak period till the end of the crisis in mid-June 2002; and the final phase from Indian Prime Minister Vajpayee's claim of victory without war on June 17, 2002 to his "hand of friendship" speech in Srinagar on April 18, 2003.

NUCLEAR SIGNALING, PHASE I: DECEMBER 13, 2001 – MAY 14, 2002

These five months start in the immediate aftermath of the December 13 attack, when, according to the Indian National Security Adviser, Brajesh Mishra, New Delhi came close to using force against Pakistan.[5] This period comprised half the total duration of the border confrontation and military mobilization between India and Pakistan. During this period, New Delhi appeared keen to give two major signals to its domestic public, the Pakistani government, and Washington. First, that its much-publicized threat to use conventional force against Pakistan was real and credible, with limits to its restraint and patience fast approaching – unless Pakistan complied with its demands to end cross-border terrorism. Second, that it would strenuously avoid any nuclear signaling to Islamabad, as well as deliberately ignore any nuclear signals emanating from Islamabad. New Delhi was only too aware that since the early 1990s, Pakistan had been attempting to link the Kashmir dispute to nuclear weapons in a political manner. It was not felt that this crisis would be any different. By highlighting Kashmir as a "nuclear flashpoint," Pakistan hoped to involve the international community in its resolution, which was largely opposed by India (with the exception of US involvement in facilitating the deal with Pakistan to withdraw its troops). Any Pakistani nuclear signaling during the confrontation was therefore to be seen by New Delhi as a political ploy to raise international concern over a nuclear war over Kashmir. By avoiding nuclear references in this

[5] "Talking with Brajesh Mishra," *BBC HARDTalk*. Interview excerpts published in *Indian Express*, November 29, 2002.

crisis, New Delhi's intention was to convey the message that it could handle Pakistani adventurism by conventional means.

In the first official reaction to the December 13 terrorist attack, the Indian cabinet vowed to "liquidate the terrorists and their sponsors wherever they are, whoever they are," but without naming any state. Prime Minister Vajpayee also boldly stated, "now the fight against terrorism has reached its last phase. We will fight a decisive battle to the end," without going into specifics. Here, too, the focus seems to have been on fighting terrorism by conventional means.

Within two weeks of these events, New Delhi and Islamabad exchanged navigational coordinates of their nuclear installations and facilities on January 1, 2002, as they had done for the past thirteen years, in accordance with the bilateral agreement on the Prohibition of Attack against Nuclear Installations and Facilities.[6] Neither New Delhi nor Islamabad apparently felt it prudent to discontinue this existing confidence-building measure, (CBM), notwithstanding tense bilateral relations. Both apparently felt that continued notification was an easier option, as well as the most responsible one. This CBM is more demonstrative than substantive. It has no security implications of any significance, with both states deliberately continuing to neglect to notify each other of one nuclear-related facility each. Thus, continuing existing practices also sent mixed messages.

The announcement that Musharraf was preparing a televised address to the nation on January 12, 2002 was met with a sense of expectation in New Delhi for two reasons. First, that India's politico-military pressure could have begun to work, and second, that this could be reflected in Musharraf's speech, with Pakistan preparing to meet some of India's demands. Dressed in civilian clothing, and apparently reading from a handwritten text, Musharraf's speech attempted to cater to multiple audiences. Although New Delhi cautiously welcomed Musharraf's announcements (including the ban on five sectarian and *jihadi* organizations) as a "major shift" in Islamabad's policy, it was well aware that it fell short of the goals envisioned in its coercive diplomacy policy.[7] In essence, Musharraf's promises needed to be implemented by "concrete action" on the ground.

The first nuclear signal emanating from Islamabad came from Pakistani President Musharraf's speech on the occasion of Pakistan's National Day on March 23, 2002. Not only was his speech seen in New Delhi as a reversal of his January 12 promises, but it was tinged with a warning to India of an "unforgettable lesson" if it dared to challenge Pakistan. The "unforgettable lesson" was seen as alluding to the use of Pakistani nuclear weapons to counter

[6] This agreement was signed on December 31, 1988, by Indian Prime Minister Rajiv Gandhi and Pakistani Prime Minister Benazir Bhutto.
[7] Atul Aneja, "Match words with action, India tells Pak.," *The Hindu*, January 14, 2002; and B. Muralidhar Reddy, "It is for India to act, says Musharraf," *The Hindu*, January 16, 2002.

an Indian conventional attack across the LoC. Although there was no official response to this nuclear signal by the Indian cabinet, Defense Minister George Fernandes criticized Musharraf's statement as "childish."[8]

Surprisingly, the second nuclear signal from Islamabad came at a time of relative calm along the Indo-Pakistan border. On April 6, 2003 the well-known German weekly newsmagazine, *Der Spiegel*, published an interview with Musharraf, quoting him as saying that in the event that pressure on Pakistan became too great, "as a last resort, the atom bomb is also possible." The sensational title of the interview, "Kaschmir konflikt: Pakistan's Musharraf droht Indien mit der Atombombe" (Kashmir Conflict: Musharraf of Pakistan threatens India with Nuclear Bomb) added to its impact. The translation of Musharraf's statement reads as follows: "Using nuclear weapons would only be a last resort for us. We are negotiating responsibly. And I am optimistic and confident that we can defend ourselves using conventional weapons...[O]nly if there is a threat of Pakistan being wiped off the map, then the pressure from my countrymen to use this option would be too great."[9] Amidst much sensational international press coverage the following day, the spokesman of the Pakistani government clarified that Musharraf had actually said, "the use of nuclear weapons is only as a last resort, if all of Pakistan were threatened to disappear from the map."[10]

Significantly, Prime Minister Vajpayee publicly declined to comment on Musharraf's interview, stating, "I will not like to comment till I see the entire statement." Not surprisingly, Vajpayee never did respond to the *Der Spiegel* interview.

During this phase, the only exceptions to New Delhi's policy of avoiding all nuclear signaling, took place, perhaps inadvertently, with Indian Chief of Army Staff (COAS) General S. Padmanabhan's press conference on January 11, 2002, and the flight-test of the *Agni I* ballistic missile on January 25, 2002. The day prior to Musharraf's much advertised address to the nation, General Padmanabhan called a press conference, ostensibly to brief the media on the high state of armed forces preparedness on the borders. At the press conference, he pointed out that the possibility of a nuclear exchange between India and Pakistan was in the "realm of the unknown," and that India had already declared that it would not be the first to use nuclear weapons. However, in response to a query from a journalist, Padmanabhan gave an unclear warning to Pakistan on nuclear war. He stated that India possessed the capability of a retaliatory strike and warned that if any country was "mad enough" to initiate a nuclear strike

[8] See video clip available at http://www.tribuneindia.com/2002/20020326/nation.htm.
[9] See "Musharraf aims to reassure on nuclear danger," *Disarmament Diplomacy* 64 (May-June 2002).
[10] "Pakistan clarifies threat to use nukes," *Rediff.com*, April 11, 2002, http://www.rediff.com/news/2002/apr/10pak1.htm.

against India, then "the perpetrator of that particular outrage shall be punished severely."[11]

This response was clearly contradictory to India's unstated policy to refrain from nuclear signaling. Thus, within hours, in an unprecedented manner, Defense Minister George Fernandes publicly repudiated the "uncalled for concerns" caused by the Army Chief's observations, much to the consternation of the armed forces. In a written statement, Fernandes pointed out that nuclear issues should not be handled "in a cavalier manner."[12]

Within two weeks of George Fernandes' statement, however, India flight-tested its medium-range *Agni* ballistic missile on January 25, 2002, on the eve of its Republic Day. Pakistan was provided advanced notification of the missile test (along with the permanent members of the United Nations Security Council) in the spirit of the Lahore Memorandum of Understanding (MoU).[13] Nonetheless, it was clear that a nuclear-capable ballistic missile with special characteristics had been tested. Notwithstanding the statement of the official spokesperson of the Indian Ministry of External Affairs (MEA) that "this (test) is not directed against any country," considerable publicity was given to the range of the missile - 700 kilometers - with the implicit signal that it was, quite clearly, a Pakistan-specific, nuclear-capable missile.

NUCLEAR SIGNALING, PHASE II: MAY 14, 2002 – JUNE 17, 2002

This month was the most tense of the entire military confrontation, when New Delhi again came close to using force against Pakistan in response to the May 14 terrorist attack in Kaluchak. During this period, the war rhetoric from India was at an all-time high, with New Delhi continuing to threaten the use of force, whilst deliberately ignoring Pakistan's nuclear signaling. An added dimension to India's policy appeared to be a public appeal to the international community to reign in Pakistan's support of terrorism.

Just after the Kaluchak attack, Vajpayee informed President George W. Bush in a telephone call that, "India will take appropriate action."[14] Vajpayee also informed parliament that the nation would counter the attack at Kaluchak. Subsequently, both houses of parliament adopted a unanimous resolution condemning the "most dastardly" attack and pledged to end the "senseless acts

---

[11] Josy Joseph, "Army chief goes on the offensive, says situation on border is 'war-like,'" *Rediff.com*, January 11, 2002, available at http://inhome.rediff.com/news/2002/jan/11army2.htm.
[12] "Uncalled for concerns: Fernandes," *The Hindu*, January 12, 2002, available at http://www.hinduonnet.com/thehindu/2002/01/12/stories/2002011201040100.htm.
[13] The Lahore Memorandum of Understanding (MoU) was signed on February 21, 1999, by the Indian Foreign Secretary, Mr. K. Raghunath, and the Pakistani Foreign Secretary, Mr. Shamshad Ahmad. The MoU called on both sides "to provide each other with advance notification in respect of ballistic missile flight tests, and …conclude a bilateral agreement in this regard."
[14] Press statement of the telephone conversation between President George W. Bush and Prime Minister Atal Bihari Vajpayee, "President George W. Bush Condemns Terrorist Attack in Kaluchak," May 15, 2002, available at http://meaindia.nic.in/event/2002/05/14event02.htm.

of terrorism."[15] The Indian COAS, General Padmanabhan, on an official visit to Nepal, was quoted as stating, "the time for action has come," though he added that this was a political decision.[16]

On May 20, Union Home Minister L.K. Advani said the government "would go ahead and win the proxy war like we did in 1971."[17] However, on May 21 in Jammu, Vajpayee stated that he did not "see any war clouds."[18] In Kupwara, the following day, addressing Army personnel, he contradicted his earlier statement by emphatically asserting that "the time has come for a decisive battle and we will have a sure victory in this battle."[19] In Srinagar the next day, questioned on his statement on war clouds, Vajpayee stated, "the sky may be clear, but sometimes even when the sky is clear there is lightning," but he hoped that lightning would not strike.[20] In a formal statement issued on the occasion, Vajpayee was quoted as having stated that India was preparing for a "decisive victory."[21] These statements were perceived by Indian security analysts as referring to a possible attack against Pakistan. A "war of words" also appeared to be playing out in the Indian media. Responding to an unsourced Indian media report that Pakistan had deployed the nuclear-capable *Shaheen I* ballistic missiles (with a range of 800 kilometers) on the border, an unnamed Indian official was quoted as stating that India's missile systems had been in position for some time.[22]

These were, arguably, the most important - though confusing and apparently contradictory - Indian pronouncements at the critical juncture of the crisis. It is crucial to note that Vajpayee's comments on a "decisive battle" on May 22 were made during an address to Army troops in Kupwara. These were officers and jawans who were already beginning to tire of being at the highest level of operational preparedness for over five months, amidst harsh weather conditions. Vajpayee's speech essentially appeared intended to boost the morale of Indian armed forces personnel, and provide some direction to the increasing confusion over the future course of action vis-à-vis Pakistan. But, at the same time, it appeared intended to impact on Islamabad and especially Washington, indicating limits on India's patience over Pakistan's perceived intransigence.

This was reflected a few days later as well. On May 26, a day before Musharraf's well-publicized second address to the nation, Vajpayee gave a stern

---

[15] Neerja Chowdhury, "This time, all dressed up and no where to go?," *The Indian Express*, May 18, 2002.
[16] "The Time for Action, says Army Chief," *The Tribune*, May 16, 2002.
[17] Atul Aneja and Sandeep Dikshit, "Military Preparations at a brisk pace," *The Hindu*, May 21, 2002.
[18] "War clouds recede after week of tough rhetoric," *Indo-Asian News Service*, May 31, 2002, available at http://www.newsindia-times.com/2002/05/31/special10-top.html.
[19] Luv Puri, "Be ready for decisive battle, PM tells jawans," *The Hindu*, May 23, 2002.
[20] Luv Puri, "Border situation tense, challenging: PM," *The Hindu*, May 24, 2002.
[21] "Vajpayee ready for political solution to J&K issue," *Rediff.com*, May 23, 2002, available at http://in.rediff.com/news/2002/may/23jk1.htm.
[22] Rajat Pandit, "India unleashes retaliatory fire," *The Times of India*, May 24, 2002.

warning to Pakistan, while, at the same time, stressing the critical role the international community could play in reigning in Pakistan and averting a war. From the northern hill station of Manali, where he had ostensibly gone on holiday after his visit to Jammu and Kashmir, Vajpayee reflected that "we should have given a fitting reply" the day "they" attacked parliament.[23] Although this was subsequently clarified, as not stating that "we should have struck, but that it would have been better to…have taken action immediately after December 13," its import was clear.[24] At the same time, Vajpayee added, "world leaders told India to keep patience while condemning the December 13 attack. But, India won't follow the same advice now. The world should understand there is a limit to India's patience."[25]

Musharraf's televised address to the nation on May 27 was seen as another opportunity to ease tensions with India, the first having been frittered away in the absence of implementing measures following his January 12 speech. Instead, dressed in military uniform, Musharraf's speech was perceived as highly provocative in New Delhi. Not surprisingly, the Indian government's response was harsh and focused. At a press conference the following day, External Affairs Minister Jaswant Singh began by stressing that the address was both "disappointing and dangerous:" disappointing in the repetition of earlier assurances and dangerous as "tension has been added to, not reduced."[26]

Partly in response to the war rhetoric emanating from New Delhi, a senior member of the Pakistani cabinet, Lt. General Javed Ashraf Qazi, told the official Iranian News Agency (IRNA) in Islamabad on May 22 that Pakistan would not hesitate to use nuclear weapons if its survival was at stake. As Minister for Railways, and a former Chief of the Inter-Services Intelligence (1993-95), Qazi stated, "If it ever comes to the annihilation of Pakistan then what is this damned nuclear option for, we will use (it) against the enemy." He added, "If Indians will destroy most of us, we too will annihilate parts of the adversary. If Pakistan is being destroyed through conventional means, we will destroy them by using the nuclear option as they say if I am going down the ditch, I will also take my enemy with me."[27]

A week later, Pakistan's Permanent Representative to the United Nations in New York, Munir Akram, asserted his country's right to use nuclear weapons against India's conventional superiority. At a press conference in New York on May 29, his second day in this post, Akram stated, "we have to rely on our own means to deter Indian aggression. We have that means and we will not neutralize

---

[23] Inder Malhotra, "Of Diplomacy, rhetoric and terror: Ground realities matter most," *The Tribune*, May 27, 2002, available at http://www.tribuneindia.com/2002/20020530/edit.htm#4.
[24] "Transcript of Press Conference of Jaswant Singh," *Ministry of External Affairs*, May 28, 2002, available at: http://meaindia.nic.in/mediainteraction/2002/05/28mi01.htm.
[25] Rahul Bedi, "A strike staunched," *Frontline 19,* no.12 (June 8-21, 2002), available at http://www.flonnet.com/fl1912/19120130.htm.
[26] "Transcript of Press Conference of Jaswant Singh," *Ministry of External Affairs*, op. cit.
[27] "Pakistan may consider nuclear option: Minister," *Press Trust of India*, May 22, 2002.

it by any doctrine of no first use." Accusing India of having a "license to kill" with conventional weapons, he queried, "How can Pakistan, a weaker power, be expected to rule out all means of deterrence?"[28]

None of these Pakistani statements were ever denied, or alleged to have been misquoted by the media. Additional pronouncements followed to alleviate their negative impact on international public opinion. In an interview with the *Washington Post* published on May 26, Musharraf attempted to downplay the threat of nuclear war. On being asked to describe the circumstances in which he would consider using nuclear weapons if war were to erupt, he said,

> "This is a – it is such a question which I wouldn't like to even imagine, frankly, that we come to a stage where this is due. But let me give an assessment that this stage will never come…We have forces. They follow a strategy of deterrence. And we are very capable of deterring them…I really don't think we will ever reach that stage, and I only hope that we – I hope and pray that we will never reach that stage. It's too unthinkable."[29]

Nonetheless, in the midst of this rhetoric, Pakistan flight-tested three types of nuclear-capable ballistic missiles. Although Islamabad also unilaterally provided New Delhi (along with the P-5 and other neighboring states) with advanced notification of these tests in accord with the Lahore MoU, their timing could not be missed. On May 25, the North Korean-based *Ghauri* (*Hatf V*) (1,500 km) medium-range, surface-to-surface ballistic missile was tested, followed by the Chinese-based *Ghaznavi* (*Hatf III*) short-range (300 km) missile the next day. Two days later, coinciding with the visit of British Foreign Secretary Jack Straw to Islamabad, Pakistan launched the *Abdali* short-range (180 km) ballistic missile. Taking place as they did, amidst the presence of some 5,000 American military personnel in Pakistan deployed to support the Global War on Terrorism in Afghanistan, these tests also sent a strong message of resistance to Indian coercive diplomacy and readiness to engage in military action.

Although Pakistan's nuclear signaling through public statements and missile tests were viewed as extremely provocative by New Delhi, there was no reaction to them in kind for fear of invoking Kashmir as a "nuclear flashpoint." New Delhi therefore publicly scoffed at Pakistan's ballistic missile flight tests. Vajpayee, in Manali at the time of the first test, appeared singularly unimpressed, dismissing it as "routine" and saying that India was not taking it

---

[28] Dharam Shourie, "Defiant Pakistan threatens to use nukes," *Rediff.com*, May 30, 2002, available at http://in.rediff.com/news/2002/may/30war2.htm.

[29] Steven Coll, "Musharraf says raids in Kashmir have ended: Pakistan President demands India's Reply," *Washington Post*, May 26, 2002; and "President's Interview" (Excerpts), *Washington Post*, May 20, 2002.

seriously.[30] At various times, the Indian MEA responded to the missile tests as unimpressive; as there was "nothing indigenous about it," since the missiles were derived from imported technology or acquired hardware; as Pakistan engaging in "missile antics;" and as targeted primarily at Pakistan's domestic audience.[31]

During this intense period, India began appealing publicly to the international community to constrain Pakistan's adventurism in Kashmir, emboldened by the condemnation of the Kaluchak attack by a senior US administration official on a visit to New Delhi at the time. On the day of the Kaluchak attack, Assistant Secretary of State for South Asia, Christina Rocca, at a speech at the Confederation of Indian Industries (CII) in New Delhi, noted that, "It is just this type of barbarism that the war on terrorism is determined to stop."[32]

At a May 28 press conference, Minister for External Affairs Jaswant Singh for the first time publicly expressed disappointment that Musharraf and some of his ministers were speaking "very casually about nuclearization." He stated that "this tantamounts to nuclearization of terrorism," adding that "…in this we see an example of how promotion of terrorism and the threat of nuclear weapons is being held simultaneously. The international community has to take note of the seriousness of these two dangers."[33] A few days later, Defense Minister George Fernandes, participating in the International Institute for Strategic Studies (IISS) Shangri La dialogue in Singapore, queried why "world opinion is not reacting to such open threats of Pakistan on use of nuclear weapons. Is this not an attempt to blackmail India and the rest of the global community?"[34]

Vajpayee went even further a few months later, when he stated that "dark threats were held out that actions by India to stamp out cross-border terrorism could provoke a nuclear war." Addressing the 57th Session of the United Nations General Assembly in New York, he warned that nuclear blackmail had emerged as a "new arrow in the quiver of state-sponsored terrorism." He went on to say that to succumb to such blatant "nuclear terrorism" would mean "forgetting the bitter lessons of the September 11 tragedy."[35]

---

[30] "Roundup: Pakistan Conducts Missile Tests Amid Rising Tensions with India," *People's Daily,* May 27, 2002, available at http://english.people.com.cn/200205/27/eng20020527_96486.shtml.
[31] "Transcript of Press Conference of Jaswant Singh," *Ministry of External Affairs*, op. cit.; and "Pak. Missile test a provocation," *The Hindu*, October 5, 2002.
[32] Atul Aneja, "Pullout of forces not possible: Delhi," *The Hindu*, May 15, 2002, available at http://www.hinduonnet.com/thehindu/2002/05/15/stories/2002051502990100.htm.
[33] "Transcript of Press Conference of Jaswant Singh," *Ministry of External Affairs*, op. cit.
[34] Address by George Fernandes at the IISS Asia Security Conference, Shangri-la Dialogue, Singapore, June 2, 2002.
[35] Address by Prime Minister Atal Bihari Vajpayee at the 57th session of the United Nations General Assembly, New York, September 13, 2002.

The only exception to New Delhi's circumspect, and largely restrained, policy on nuclear signaling to Pakistan during this phase – to strenuously avoid any mention of nuclear weapons, as well as deliberately ignore any nuclear signaling from Islamabad – arose, quite unexpectedly, from an interview of the senior-most bureaucrat in the Ministry of Defense (MoD). In early June 2002, Defense Secretary Yogendra Narain told the New Delhi-based weekly newsmagazine *Outlook* that India would retaliate with nuclear weapons if Pakistan used its atomic arsenal. Both countries were therefore required to be prepared for "mutual destruction."[36] However, in a manner similar to the government's reaction to General Padmanabhan's press statements in January 2002, a public denial was soon issued. The press release issued from the MoD stated, "The Government makes it clear that India does not believe in the use of nuclear weapons. Neither does it visualize that it will be used by any other country."[37]

NUCLEAR SIGNALING, PHASE III: JUNE 17, 2002 – APRIL 18, 2003

These ten months saw the dramatic easing of Indo-Pakistan tensions through facilitation by the United States and the United Kingdom, the successful conduct of assembly elections in Jammu and Kashmir, and the withdrawal and demobilization of the Indian and Pakistani armed forces from the international border. This phase ended with Vajpayee's famous "hand of friendship" speech in Srinagar.

During this period marked by decreasing tensions, India's policy on nuclear signaling was reversed. Instead of deliberately avoiding and ignoring nuclear signals, as in the recent past, in the "non-crisis" phase New Delhi appeared intent on conveying to Pakistan the credibility of its nuclear forces and its "second strike" nuclear capability to dispel any doubts on this account in Islamabad. Not surprisingly, India's official nuclear doctrine was also publicized in January 2003.

With the dramatic easing of tensions, Vajpayee claimed victory in the crisis in the absence of fighting a war. In an interview to a widely read Hindi language newspaper, *Dainik Jagran*, on June 17, he was quoted as saying that war with Pakistan was averted only due to Islamabad's guarantee that it would crack down on Pakistani-based Islamic militants crossing into Kashmir. This was achieved through international pressure on Pakistan in order to meet India's demand that it end cross-border terrorism. In a clear indication that Pakistan's nuclear deterrence had not worked, he stated, "If Pakistan had not agreed to end infiltration, and America had not conveyed that guarantee to India, then war would not have been averted."[38] The MEA was quick to clarify that Vajpayee's

[36] "India will use nuclear weapons if Pakistan does: Defence Official," *The Hindustan Times*, June 3, 2002.
[37] "War, if at all, will be sans nukes: Army," *The Pioneer*, June 4, 2002.
[38] "Pak. Pledge on ultras averted war," *The Hindu*, June 18, 2002.

remarks should not be construed to indicate that India was ready to start a nuclear conflict with Pakistan.[39]

Vajpayee's remarks were immediately challenged by an indignant Musharraf the following day when he asserted that deterrence had, in fact, worked. At a dinner for Pakistani nuclear scientists and engineers, Musharraf stated that Pakistan's nuclear weapons had brought a "strategic balance" to South Asia. He said that "heightened international concerns of a nuclear conflict in South Asia, and the hesitation, frustration, and inability of India to attack Pakistan, or conduct a so-called limited war, bear ample testimony to the fact that strategic balance exists in South Asia and that Pakistan's conventional and nuclear capability together deter aggression."[40] India was quick to denounce this statement. While accusing Islamabad of trying to justify its "nuclear blackmail," it urged the international community not to ignore the "continued manifestations of Pakistani irresponsibility, loose talk, and undiluted hostility towards India," along with the "continued concoction of doomsday theories to justify its use of nuclear blackmail."[41]

In support of his contention, Musharraf indicated that he had been prepared to use "unconventional weapons" in the event of an Indian attack. Addressing veterans of the Pakistan Air Force in Karachi on December 30, he stated that "we have defeated our enemy without going into war."[42] He stated that the Indian Prime Minister had been informed by visiting world leaders ''that if the Indian Army moved just a single step beyond the international border or the LoC then *Inshallah* ("By the Will of God") the Pakistan Army and the supporters of Pakistan would surround the Indian Army and that it would not be a conventional war."[43]

Although Musharraf did not specifically mention "nuclear weapons" in his speech, it was apparent he was referring to little else. Significantly, he also made it clear that Pakistan's "low" nuclear threshold ought to be lowered further, to "a single step" across the LoC by the Indian armed forces. This was quite different from his earlier statement on April 6, 2002 referring to nuclear weapons as those of "last resort." The Indian government promptly responded by noting these ''highly dangerous and provocative'' remarks.[44] Subsequently, there was an official Pakistani attempt to "clarify" Musharraf's comment through obfuscation. What Musharraf actually indicated, it was "clarified," was the use of "only unconventional forces and not nuclear or biological weapons."[45]

---

[39] "Transcript of Press Briefing by the Official Spokesperson," *Ministry of External Affairs*, June 17, 2002, available at http://meaindia.nic.in/.
[40] "N-Deterrent averted war: Musharraf," *Agence France-Presse*, June 19, 2002.
[41] "Irresponsible Talk," *The Hindu*, June 19, 2002.
[42] "Warning forced India to pull back troops, says President," *Dawn*, December 31, 2002.
[43] Ibid.
[44] "Gen shoots mouth off, backfires," *The Indian Express*, December 31, 2002.
[45] Ibid.

These statements prompted Defense Minister George Fernandes into sending a spate of nuclear signals to Pakistan. Fernandes began by describing Musharraf's December 30 statement as "irresponsible."[46] A week later, he told a CII gathering in Hyderabad that "we can take a bomb or two or more…but when we respond there will be no Pakistan."[47] To a question of the danger posed to India if Pakistani nuclear weapons fell into the hands of hard-line Islamic terrorists, he elaborated, in a BBC phone-in radio program in Hindi on the occasion of India's Republic day on January 26, 2003, "We have been saying all through that the person who heads Pakistan today has been talking about using dangerous weapons including the nukes. Well, I would reply by saying that if Pakistan has decided that it wants to get itself destroyed and erased from the world map, then it may take this step of madness, but if (it) wants to survive then it would not do so."

In order to emphasize its nuclear forces, and the credibility of its "second strike" nuclear capability, India provided a glimpse of its much-delayed nuclear doctrine and nuclear command and control arrangements. On January 4, 2003, the Cabinet Committee on Security (CCS) issued a statement announcing the formalization of India's nuclear doctrine and command and control structures. The statement declared that nuclear retaliation to a first strike would be massive, and designed to inflict unacceptable damage.[48] The statement also noted that the CCS was satisfied with existing command and control structures, the state of readiness, the targeting strategy for a retaliatory attack, and operating procedures for various stages of alert and launch. It also reviewed and approved the arrangements for alternate chains of command for retaliatory nuclear strikes in all eventualities. Finally, the CCS statement publicized the appointment of a Commander-in-Chief, Strategic Forces Command, to manage and administer all Strategic Forces. Nuclear weapons would not only be used in retaliation against a nuclear attack on Indian territory, but also "on Indian forces anywhere," which remained undefined. India would "retain the option of retaliating with nuclear weapons" in the event of a major attack against India, or Indian forces anywhere, by "biological or chemical weapons."[49] In tandem with this assertive nuclear posture, there were publicized reports that the National Security Advisory Board (NSAB), a group of non-officials formally established to advise the National Security Council (NSC), had suggested a review of India's no first use pledge a few days prior to the publication of the broad concepts of India's nuclear doctrine.[50] A week later, on January 10, 2003, India carried out another test of its nuclear-capable *Agni* ballistic missile.

---

[46] "Pakistan will be wiped out in nuclear counterattack: Fernandes," *Agence France-Presse*, January 27, 2003.
[47] Ibid.
[48] Press Release, "The Cabinet Committee on Security Reviews Operationalization of India's Nuclear Doctrine," *Ministry of External Affairs*, January 4, 2003, available at http://meaindia.nic.in/pressrelease/2003/01/04pr01.htm.
[49] Ibid.
[50] Subash Kapila, "India's Strategic Postures Reviewed," Paper no. 604 (South Asia Analysis Group, February 2003), available at http://www.saag.org/papers7/paper604.html.

The release of a summary of India's nuclear doctrine was preceded by several public pronouncements on the possibility of using preemptive force against terrorist training camps in Pakistan. New Delhi drew from and was encouraged by the publication of the US National Security Strategy in September 2002, which asserted the US right "of self-defense by acting preemptively," and the growing signs of war against Iraq in late 2002. This appeared to "legitimize" India's assertions of using force across the LoC against terrorist training camps in Pakistan-administered Kashmir. In this regard, Jaswant Singh, now serving as Finance Minister, stated that every country had a right to preemptive strikes as an inherent part of its right to self-defense, and preemption was not the prerogative of any one nation. Speaking at the end of September 2002 in Washington DC, he said, "Preemption or prevention is inherent in deterrence. Where there is deterrence there is preemption. The same thing is there in Article 51 of the UN Charter which calls it 'the right of self-defense.'"[51] Not surprisingly, this was quickly refuted by the United States, which questioned India's rationale for preemptive strikes. US Secretary of State Colin Powell pronounced that no parallels could be drawn between the situation in Iraq and the Indo-Pakistan face off on Kashmir.[52]

Amidst the war on Iraq, the principle of preemption was once again picked up by Indian External Affairs Minister Yashwant Singh. On April 2, 2003, in an *Agence France-Presse* interview, Sinha rhetorically asserted India's right to take "preemptive" military action against Pakistan along the lines of the coalition war against Iraq. He stated, "we derive some satisfaction…because I think all those people in the international community…realize that India has a much better case to go for preemptive action against Pakistan than the US has in Iraq."[53] George Fernandes then played down this statement, saying that these were "casual" comments and not government policy.[54]

Less than a fortnight later, Vajpayee made his widely applauded "hand of friendship" speech in Jammu and Kashmir. Addressing a public rally, Vajpayee said problems could not be resolved through the barrel of the gun but only through dialogue. Emphasizing that the time had come for ushering in a sea change in Indo-Pakistan relations, he stated, "We are extending our hand of friendship but it should be reciprocated."[55]

---

[51] Sridhar Krishnaswami, "Every country has the right to pre-emption: Jaswant," *The Hindu*, October 1, 2002.
[52] J.N. Dixit, "Linkage Politics," *Indian Express*, April 18, 2003.
[53] "Interview of External Affairs Minister Shri. Yashwant Sinha with AFP," *Agence France-Presse*, April 2, 2003, available at http://meaindia.nic.in/interview/2003/04/02i01.htm.
[54] Jawed Naqvi, "India blames Pakistan for Agra Summit failure: Talks ruled out," *Dawn,* April 15, 2003.
[55] "Talks, not guns, will solve issues: Vajpayee," *Press Trust of India*, April 18, 2003.

CONCLUSION

Amidst the 2001-02 border confrontation, New Delhi attempted to convey different and distinctive signals. During the first phase of the crisis period (December 13, 2001-May 14, 2002), India emphatically threatened the use of conventional force against Pakistan. In the second phase (May 14, 2002 – June 17, 2002), an added Indian dimension was the appeal to the international community to reign in Pakistan's support for terrorism. During both these phases, India's unstated but deliberate and circumspect policy was to avoid any nuclear signaling, while, at the same time, deliberately ignoring any nuclear signaling from Islamabad. This was essentially motivated by an over-riding political consideration - to downplay the perception of Kashmir as a "nuclear flashpoint," thereby lending credence to Pakistan's position. Indeed, India's Permanent Representative to the UN in New York was to describe these events as an "artificial nuclear scare."[56]

In the denouement to the crisis (June 17, 2002 – April 18, 2003), this policy undertook a dramatic reversal. New Delhi emphatically threatened the use of Indian nuclear weapons, and the total destruction of Pakistan, in the event that Pakistan's nuclear weapons were used first against India. This was the rejoinder to counter Pakistan's nuclear signaling during the first two phases of the crisis when Pakistan conveyed its intent to use nuclear weapons to prevent an Indian conventional attack. New Delhi's signaling during the third phase appeared to be an attempt to convince a domestic audience and Pakistan of the credibility of India's nuclear deterrent.

India and Pakistan's signals were not clear and easily discernible. Indeed, the signals from both New Delhi and Islamabad appeared confusing and ambiguous. Five major lessons emerge from this narrative on Indo-Pakistani nuclear signaling.

First, a signal is not always read as intended. Whereas one side may actually be signaling intent, the other may simply miss it, with worrying implications for stability. Signaling depends, in the first instance, on confirmation of the moves that provide the basis for the signal. But confirmation or rebuttal of the signal requires indications and warning signs that are monitored and conveyed back to the leadership. If these are missed, the signaler may perceive the other's absence of action as negating the signal. This could force the signaler to raise the stakes, thereby further exacerbating tensions. A case in point was Pakistan's alleged movement of nuclear-tipped ballistic missiles for deployment during the Kargil conflict in July 1999, which New Delhi may not have been aware of, if indeed this occurred.

---

[56] Statement of V.K. Nambiar, India's Permanent Representative to the United Nations, Press Release on "Focus of Conflict Resolution as the General Assembly continues debate on work of organization and follow up to the Millennium Summit," 57th General Assembly Plenary, 24th and 25th Meetings, October 7, 2002, available at http://www.un.org/News/Press/docs/2002/ga10074.doc.htm.

Second, a non-signal may also be perceived as a signal. Specific actions may have technological or bureaucratic dynamics independent of on-going political tensions, which could be perceived as signaling. In a charged political environment such assessments would not be unusual. It is not always the case that specific actions are always well thought out and extensively deliberated within governments.

Third, signaling is confused by a large number of actors. Although New Delhi perceived signals to its multiple constituencies as fairly clear and unambiguous, they were not perceived as such due to the number of principal actors involved. Clearly, the principal signaler was Prime Minister Vajpayee. In addition, Defense Minister George Fernandes and the External Affairs Ministers – Jaswant Singh, followed by Yashwant Sinha – were involved in signaling at various stages. Interestingly enough, Union Home Minister L.K. Advani was rarely involved in issuing these signals, although he is perceived as hawkish on these matters. At critical times, there were two other major players involved in nuclear signaling – Army Chief General Padmanabhan and Defense Secretary Yogendra Narain. This relatively large number of senior individuals involved in signaling tended to confuse New Delhi's signals, as perceived by Islamabad and Washington.

Fourth, signals can be at cross-purposes with one another. At crucial times, New Delhi's signals were contradictory. When the Indian government appeared keen to play down nuclear signals during the first two phases of the crisis, the statements by the Army Chief and Defense Secretary, and the test of the Pakistan-specific nuclear-capable *Agni* ballistic missile suggested otherwise. The subsequent clarifications that ensued from George Fernandes and the MoD muddied the waters even further. It was not clear, for example, whether the actual signal was the Army Chief's or the Defense Minister's, as they contradicted each other. In a similar manner, it was not clear whether emphasis ought to be placed on the Defense Secretary's signals or the subsequent rebuttal by the MoD. Finally, it must be noted that Pakistan's signals were also contradictory.

Fifth, the understanding of signals by both sides may be weak, particularly when they are contradictory or keyed to different audiences. In both New Delhi and Islamabad, it was exceedingly difficult to interpret the other's signals and to know who was an authorized signaler and who was talking extemporaneously. When signals were contradictory, was this because of different audiences or not?

There appears to have been considerable confusion and ambiguity in New Delhi and Islamabad in sending, as well as receiving, critical signals during the 2001-02 border confrontation. If misperceptions and miscalculations on nuclear issues are to be avoided in a future military crisis, both states need to attempt to develop a clear set of principles for signaling to each other, and others, amidst a

disruption of diplomatic communication. Potential adversaries need to attempt to make signaling clear and unambiguous, and to not convey unintended signals. It would therefore be wise if potential adversaries deliberately limit the number of actors initiating signaling. The misreading of signals can also be reduced if potential adversaries attempt to understand better each other's principal signalers and the internal dynamics operating within respective political systems. Finally, it would be wise to establish a "back channel" of communication to help clarify signals during a crisis period. This would need to be authorized at the highest political level. The interlocutor would need to have the trust of their leaders, and they must be insulated from existing political tensions. It would be best to initiate "back channel" diplomacy amidst a thaw in bilateral relations and not to wait for another crisis to erupt.

— 6 —

Are Tactical Nuclear Weapons Needed in South Asia?

*Michael Krepon, Ziad Haider, and Charles Thornton**

Since India and Pakistan tested nuclear weapons in 1998, their leaders have rhetorically rejected the concept and requirements of nuclear war-fighting. Even during periods of deep crisis, such as following the December 2001 attack on the Indian parliament that led to a ten-month long military standoff, then-Chief of the Indian Army Staff General S. Padmanabhan declared, "Nuclear weapons are not meant for war-fighting. It's very foolish for us to even think of nuclear weapons in war-fighting."[1] Pakistani leaders have also made similar statements, such as President Pervez Musharraf's remarks in June 2002 that a nuclear conflict was unthinkable and that no "sane individual" would let it occur.[2]

At the same time, officials from both countries – including General Padmanabhan and President Musharraf – have also made thinly veiled nuclear threats. During the 2001-2002 crisis, for example, General Padmanabhan stated that India would severely punish any state that is "mad enough to use nuclear weapons against any of our assets." He added, "The perpetrator shall be so severely punished that his very existence will be in doubt. We are ready for a second strike."[3] Similarly, at the end of the standoff, President Musharraf declared that, "We have defeated an enemy without fighting a war." He went on to claim that if the Indian troops "took even a step across the international border or LoC (Line of Control), we will not only be in front of them, we will surround them. It will not remain a conventional war."[4]

Mixed nuclear messages are part of the subcontinent's vernacular, as leaders seek to bolster deterrence and play to domestic audiences, while at the

* The authors wish to thank Timothy Hoyt, Rodney W. Jones, Alistair Millar, and Michael Wheeler for their helpful comments.

[1] "India is 'Ready for War,'" *Guardian*, January 11, 2002, http://www.guardian.co.uk/kashmir/Story/0,2763,631343,00.html.

[2] "Pakistan President Calls Nuclear War Unthinkable," *USA Today*, June 2, 2002, http://www.usatoday.com/news/world/2002/06/01/pakistan.htm.

[3] Praful Bidwai, "India Sharpens Nuclear Claws," *Asia Times*, January 31, 2002, http://www.atimes.com/ind-pak/DA31Df03.html.

[4] "Warning forced India to pull back troops, says President," *Dawn*, December 31, 2002. This statement was subsequently "clarified" by Pakistan's military spokesman as meaning "unconventional forces and not nuclear or biological weapons." ("Gen shoots mouth off, backfires," *The Indian Express*, December 31, 2002)

same time reassuring distant audiences that they are responsible nuclear stewards.[5] During crises, harsh messages directed across the border are not uncommon. When crises have abated, reassuring messages that New Delhi and Islamabad reject nuclear war-fighting and the fine-tuning of nuclear arsenals are often heard. One reassuring message from both New Delhi and Islamabad is their intention to follow a doctrine of credible, minimum deterrence.[6] It remains unclear whether "tactical," "battlefield," or "short-range" nuclear weapon delivery vehicles are needed for credible, minimal deterrence, or whether these weapons fall under the category of instruments of nuclear war-fighting that can be dispensed with.

Authoritative statements by government officials in India and Pakistan regarding such weapons have been infrequent, with both sides relying heavily on calculated ambiguity. For example, in an interview with *The Hindu*, former Foreign Minister Jaswant Singh described the Indian position on tactical nuclear weapons as follows:

> Regarding tactical nuclear weapons, let me remind you that we do not see nuclear weapons as weapons of war-fighting. In fact, India sees them only as strategic weapons, whose role is to deter their use by an adversary. Civilian command and control over decisions relating to deployment and alert levels are logical.[7]

While the perceived lack of differentiation between tactical and strategic nuclear weapons is important, this formulation does not explicitly rule out the acquisition by India of short-range nuclear weapon systems or warheads designed for battlefield use that could reasonably be characterized as tactical nuclear weapons.

On the Pakistani side, the authors have searched in vain for explicit, authoritative public statements referring to "tactical" nuclear weapons. The most direct available reference in this regard can be found in an interview by two Italian researchers with the Director-General of the Strategic Plans Division at Joint Staff Headquarters. In this interview, Pakistani Lieutenant General Khalid Kidwai is represented as saying "explicitly that nuclear artillery is not part, *at the moment*, of the Pakistani nuclear programs."[8] This phraseology, like that of Jaswant Singh, leaves this option open.

---

[5] See Rahul Roy-Chaudhury's companion essay, "Nuclear Doctrine, Declaratory Policy, and Escalation Control" in this book.
[6] Press Information Bureau, Government of India, "Cabinet Committee on Security Reviews Progress in Operationalizing India's Nuclear Doctrine," January 4, 2003, http://pib.nic.in/archieve/lreleng/lyr2003/rjan2003/04012003/r040120033.html; Rory McCarthy, "Kashmir Has Not Gone Away," *Guardian*, March 7, 2003, http://www.guardian.co.uk/kashmir/Story/0,2763,909539,00.html.
[7] "India Not to Engage in N-Arms Race: Jaswant," *The Hindu*, November 29, 1999.
[8] Italics added for emphasis. For the entire interview summary, see http://www.pugwash.org/september11/pakistan-nuclear.htm.

While New Delhi and Islamabad appear quite confident that they will not repeat the Cold War and contemporary mistakes of Washington and Moscow in relying on nuclear war-fighting options to bolster deterrence, it is far from clear that the South Asian nuclear rivals would be willing to take steps to agree to constraints or to forego entirely short-range, battlefield or tactical nuclear weapons. Declaratory statements to this effect would not be verifiable, but they would reinforce public statements in favor of credible minimal deterrence and against nuclear war-fighting concepts of deterrence. The absence of new production and flight-testing of short-range, nuclear-capable ballistic missiles would lend credence to public disavowals of intent to pursue nuclear war-fighting capabilities**.** This, in turn, would reflect a keen appreciation by senior Indian and Pakistani leaders of the dangers and dilemmas associated with nuclear weapons of limited range, particularly with respect to command and control, physical security of forward deployed assets, and escalation control.

Complications in Restraint Regimes for Tactical Nuclear Weapons

Restraint regimes for tactical or battlefield nuclear weapons are very difficult to construct. One complicating factor is reaching a common definition of what is meant by battlefield or tactical nuclear weapons. It is by no means clear at this point how Indian and Pakistani officials define such weapons, and whether they could agree to a common definition. The United States and the Soviet Union agreed on a range-based definition for strategic nuclear delivery vehicles in the first (1972) and second (1979) Strategic Arms Limitation accords, as well as in the START I Treaty (1991). Common definitions of ground-launched ballistic and cruise missiles of lesser ranges were agreed upon in the 1987 Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles (INF Treaty).

In contrast, Washington and Moscow have not been willing or able to tackle negotiated constraints on tactical or battlefield nuclear weapons. Only at the very end of the Cold War did Presidents George H.W. Bush and Mikhail Gorbachev agree to unilateral, parallel, and unverifiable presidential initiatives to remove the least safe and secure tactical nuclear weapons from forward bases and from deployed forces. These "presidential nuclear initiatives" did not define the types of nuclear weapons subject to either's initiative, nor were verification provisions worked out. Until the Soviet Union was under severe strain, there was no great compulsion to address the dilemmas associated with tactical nuclear weapons. At no time during the Cold War did Washington and Moscow seek to clarify definitions of "tactical," "battlefield," "sub-strategic" and "non-strategic" nuclear weapons.[9]

[9] See Gunnar O. Arbman and Charles L. Thornton, *Russia's Tactical Nuclear Weapons – Part I: Background and Policy Issues*, Defense Research Agency (Totalförsvarets Forskningsinstitut, FOI), Swedish Ministry of Defense, Report # FOI-R--1057--SE, ISSN 1650-1942, November 2003. The

During the Cold War, nuclear strategists employed varied definitions of tactical nuclear weapons. These weapons were sometimes defined in relation to their intended use and zone of employment; their yield, range, or designated target; the type of delivery vehicle; or the level of command associated with the weapon in question. A particular weapon might be considered tactical by the United States and strategic by the Soviet Union, or *vice versa*, depending on its location, range, and intended target. Some writers during the Cold War described tactical nuclear weapons as low-yield weapons that were not meant to cause widespread physical destruction. Instead, they were to be used discriminately against a variety of military targets on the battlefield, including enemy tanks and mechanized infantry, while generating as little collateral damage as possible.[10] Range was clearly an important, although not necessarily a determinative factor, for categorizing tactical nuclear weapons. [11]

Fifteen years after the Cold War ended, US, Russian, and NATO officials finally sat down to clarify definitions of tactical nuclear weapons. Table 1 reproduces the definitions in the *NATO/Russia Glossary of Nuclear Terms and Definitions*.[12]

A second complicating factor is geography. Based on the range criterion of defining tactical nuclear weapons, some would argue that a nuclear-armed delivery system with a range of 150 kilometers or less could well be considered a tactical nuclear weapon.[13] By this standard, India and Pakistan either possess tactical nuclear weapons or nuclear-capable weapon systems in the form of the *Prithvi I* and *Hatf I* missiles. Possessing such weapon systems, however, does not necessarily foreclose formal or tacit agreements to maintain them in storage or far away from the forward edge of the battlefield, or clarify that these short-range missiles are not mated with nuclear warheads and do not have nuclear roles. If the governments of Pakistan and India were serious about clarifying their intent not to adopt nuclear war-fighting postures, they could tacitly or formally agree to any or all of these measures, as will be discussed below.

---

full report is available at http://www.cissm.umd.edu/thornton.htm. See also James A. Baker, III with Thomas M. DeFrank, *The Politics of Diplomacy* (New York: G.P. Putnam's Sons, 1995), pp. 82-83, 526, 575, and 596-597.

[10] John P. Rose, *The Evolution of US Army Nuclear Doctrine, 1945-1980* (Boulder, CO: Westview Press, 1980), p. 45.

[11] See Andrea Gabbitas, "Non-Strategic Nuclear Weapons: Problems of Definition" in Jeffrey A. Larsen and Kurt J. Klingenberger, eds., *Controlling Non-Strategic Nuclear Weapons: Obstacles, and Opportunities* (USAF Academy, CO: Institute for National Security Studies, June 2001). One researcher, O. Sukovic, wrote, "The main difference lies in the distance they are able to travel. The range of the TNW is not sufficient to cause any serious damage to the Russian mainland." "Tactical Nuclear Weapons in Europe," in *Tactical Nuclear Weapons: European Perspectives*, SIPRI (London: Taylor & Francis, 1978), p. 138.

[12] Available at http://www.nato.int/docu/glossary/eng-nuclear/index.htm.

[13] Feroz Khan advances this proposition in his companion essay, "Nuclear Signaling, Missiles, and Escalation Control in South Asia."

TABLE 1: US AND RUSSIAN DEFINITIONS

Russian Federation	United States
Non-strategic nuclear weapons Non-strategic nuclear weapons include all nuclear weapons which do not fall into the class of strategic nuclear weapons, that is, weapons with less than 5000 km ranges, to include Tactical and Operational nuclear weapons. *Tactical nuclear weapons* Tactical nuclear weapons are designed to engage objects in the tactical depth of enemy deployment (up to 300 km) to accomplish a tactical mission. Under certain conditions, tactical nuclear weapons may be involved in operational and strategic missions. *Operational nuclear weapons* Operational nuclear weapons are designed to engage objects in the operational depth of the enemy deployment (up to 500 km) with the purpose of accomplishing an operational mission. Under certain conditions operational nuclear weapons may be involved in the accomplishment of strategic missions and in exceptional cases, in the accomplishment of tactical missions.	*Non-strategic nuclear forces* Those nuclear-capable forces located in an operational area with a capability to employ nuclear weapons by land, sea, or air forces against opposing forces, supporting installations, or facilities. Such forces may be employed, when authorized by competent authority, to support operations that contribute to the accomplishment of the commander's mission within the theatre of operations. *Theatre nuclear forces* Nuclear forces designed for localized military missions.

Source: NATO/Russia Glossary of Nuclear Terms and Definitions, http://www.nato.int/docu/glossary/eng-nuclear/index.htm

At present, national leaders in India and Pakistan have declined to adopt any of these measures. It is clear from their public statements and actions that longer-range missiles and aircraft-delivered nuclear weapons are deemed essential for deterrence and for stability.[14] This essay argues that short-range, battlefield, or tactical nuclear weapons are dangerous for stability and unhelpful for deterrence. We argue that the benefits of a restraint regime relating to these weapons outweigh the benefits of calculated ambiguity.

First, we shall summarize Cold War experience. We will then highlight the differences between the Cold War experience and conditions on the

[14] Joint statement released on June 20, 2004 following the expert level meeting on nuclear confidence building measures, declared that "the nuclear capabilities of each other, which are based on their national security imperatives, constitute a factor of stability [in India-Pakistan relations]." "Joint Statement, Meeting Between Foreign Secretaries of India and Pakistan," June 28, 2004, http://meaindia.nic.in/jshome.htm.

subcontinent, while noting that many of the generic concerns associated with tactical nuclear weapons during the Cold War apply to South Asia, as well. Finally, we suggest several steps that might be considered by national leaders in Islamabad and New Delhi to clarify responsible nuclear stewardship and to set a very different example than Washington and Moscow.

COLD WAR THINKING ABOUT TACTICAL NUCLEAR WEAPONS

The authors have searched in vain for a coherent rationale and doctrine for the use of tactical nuclear weapons. The primary impetus behind US reliance on tactical nuclear weapons, beginning in the early 1950s, was to offset Soviet conventional military advantages in distant theaters.[15] Another rationale for the build-up of tactical nuclear weapons was to save money. As the Army was downsized during the Eisenhower administration, tactical nuclear weapons were viewed as a substitute for manpower and as a "logical culmination of the longstanding historical trend toward fielding more efficient sources of firepower."[16] Still other contributing factors were the reluctance of NATO allies to increase their troop strength, lobbying by nuclear weapon laboratories and the Atomic Energy Commission, and the desire of all services to have their own nuclear weapons available for battlefield use.

The Army's first field manual on tactical nuclear weapons, FM 100-31, published in 1951, stressed that atomic weapons should be integrated with other weapons when used tactically. Decisive results were to be obtained when "numerous atomic missiles are employed in a short period of time on selected targets over a wide area," and "where feasible, all tactical employment of atomic missiles is exploited by offensive maneuver." Atomic weapons were to be used against enemy troop concentrations, command and control nodes, and logistical support facilities.[17] The United States continued to modernize and expand its arsenal of tactical nuclear weapons through the early 1960s and 1970s, partly in response to Soviet deployment of such weapons, new doctrinal refinements, and technological advances produced by weapon laboratories. The US inventory of tactical nuclear weapons reached its peak in 1964 with approximately 23,000 non-strategic warheads, as depicted in Graph 1. The efficacy of NATO doctrine, which called for the use of these warheads in response to a Soviet conventional attack, was always questionable, especially after the Soviet Union acquired the ability to strike the continental United States with ocean-spanning missiles.

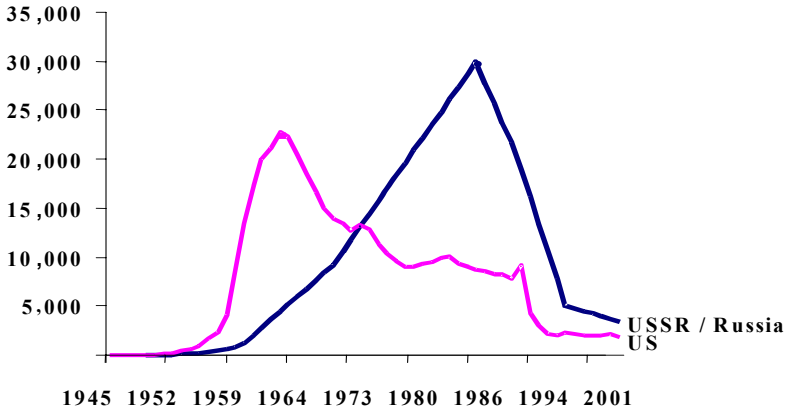
---

[15] See Milton Leitenberg, "Background Materials in Tactical Nuclear Weapons," in *Tactical Nuclear Weapons: European Perspectives*, SIPRI (London: Taylor & Francis, 1978); A.J. Bacevich, *The Pentomic Era: The US Army Between Korea and Vietnam* (Washington DC: National Defense University Press, 1986); and John P. Rose, *The Evolution of US Army Nuclear Doctrine, 1945-1980* (Boulder, CO: Westview Press, 1980).

[16] A.J. Bacevich, *The Pentomic Era: The US Army Between Korea and Vietnam* (Washington DC: National Defense University Press, 1986), p. 64.

[17] Rose, *The Evolution of US Army Nuclear Doctrine*, p. 85.

GRAPH 1: US AND USSR NON-STRATEGIC WARHEADS (1945-2002)



Source: "Archive of Nuclear Data," Natural Resources Defense Council, http://www.nrdc.org/nuclear/nudb/datainx.asp.

The Soviet Union amassed a huge stockpile of tactical nuclear weapons, notwithstanding the favorable conventional force imbalance it enjoyed in Central Europe. Soviet war-fighting plans, revealed after the Cold War ended, placed reliance on tactical nuclear weapons as war-fighting instruments to aid in a military offensive across Western Europe.[18]

Soviet military strategy against the west postulated the prompt escalation of a conventional conflict to the nuclear level, notwithstanding the Kremlin's public endorsement of a "no first use" nuclear posture. Instead, Soviet forces planned for massive nuclear strikes in conjunction with large-scale ground operations. Theater nuclear strikes were designed to destroy NATO's nuclear capabilities; defeat NATO ground combat forces; breach NATO defensive positions; and halt counterattacks. Nuclear strikes were intended to facilitate ground occupation of the European continent. Precisely how this would have occurred, in light of the devastation that would have been wreaked as a result of many nuclear detonations, is unclear.

---

[18] See Joseph D. Douglass, Jr., *The Soviet Theater Nuclear Offensive*, Studies in Communist Affairs 1, Prepared for the Office of Director of Defense Research and Engineering (Net Technical Assessment) and the Defense Nuclear Agency, Washington, DC, (1976); Also see *Warsaw Pact Military Planning in Central Europe: Revelations From the East German Archives*, [documents seized by Federal Republic of Germany from East German National People's Army following reunification], Translated and Annotated by Mark Kramer, Woodrow Wilson Center's Cold War International History Project, available at http://wwics.si.edu/index.cfm?fuseaction=library.document&topic_id=1409&id=6.

Estimates of the number of tactical nuclear weapons produced and deployed by Moscow, or moved into storage in the 1990s, reflect many uncertainties. Analysts at the Natural Resources Defense Council estimate that the Soviet arsenal reached its peak in 1986 at approximately 30,000 non-strategic warheads.[19] In 1987, NATO estimated that the Warsaw Pact had deployed 1,360-1,365 short-range nuclear-tipped missiles in Eastern Europe.[20] The Soviet inventory of tactical nuclear weapons consisted of short-range missiles, artillery-fired atomic projectiles, atomic demolition munitions, nuclear-equipped air defense missiles, and aircraft-delivered and sea-based weapons. There is no evident correlation between improvements in Soviet conventional capabilities and reduced reliance on tactical nuclear weapons in war planning. Instead, the public record suggests that Soviet military planners viewed tactical nuclear weapons and conventional strike capabilities as integrated parts of offensive operations. [21]

The United States and Soviet Union deployed tactical nuclear weapons for use by ground, air and naval forces. Some of these weapons, such as nuclear artillery, could be used at very short ranges of just a few kilometers. Yields varied, with some being in the sub-kiloton range. Types of tactical nuclear weapons included air-dropped free fall bombs and glide bombs; air-to-surface missiles and air-to-surface standoff missiles; cruise missiles; surface-to-air missiles; shorter-range surface-to-surface missiles; air-to-air missiles; artillery rounds; depth charges; torpedoes; and atomic demolition munitions. [22]

Tactical Nuclear Weapon Dilemmas for the United States

The operational deployment of tactical or battlefield nuclear weapons posed a host of nuclear security and management dilemmas for US leaders and military commanders. An accidental nuclear detonation of a tactical nuclear weapon during peacetime would have resulted in severe strains for alliance relations. Theft of tactical nuclear weapons by criminal organizations or terrorists also could strain alliance ties. The nearness of nuclear assets to the forward edge of the battlefield, where they could be struck or captured by advancing Soviet forces, posed other obvious risks of nuclear escalation. In the earliest phases of the Cold War, safeguards against accidental or unauthorized nuclear detonations of forward-deployed US tactical nuclear assets were minimal by comparison with what were developed in the 1960s and 1970s. One can only speculate what the corresponding nuclear weapon safeguards situation

---

[19] "USSR/Russian Nuclear Warheads, 1949-2002" *Natural Resources Defense Council*, http://www.nrdc.org/nuclear/nudb/datab10.asp.
[20] Arbman and Thornton, *Russia's Tactical Nuclear Weapons, Part 1: Background and Policy Issues*, p. 12.
[21] *Warsaw Pact Military Planning in Central Europe: Revelations From the East German Archives*, Woodrow Wilson Center's Cold War International History Project.
[22] *Tactical Nuclear Weapons: Options for Control*, A UNIDIR report (Geneva: UN Publications, 2000), p. 27.

was in the Soviet Union. Mushroom clouds could have been produced by accidents, unauthorized use, an act of terrorism, or breakdowns in command and control. Mushroom clouds could also have been produced by conventional or nuclear strikes against deployed forces or storage depots.

Dilemmas of Escalation Control

The forward basing of tactical nuclear weapons to counter Soviet conventional advantages opened many different pathways to a nuclear detonation – and any detonation posed significant problems for escalation control. In the event of a detonation during a severe crisis, US and allied leaders would have faced the time-urgent dilemma of determining what happened, and how it happened. A nuclear detonation by whatever means after the outbreak of major conventional warfare would place considerable pressure on decision-making and command and control. In delaying a military response to the detonation while seeking to determine responsibility, US leaders and military commanders would risk massive escalation by the Soviet Union while carrying out their investigation and deliberation.

This scenario presumes a singular detonation, as opposed to an orchestrated Soviet nuclear targeting campaign supporting offensive operations across the dividing lines in Central Europe. One possible reason for a singular detonation, aside from an accident or unauthorized use, could be a "demonstration shot" to signal a militarily superior foe in the theater to stop advancing. Morton Halperin suggested that such an act could be purely symbolic, "to demonstrate the danger that the war might get out of hand – rather than to affect the outcome of the battlefield war." In *Limited War in the Nuclear Age*, Halperin argued

> [T]he response of the enemy might well be on the same level, either a backing down on the basis of this demonstration of seriousness, or a corresponding use of tactical nuclear weapons in an effort to force the enemy to desist. Even in this case both sides are likely to remain concerned with the tactical outcome of the war, as well as with the maneuvering to show seriousness, but they will be much less concerned than they would be if tactical nuclear weapons were used with other purposes in mind.[23]

The dangers of escalation after limited use – assuming that the Kremlin would reject the execution of Soviet war plans calling for heavy nuclear strikes – could easily make a mockery of limited war theory. As Bernard Brodie wrote in *Strategy in the Missile Age*,

> The use of any kind of nuclear weapons probably increases markedly the difficulties in the way of maintaining limitations on war. For one thing it is much easier to distinguish between use and non-use of

[23] Morton Halperin, *Limited War in the Nuclear Age* (New York: John Wiley & Sons, 1963), p. 58.

> nuclear weapons than between the use of nuclear weapons below some arbitrary limit of size and use well above that limit… [B]etween the use and non-use of atomic weapons there is a vast watershed of difference and distinction, one that ought not be cavalierly thrown away, as we appear to be throwing it away, if we are serious about trying to limit war.[24]

Any use of nuclear weapons on the battlefield would pose a "use or lose" dilemma for national command authorities – assuming that command and control arrangements remain intact. A 1972 Brookings report characterized this dilemma in the following way:

> Once the nuclear threshold were crossed, both sides would be under pressure to use their nuclear weapons quickly before they were destroyed, and to use them on targets far beyond the front lines in order to attack the enemy's nuclear launchers, as well as its reserve troops, supplies, airfields, communications, and supply routes. These circumstances would compound the problems of using these weapons in a controlled or measured way – and in particular of limiting exchanges once they had begun.[25]

Dilemmas of Force Protection

Another dilemma inherent in forward-deployed tactical nuclear weapons relates to the vulnerability of these weapons to seizure or precision strikes aided by spotters coming from the other side. In this scenario, the destructive force of US and allied nuclear weapons would be turned against their owners. Storage sites could be subject to terrorist acts or sabotage. Weapons in the field could be overrun during military offensives. Soviet Special Purpose Forces (Spetsnaz) were trained to operate deep behind the forward edge of battle. One of their objectives was to locate opposing means to delivery nuclear weapons, either to facilitate attack by other Soviet forces, or to attack them on their own. Targets of particular interest included mobile missiles, command and control facilities, and air defenses and facilities.[26]

Domestic instability within allied states where nuclear weapons were based was a significant threat to weapons' security. During the course of an April 1967 coup in Greece, military units under the junta's command surrounded a depot of

---

[24] Bernard Brodie, *Strategy in the Missile Age* (Princeton: Princeton University Press, 1959), pp. 323, 326.
[25] Charles L. Schultze, Edward Fried, Alice Rivlin, and Nancy Teeters, eds., "Special Defense Issues," in *Setting National Priorities: The 1972 Budget* (Washington DC: The Brookings Institution, 1971), pp. 96, 99.
[26] Robert Boyd, "SPETSNAZ: Soviet Innovation in Special Forces," *Air University Review* (November/December 1986), available at http://www.airpower.maxwell.af.mil/airchronicles/aureview/1986/nov-dec/boyd.html.

US nuclear warheads, only to withdraw after strong protests from Washington.[27] In the 1974 Cyprus crisis, nuclear warheads were reportedly removed from Greek and Turkish aircraft assigned to Quick Reaction Alert missions, and preparations were made to remove the warheads entirely if the need arose.[28] As a Joint Congressional Atomic Energy Committee report noted:

> The Greco-Turkish war over Cyprus in July 1974 and the consequent overthrowing of the Greek Junta highlighted renewed Congressional concern over the security of weapons which might be deployed in vulnerable and outlying areas in countries where the political situation may become unstable. [29]

US officials were also acutely conscious of the threat of terrorist attacks against nuclear weapon storage sites. A 1975 Department of Defense report, *Nuclear Weapons Security Primer*, described this challenge as follows:

> International terrorism during the past few years has demonstrated that it is a force to be reckoned with. Because of the violent, efficient, and rapid manner by which terrorist acts have been executed, terrorism poses a potential threat to our weapon stockpiles and is driving most of the new security upgrade efforts. [30]

The West German Baader-Meinhof Gang, a radical leftist organization also known as the Red Army Faction, bombed the US Army European Command's headquarters in Heidelberg in 1972, killing two American soldiers. In January 1977, it attacked a US military base in Giessen, reportedly in an attempt to seize tactical nuclear weapons.[31] US officials sought to protect tactical nuclear weapons through site consolidation and heightened security measures.

Dilemmas of Vulnerability and Command and Control

The more tactical nuclear weapons were ready for prompt use, the greater the potential for a breakdown of command and control. The more controls were placed over these weapons for safety and security, the less ready they might be for use when needed. These dilemmas increased in proportion to the seriousness

---

[27] US officials offered assurances that Permissive Action Links and other systems would have prevented unauthorized use, had these weapons been seized. "Symington Finds Flaw In NATO's Warhead Security; Greek Incident Hinted," *New York Times*, November 23, 1970; S.R. Davis, "How Safe Are NATO Missiles? Greek A-incident Surfaces," *Christian Science Monitor*, December 8, 1970; and *Development, Use, and Control of Nuclear Energy for the Common Defense and Security and for Peaceful Purposes*, First Annual Report to the US Congress, Joint Committee on Atomic Energy, 94th Congress, June 30, 1975, p. 23.

[28] J.W. Finney, "Cyprus Crisis Stirred US To Protect Atom Weapons," *New York Times*, September 9, 1974; and "Cooling Off the Nukes," *Newsweek*, August 12, 1974.

[29] *Development, Use, and Control of Nuclear Energy for the Common Defense and Security and for Peaceful Purposes*, Joint Committee on Atomic Energy, op. cit., p. 23.

[30] *Nuclear Weapons Security Primer*, US Department of Defence, April 1, 1975.

[31] Andrew and Leslie Cockburn, *One Point Safe* (Anchor, 1997), p. 1-6.

of a crisis or a military engagement. Increased readiness or dispersal of tactical nuclear weapons during a crisis also increased the possibility that something unexpected or unwanted could happen.[32] In addition, the pre-delegation of authority to use tactical nuclear weapons in the event of combat conditions could improve military responsiveness at the risk of uncontrolled escalation. As Glenn Snyder noted,

> Tactical nuclear warfare is much more likely than conventional warfare to give rise to accidents leading to the inadvertent explosion of full-scale war. Even if NATO planned to fight a conventional war, and the war started at the conventional level, the possession of atomic weapons by the troops on each side would create possibilities of their accidental firing. The chance of accidental firing becomes greater as smaller weapons are developed, because the smaller the weapon, the lower the level of command to which it is likely to be assigned and the larger the number of fingers that will be on atomic 'triggers.' When and if a large number of atomic mortars get into the hands of platoon sergeants, the chance that at least one of them will be fired accidentally or irresponsibly rises almost to certainty, and once one is fired the symbolic strength of the distinction between conventional and nuclear weapons as a criterion for war limitation will have been gravely eroded.[33]

Concerted efforts were undertaken to address concerns over command and control as well as the safety and security of tactical nuclear weapons, most notably by employing Permissive Action Links, or PALs. Notwithstanding these necessary steps, the dilemmas posed by US reliance on tactical nuclear weapons remained very much in place, as noted by a 1987 report by the American Academy of Arts and Sciences and the Cornell University Peace Studies Program:

> In a major conventional war, both sides would have to maintain control over thousands of nuclear weapons, possibly up to the brink of defeat, while the front might be shifting through regions where such weapons are based. Commanders would have to prevent unintended use of any nuclear weapon, and simultaneously prepare their large and diverse arsenals for possible use. These two opposing requirements would have to be met in the face of conventional attacks on the nuclear forces and on their command system.[34]

---

[32] See Daniel Charles, *Nuclear Planning in NATO: Pitfalls of First Use* (Cambridge: Ballinger Publishing Company, 1987).
[33] Glenn Snyder, *Deterrence and Defense: Toward a Theory of National Security* (Princeton: Princeton University Press, 1961), p. 140.
[34] *Crisis Stability and Nuclear War,* A Report Published Under the Auspices of the American Academy of Arts and Sciences and the Cornell University Peace Studies Program (Ithaca: Cornell University, 1987), p. 66.

Forward basing of tactical nuclear weapons demonstrated resolve, alliance solidarity, and deterrence, but at the risk of increasing the vulnerability of deployed nuclear weapons upon the outbreak of hostilities. US political and military leaders rightly worried that Soviet forces would attempt to attack NATO nuclear storage sites in Western Europe. Soviet war planners had good reason to worry about similar tactics, since US Army manuals on tactical nuclear weapons emphasized attacks against known or suspected enemy atomic missile storage and launching sites.[35]

Mutual vulnerability of forward-deployed tactical nuclear weapons was an enduring concern throughout the Cold War. A report by the United Nations Institute for Disarmament Research highlighted this dilemma while alluding to the risks for escalation control:

> In a fast moving battle, the risk of being overrun is particularly great for troops with short-range weapons that are necessarily deployed close to the front line…The vulnerability of TNWs [tactical nuclear weapons], thus, contains an inherent imperative to employ them early in warfare… The shortest-range TNWs especially are thus a factor of grave instability. [36]

Similarly, the 1972 Brookings report described the risks of forward basing as follows:

> Our tactical nuclear force structure is based on the "discrete fire" concept; namely, that tactical nuclear weapons will be fired against specific or known enemy targets, as in conventional warfare, and that they will be controlled and fired from forward positions. This structure is another factor contributing to vulnerability…Hence a major fraction of our launchers would be in a belt within one hundred miles of the front. Both systems would be well within range of the [Warsaw] Pact weapons and thus would be destroyed in an initial attack.[37]

Resource Allocation

Tactical nuclear weapons were championed during the Eisenhower administration as a cost-effective means of defending forward-deployed forces and allies, as well as to compensate for Washington's inability to match Soviet conventional force levels. (Between 1955 and 1961, the US Army's end-strength was reduced by 200,000.[38]) The US Army was initially drawn toward concepts of nuclear operations involving small, mobile forces. In 1956, it adopted the "Pentomic" model to operate on an atomic battleground. Pentomic divisions

---

[35] Rose, *The Evolution of US Army Nuclear Doctrine*, p. 86.
[36] *Tactical Nuclear Weapons: Options for Control*, UNIDIR, p. 27.
[37] Schultze, *Tactical Nuclear Weapons in Europe*, pp. 96, 99.
[38] Bacevich, *The Pentomic Era: The US Army Between Korea and Vietnam,* p. 20.

consisted of five battalions, each made up of five companies. A company in turn consisted of five platoons. The Pentomic model was meant to strike a balance between creating units large enough to fight independently yet small enough so as not to suffer catastrophic losses on a nuclear battlefield.[39] This concept of operations was dropped, in part due to dilemmas of command and control as well as the possibility that an adversary might pursue similar tactics.

A larger concern within the Kennedy administration was the Pentagon's heavy reliance on nuclear weapons at the expense of robust, conventional war-fighting capabilities.[40] Morton Halperin debunked this trade-off between manpower and reliance on nuclear weapons in the following way:

> Probably the most frequently made assertion…about tactical nuclear weapons is that they permit the substitution of technology for manpower…A smaller number of troops, it is argued, have an advantage in the use of weapons with great firepower. Why this would be an advantage is not clear, unless the unstated assumption is that the enemy is not using tactical nuclear weapons or for some reason is using them in a highly inefficient way. [41]

Even before the end of the Eisenhower administration, a consensus was developing that, as Lawrence Freedman chronicled, "nuclear weapons could not be relied upon to reduce manpower requirements."[42] To the contrary, an atomic battlefield would require large forces, as the rates of attrition would be high. Studies and military exercises conducted in the 1950s clarified that a war involving tactical nuclear weapons would place enormous stress on soldiers. Immediate casualties would be high. Survivors would feel disoriented, isolated, and leaderless. Supplies of food and water would be contaminated. Radiation poisoning would be rampant. The Army "found it extremely difficult to work out how to prepare soldiers for this type of battle and to fight it with confidence."[43] Robert Osgood aptly described the dissipation of faith in tactical nuclear weapons in his book, *Limited War Revisited*:

> [C]onfidence in tactical nuclear warfare as a more effective form of local resistance soon waned…Most official studies and war games indicated that, even if it could be limited geographically, a tactical nuclear war in Europe would probably produce such chaos as to be beyond predictable control, that it would devastate the European allies, and that it would require more rather than less manpower. [44]

---

[39] For more on the Pentomic Model, see A.J. Bacevich, *The Pentomic Era: The US Army Between Korea and Vietnam* (Washington DC: National Defense University Press, 1986).
[40] Ibid., p. 76.
[41] Halperin, *Limited War in the Nuclear Age*, p. 65.
[42] Lawrence Freedman, *The Evolution of Nuclear Strategy* (New York: St. Martin's Press, 1983), p. 108.
[43] Ibid., p. 109.
[44] Robert Osgood, *Limited War Revisited* (Boulder, CO: Westview Press, Inc. 1979), p. 21.

US officials concluded that it was fatuous to think of tactical nuclear weapons as a cost-saver. Instead, tactical nuclear weapons diverted scarce resources away from conventional military capabilities.

Soviet Perspectives on Tactical Nuclear Weapons

The Soviet Union was not nearly as concerned about the safety and security or cost dilemmas posed by tactical nuclear weapons as were US and NATO strategists. For example, the prospect of a terrorist attack on a Soviet nuclear weapon storage depot was quite unlikely during the Cold War due to totalitarian controls. Nor did the Kremlin view the problem of escalation control in the same way as US and NATO strategists. Rather than posing problems, tactical nuclear weapons were viewed by Soviet strategists as part of the solution to winning a conflict on the European continent. Western analysts of Soviet military doctrine concluded that, in the view of Soviet military planners, there was a "single escalation boundary" – that between tactical and strategic nuclear weapons. In other words, Soviet planners believed that a nuclear war could be confined to the European theater, as the United States would not be willing to sacrifice its own cities by attacking Mother Russia.[45]

Compared to western writings regarding the dilemmas of escalation control, Soviet writings on this subject are quite sparse. Heavy Soviet reliance on tactical nuclear weapons in the conduct of a military offensive in Europe led to dilemmas of a different sort. To begin with, in order to accomplish a surprise attack, even in a time of heightened tension, the Soviets would need to utilize forces and weapons already in place. If they added additional forces or nuclear weapons, they risked losing the element of surprise. Soviet military planners appeared willing to sacrifice additional numbers for surprise. Striking first, however, meant that tactical nuclear weapons needed to be distributed down to the brigade and battalion levels prior to the offensive. This military imperative was at odds with the Kremlin's priority to maintain centralized political control over nuclear weapons.

Moreover, nuclear strikes needed to be employed in such a way as to facilitate, rather than complicate the ground offensive. Troops would need to operate successfully on an atomic battlefield in which counter-strikes were likely. This presumption was breathtakingly bold and reckless. By posturing for an offensive, front-line Soviet forces and re-supply routes were vulnerable to counter-attacks with nuclear and conventional weapons. Deep NATO strikes could wreak havoc with lines of communication and decimate reserve forces. Soviet military planning sought to overcome these problems with rapid

[45] See Joseph D. Douglass, Jr. and Amoretta M. Hoeber, *Conventional War and Escalation: The Soviet View* (New York: Crane and Russak, 1981); and Joseph D. Douglass, Jr., *The Soviet Theater Nuclear Offensive*, op. cit.

advances, without satisfactorily addressing how advances could be sustained on a radiated battlefield.[46]

POST-COLD WAR ROLES FOR TACTICAL NUCLEAR WEAPONS

In the summer of 1991, as the Soviet Union began to dissolve, Presidents George H.W. Bush and Mikhail Gorbachev decided to unilaterally and reciprocally remove the least safe and secure weapons from their deployed forces. These presidential nuclear initiatives resulted in making the US Army a non-nuclear service. The US Navy removed all of its nuclear weapons from surface ships and submarines, with the exception of submarine-launched ballistic missiles. A smaller stockpile of forward-deployed, air-delivered tactical nuclear weapons remains in place estimated at 1,000 warheads. US tactical nuclear warheads are estimated to be approximately 1,700.[47]

Soviet President Mikhail Gorbachev pledged cuts in the Soviet tactical nuclear weapons arsenal, although US officials have questioned the extent to which Gorbachev's promises have subsequently been kept.[48] President Gorbachev specifically announced that the USSR would eliminate its entire global inventory of ground-launched, short-range nuclear weapons, including nuclear artillery shells, short-range ballistic missile warheads, and nuclear land mines. It would also remove all surface-to-air missile nuclear warheads from combat units. President Gorbachev called, on the basis of reciprocity, for the withdrawal of all nuclear weapons from frontal aviation units, including gravity bombs and air-launched missiles, and for their placement in central storage. He declared that the USSR would remove all naval tactical nuclear weapons, including sea-launched cruise missiles from its surface ships, multi-purpose submarines, and land-based naval aircraft. A portion of these warheads would be destroyed, while the remainder would be centrally stored and available if necessary.

In January 1992, Russian President Boris Yeltsin reiterated and added to Gorbachev's earlier pledges. He stated that production for ground-based tactical missiles and nuclear artillery shells and mines had ceased. Russia would eliminate its stockpiles of nuclear weapons, including one-third of its sea-based tactical warheads and one-half of its weapons for surface-to-air missiles. Russia also intended a one-half reduction in its air force tactical stockpile. Lastly, on a reciprocal basis, the remaining air-based tactical weapons could be removed

---

[46] Ibid.

[47] "Too Many Too Slow: The Bush Administration's Stockpile Reduction Plan," *Natural Resources Defense Council*, http://www.nrdc.org/nuclear/fstockpile.asp.

[48] For a more detailed discussion of these issues, see the primary source for this section of the chapter, Gunnar O. Arbman and Charles L. Thornton, *Russia's Tactical Nuclear Weapons – Part I: Background and Policy Issues*, op. cit. Also see US Director of Central Intelligence, *Soviet Tactical Nuclear Forces and Gorbachev's Nuclear Pledges: Impact, Motivations, and Next Steps (Interagency Intelligence Memorandum)*, NI IIM 91-10006, declassified (formerly classified Secret/NoForn-NoContract-Orcon), November 1991.

from deployment and centrally stored. In June 1992, Russian officials announced their intention to accomplish the elimination of naval warheads by 1995; anti-aircraft missile warheads by 1996; nuclear mines by 1998; and, nuclear warheads of tactical missiles and artillery shells by 2000.[49] Ten years later, however, Russia indicated that its progress toward those goals has not been accomplished.

Alexei Arbatov, a former member of the Russian Duma Defense Committee, estimated in 1999 that the Russian Federation retained approximately 3,800 tactical nuclear weapons, including 200 atomic demolition munitions, 600 air defense missile warheads, 1,000 gravity bombs and short-range air-to-surface missiles, and 2,000 naval anti-ship, antisubmarine, and land-attack weapons.[50] It is not clear whether Arbatov was referring to operationally available tactical nuclear weapons or all weapons in the Russian inventory, including those in storage. Joshua Handler placed the Russian tactical nuclear weapon arsenal at 3,380 warheads in 2002.[51] Another assessment, however, raises the current number of tactical nuclear weapons in Russia to 8,000 warheads.[52]

Today, with dominant conventional military and power projection capabilities and in the absence of a major, standing conventional threat to Europe, the United States has never had less of a need for tactical nuclear weapons. According to calculations of the Natural Resources Defense Council, the Bush administration's June 2004 stockpile management decisions are likely to reduce non-strategic nuclear warheads from 1,703 to 844 by 2012.[53] Alongside these reductions, the Bush administration is considering alterations and new additions to the US arsenal in the form of a Robust Nuclear Earth Penetrator warhead. The administration has defended funding for this "bunker buster" as follows:

> With a more effective earth penetrator, many buried targets could be attacked using a weapon with a much lower yield than would be required with a surface burst weapon. This lower yield would achieve

---

[49] Vladimir Belous, "Nuclear Warheads: What Do We Do? Good Intentions and Harsh Reality," *Nezavisimaya Gazeta*, June 17, 1992, p. 2 [JPRS-UMA-92-026].

[50] Alexei Arbatov, "Deep Cuts and De-alerting: A Russian Perspective," in Harold Feiveson, ed., *The Nuclear Turning Point: A Blueprint for Deep Cuts and De-Alerting of Nuclear Weapons* (Washington DC: The Brookings Institutions, 1999), p. 319. The USSR was estimated by Arbatov to have possessed a total of 22,000 tactical nuclear weapons in 1991.

[51] Joshua Handler, "The 1991-1992 PNIs and the Elimination, Storage, and Security of Tactical Nuclear Weapons," in Brian Alexander and Alistair Millar , eds., *Tactical Nuclear Weapons: Emergent Threats in an Evolving Security Environment* (Virginia: Brassey's, Inc, 2003), p. 31.

[52] From Arbman and Thornton, *Russia's Tactical Nuclear Weapons – Part I: Background and Policy Issues*. The methodology used in this estimate begins with a baseline provided by Alexei Arbatov of 1991 force levels, and then calculates reductions based on official statements of "percentage of 1991/1992 unilateral pledges completed."

[53] "Too Many Too Slow: The Bush Administration's Stockpile Reduction Plan," *Natural Resources Defense Council*, http://www.nrdc.org/nuclear/fstockpile.asp.

> the same damage while producing less fallout (by a factor of ten to twenty) than would the much larger yield surface burst. [54]

The certification of a new tactical nuclear weapon design would require a resumption of US nuclear testing.

As the perceived need and military utility of tactical nuclear weapons have plummeted in the United States, they have grown in Russia. Tactical nuclear weapons are viewed as essential for military contingencies in the east, where Russia is sparsely populated, and where Chinese military capabilities are growing as Russian capabilities decline. Moscow's conventional military deficiencies in both the eastern and western theaters have led to a renewed reliance on tactical nuclear weapons in its military doctrine and the official abandonment of its pledge not to use nuclear weapons first in the event of hostilities.

TACTICAL NUCLEAR WEAPON DILEMMAS IN SOUTH ASIA

Nuclear-armed rivals typically have difficulties in the early stages of their competition in determining opposing capabilities, addressing vulnerabilities, strengthening command and control, and wrestling with the stability-instability paradox.[55] Responsible authorities in India and Pakistan are focusing much attention to these issues. The operative question posed by this essay is whether they will add to their difficulties by adopting plans and programs for short-range, tactical, or battlefield nuclear weapons.

Public declarations by Pakistani and Indian leaders suggest there is reason to hope that the nuclear-armed rivals in South Asia will avoid the pitfalls inherent in reliance on tactical nuclear weapons. Official statements regarding nuclear doctrine stress minimum, credible deterrence and denigrate nuclear war-fighting plans, programs, and postures. There is no question that Indian and Pakistani leaders are determined to avoid Cold War nuclear excesses. They do not have the interest or the resources to build up large nuclear stockpiles. By adhering to a voluntary moratorium on nuclear tests, they have limited their options with respect to the development and induction of new types of warheads, perhaps including miniaturized devices specifically designed for battlefield use. A resumption of nuclear testing, and its spread to South Asia, could remove this constraint.[56]

---

[54] "Nuclear Posture Review [Excerpts]," *GlobalSecurity.org*, http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm.

[55] See Michael Krepon's companion essay, "The Stability-Instability Paradox, Misperception, and Escalation Control in South Asia."

[56] During the June 2004 talks on nuclear confidence-building measures, each side "reaffirmed its unilateral moratorium on conducting further nuclear test explosions unless, in exercise of national sovereignty, it decides that extraordinary events have jeopardized its supreme interests." Joint Statement, Meeting Between Foreign Secretaries of India and Pakistan, June 28, 2004, http://meaindia.nic.in/jshome.htm.

Additional factors reinforce the possibility of restraint in South Asia with respect to tactical, battlefield, or short-range nuclear weapon delivery vehicles. Despite their deep grievances toward each other, India and Pakistan have a history of fighting wars that are quite limited in their duration, scope, and means. Warfare between the armed forces of the two countries has been marked by efforts to avoid collateral damage and indiscriminate suffering. India and Pakistan are neighbors that retain linkages despite the absence of close contact in recent decades. The forward edge of future battles between them could occur in close proximity to population centers. If nuclear weapons are used close to the Kashmir divide or the international boundary, their effects will not respect borders or noncombatants. Shifting winds and seasonal effects will shape the contours of fallout and radiation patterns in unwelcome ways.[57]

To be sure, these factors apply to any use of nuclear weapons on the subcontinent, regardless of their range, means of delivery, and launch location. But the dilemmas associated with nuclear weapons having very short ranges are particularly acute, as are discussed below. Our analysis suggests that the Cold War and South Asian nuclear standoffs present dilemmas associated with tactical nuclear weapons that are different primarily in degree rather than in kind. In our view, the only tactical nuclear weapon rationales that were unique to the Cold War related to alliance management. While neither India nor Pakistan have alliance ties to maintain, the use of nuclear weapons by both countries would still severely complicate relations with neighboring states.

The most prominent applicable dilemma associated with the use of tactical, battlefield, or short-range nuclear weapon delivery vehicle relates to escalation control. Any use of such a weapon - even a singular demonstration shot by the weaker party to signal the urgency of stopping a threatening advance - presents a strong likelihood of uncontrolled escalation. The leadership of the country that is warned by a singular nuclear detonation, including a low-yield detonation in a remote area that does not produce immediate casualties, would need to make momentous, nation-threatening decisions very quickly. Questions would immediately arise as to whether a singular nuclear detonation would be followed quickly by many more, either through a breakdown in command and control or in anticipation of punishing strikes, as the stated nuclear postures of India and Pakistan promise.

As western deterrence strategists concluded, escalation control is far easier below the nuclear threshold than across it. In both circumstances, the

[57] Timothy Hoyt, "The Buddha Frowns? Tactical Nuclear Weapons in South Asia," in Brian Alexander and Alistair Millar, eds., *Tactical Nuclear Weapons: Emergent Threats in an Evolving Security Environment* (Virginia: Brassey's, Inc, 2003), p. 104. Also see Kishore Kuchibhotla and Matthew McKinzie, "Nuclear Terrorism and Nuclear Accidents in South Asia," in Michael Krepon and Ziad Haider, eds., *Reducing Nuclear Dangers in South Asia* (Washington DC: The Henry L. Stimson Center, 2004).

prerequisites of escalation control include properly functioning lines of communication, trust in the messages received, correct calculations of an adversary's intentions, cool-headedness in excruciatingly difficult circumstances, and the ability of national leaders to slow down the clock for decision-making when time is of the essence. The imperative of speedy decisions would fall most heavily on rivals whose nuclear assets are most susceptible to preemption or whose targeting strategy depends heavily on striking quickly.

While the dilemma of escalation control applies to any use of nuclear weapons in South Asia, the potential for this theoretical dilemma to become real increases if short-range nuclear weapon delivery vehicles are deployed on the battlefield. The presence of short-range ballistic missiles near the forward edge of battle would presumably reflect decisions by national leaders to signal resolve and to shore up deterrence. Such deployments might be made in conjunction with official statements of a threatening nature. The side deploying short-range, dual-capable missiles might well seek to project a calculated ambiguity regarding whether the ballistic missile in question has a nuclear or conventional warhead. If deterrence breaks down and conventional fighting ensues around the missile deployments, much will be left to chance.

If a short-range ballistic missile is overrun or successfully destroyed in combat, the weaker party's bluff would be successfully called, especially if the missile in question is armed with a conventional warhead. Other attacks on short-range ballistic missiles could ensue on the presumption that they, too, are conventionally armed. This assumption may or may not be correct. The weaker party would then face the dilemma of how to reinforce deterrence in a deteriorating battlefield situation after one's nuclear bluff has been successfully called.

If, alternatively, short-range ballistic missiles are armed with nuclear weapons during a deep crisis, and if they are deployed close enough to an adversary's forces to damage them or some other target that the adversary holds dear, a breakdown of deterrence would have immediate, catastrophic effects. The trigger for uncontrolled escalation could occur if fighting erupts, if a missile battery is captured, if a local commander exercises a pre-delegated authority to fire the missile, or if command and control arrangements break down. Alternatively, uncontrolled escalation could be triggered before combat begins as a result of an accident relating to deployment or through the actions of an extremist group during the depths of a crisis. These dilemmas are not unlike those that faced the nuclear superpowers during the Cold War. Regardless of how or why a detonation were to occur, the dilemmas of escalation control would be no less acute in South Asia than in Central Europe.

Another generic concern relating to tactical nuclear weapons is that of force protection. In either the Cold War or South Asian cases, there are more

opportunities for something unfortunate to happen when tactical nuclear weapons are forward deployed in South Asia than when they reside in highly secure storage facilities. Because of the numbers of tactical nuclear weapons deployed by the United States and the Soviet Union, the scope of this problem was greater in the Cold War. On the other hand, the scope of something going badly wrong due to the actions of extremist groups is greater in South Asia.

Some of the dilemmas of force protection in South Asia can be addressed by not deploying nuclear warheads mated with their launch vehicles in a crisis, where they could be subject to accidents, seizures, and breakdowns in command and control. If, however, the requirements of rapid response are deemed to be paramount, the dilemmas of vulnerability and maintaining strict command and control will rise to the fore, as was the case during the Cold War. Insofar as vulnerabilities are greater and command and control mechanisms are less robust in the early stages of a nuclear rivalry, the best remedies to these dilemmas are not to have severe crises on the subcontinent, and if crises erupt, not to deploy nuclear-capable forces, especially short-range ballistic missiles.

Future actions by extremist groups in Pakistan and India that could lead to severe crises on the subcontinent cannot be ruled out. The potential for such actions rises if Pakistan remains wedded to a proactive Kashmir policy that rests heavily on *jihadi* groups to punish India and to leverage favorable outcomes. To be sure, acts of terror that trigger a severe crisis could be carried out by groups beyond Pakistan's control. In such circumstances, the ability of Indian authorities to dampen the resultant crisis would depend, in part, on the extent to which Pakistani authorities are perceived to have previously sought to defuse the Kashmir dispute. If a triggering act occurs in the context of increased infiltration and violence across the Kashmir divide, prospects for escalation control are likely to be dim.[58]

It would probably be unwise to assume that future crises on the subcontinent would follow the same script as in the past. Military planning in India is reportedly looking at options that fall between endless patience and full-scale conventional war.[59] Pakistani military planners must take into account India's growing military potential, particularly its improved surveillance and conventional strike capabilities.[60] The extent to which the changing conventional balance on the subcontinent would effect Pakistani decision making with respect to increasing the survivability of nuclear assets in a deep crisis remains a matter of conjecture. If readiness rates are increased in a crisis, one cannot know for certain whether the release authority for the use of nuclear weapons would be

[58] See Michael Krepon and Ziad Haider, eds., *Reducing Nuclear Dangers in South Asia* (Washington DC: The Henry L. Stimson Center, 2004), p. 2-3.
[59] Shishir Gupta, "No Eyeball to Eyeball Any More in New War Doctrine," *Indian Express*, March 6, 2004.
[60] See Rodney Jones' companion essay, "Nuclear Stability and Escalation Control in South Asia: Structural Factors."

pre-delegated or whether strict instructions not to use nuclear weapons might be circumvented in the field. We can assume, however, that sophisticated devices to prevent unauthorized use on the battlefield, such as those developed over time during the Cold War, may not yet be in place.

Another dilemma regarding nuclear weapons is that of resource allocation. In the early stages of the nuclear competition between the United States and the Soviet Union, as between Pakistan and India, some expressed the expectation that nuclear weapons would save money spent for national defense and would permit reductions in conventional forces. These hopes were not realized. Peacemaking, rather than the addition of nuclear weapons into troubled regions, allows for cost savings and reductions in forces. Over-reliance on nuclear weapons to compensate for defense deficiencies usually compounds the dangers associated with the weapons.

Nuclear Stabilization Measures

How serious are Indian and Pakistani leaders in asserting that they do not intend to build nuclear war-fighting arsenals? If these assertions are genuine, and if national leaders wish to demonstrate their intent not to follow the mistakes of other states that possess nuclear weapons, how might they do so?

Intent can be partly demonstrated over time if the pace of nuclear modernization remains leisurely. But even a slow pace of nuclear modernization does not necessarily suggest that countries have abjured nuclear war-fighting strategies and capabilities. Indeed, a country that modernizes its arsenal slowly might also choose to produce short-range or tactical nuclear weapons for battlefield use. In addition, leaders on the subcontinent will be watching closely to see whether declarations that nuclear forces are not deployed are being observed. While non-deployment pledges certainly differentiate India and Pakistan from permanent members of the United Nations Security Council, this, too, would not preclude the production of nuclear weapon systems designed for battlefield use. Besides, distinctions between "deployed" and "non-deployed" nuclear weapon systems might be hard to distinguish – or to put much faith in – during a crisis.

The continued adherence to a moratorium on nuclear testing would also lend credence to declarations by Pakistani and Indian leaders that they do not intend to build nuclear war-fighting arsenals. Nonetheless, both India and Pakistan have already announced tests of low-yield devices in 1998. Thus, a continued moratorium might not preclude the possession, deployment, or potential use of such weapons. Intentions could also be reflected by decisions taken with respect to missile flight tests. The flight-testing of new, short-range, nuclear-capable ballistic missiles would undermine public declarations against nuclear war-fighting concepts, unless other steps were taken to suggest that such weapon systems will not be armed with nuclear weapons. However, it might be difficult – or viewed as unwise – to remove all ambiguity in this regard. Besides,

a message of restraint with respect to the flight-testing of new short-range ballistic missiles might be overridden if the pace of flight-testing of longer-range missiles increases.

This brief and illustrative survey suggests that many measures are available to Indian and Pakistani leaders who wish to signal nuclear restraint and reinforce public declarations against nuclear war-fighting strategies. As helpful as these measures are, none are definitive, and all are reversible. For example, a relaxed pace of nuclear-related development and production could be interrupted as a result of developments outside the region. The moratorium on nuclear testing in the subcontinent could be broken if the United States or another country resumes testing. Nuclear modernization programs could also be accelerated because of developments relating to China that are disturbing to Indian officials.[61] The pace of the nuclear rivalry could also increase as a result of tensions on the subcontinent, or by the actions of extremist groups. It could also be advanced as a result of overly alarmist estimates of opposing nuclear capabilities.

Indian and Pakistani leaders deserve credit for the steps they are taking to reduce nuclear dangers and to avoid the mistakes other nations have made after acquiring nuclear weapons. Still, there is much more that could be done to reduce nuclear danger, as leaders in both countries acknowledge. Additional steps taken to avoid the dilemmas associated with tactical nuclear weapons would add clarity and reinforcement to public pledges of intent to avoid nuclear war-fighting postures. The following measures are proposed for consideration for these reasons, as well as because the military utility of tactical nuclear weapons in South Asia is far, far less than the dangers associated with their possession, deployment, and use.

Declaratory Statements

Declaratory policy is a key element of nuclear postures, and political leaders on the subcontinent often resort to such statements to stress themes and to affirm government policy. One step that might be considered would be joint or separate public declarations by national leaders in India and Pakistan to clarify their intention not to indulge in the pursuit of nuclear war-fighting capabilities, with specific reference to tactical, battlefield, or short-range nuclear weapon delivery vehicles. For example, responsible authorities in both countries might publicly declare that certain short-range missile systems, while capable of carrying both nuclear and conventional weapons, will only carry conventional payloads.[62]

---

[61] For the complex strategic dynamic between India and China, see Ashley Tellis, "China and India in Asia," in Francine R. Frankel and Harry Harding, eds., *The India-China Relationship: What the United States Needs To Know* (New York: Columbia University Press, 2004); and Waheguru Pal Singh Sidhu and Jing-Dong Yuan, *China and India: Cooperation or Conflict?* (Boulder, Colorado: Lynne Rienner Publishers, 2003).

[62] Feroz Khan has suggested this idea in his companion essay, "Nuclear Signaling, Missiles, and Escalation Control in South Asia."

Declarations of this sort would not be verifiable in the likely event that Indian and Pakistani authorities refuse to allow for proximity or intrusive inspections of short-range missile systems. Nonetheless, it might be possible to draw inferences regarding the truthfulness of leadership declarations regarding the absence of nuclear-armed, short-range missile systems by monitoring military exercises, flight-tests, and deployments, should they occur in a deep crisis. This assumes that the security arrangements associated with nuclear-armed weapon systems would be quite different than for conventionally-armed missiles, and that both intelligence establishments would be able to observe these differences.

Might not declarations of this kind be violated in practice? This cannot be discounted, and clues to this effect might be forthcoming during military exercises and deployments during a crisis. Nonetheless, this threat scenario seems unlikely. If national leaders believe that deterrence might need to be strengthened in a deep crisis by deploying nuclear-, rather than conventionally-armed short-range ballistic missiles, or by maintaining an ambiguous posture in this regard, they are unlikely to agree to our proposal. If an unambiguous declaration that certain missiles will only carry conventional weapons is made and then reversed, deterrence cannot be shored up unless the switch is purposefully revealed. But a leader who revokes a national pledge would also undermine his or her credibility, thereby undermining the deterrent one seeks to strengthen. The need to maintain credibility, which provides an essential basis for effective deterrence, as well as the imperative not to forfeit international support in a deep crisis, suggest that pledges regarding conventionally-armed short-range ballistic missiles are likely to be kept.

We acknowledge that, by declaring certain weapon systems as conventionally armed, and then deploying them in a deep crisis, national leaders would make the missile in question a far more attractive target than one whose armament remains ambiguous. This suggests that public declarations that certain missiles are only armed with conventional weapons are conceivable only if national leaders in both countries conclude that the inherent dangers of nuclear-armed, short-range missiles are not "fixable." Conversely, our proposed public declarations are unlikely if national leaders conclude that the liabilities and limitations of such missiles - whether armed with nuclear or conventional weapons - can best be mitigated by maintaining a posture of purposeful ambiguity.

Leadership declarations that seek to place a rival on the defensive are usually designed for political rather than substantive purposes. Alternatively, public declarations can help signal a change in course for bilateral relations, if national leaders sincerely wish to do so. During the Cold War, most declaratory initiatives were for the purpose of point scoring. Occasionally, however, public declarations were used for substantive effect, most notably in the prelude to the conclusion of the 1963 Limited Test Ban Treaty, and when Presidents Ronald

Reagan and Mikhail Gorbachev jointly declared in 1985 that "a nuclear war cannot be won and must never be fought."[63]

In making such a declaration, Reagan and Gorbachev did not change nuclear force postures, targeting plans, and strategic modernization requirements. They did, however, change the tone of superpower relations during a very tense period, and pave the way for subsequent agreements that substantially reduced nuclear danger. Using this example, declaratory statements can have inherent value, but they are far more credible and effective when backed up by actions that lend content and substance to statements of intent.[64]

Flight Test Restraints

How, then, might statements of intent applying pledges not to engage in the pursuit of nuclear war-fighting capabilities associated with tactical nuclear weapons gain more credibility? One way would be for the governments of India and Pakistan not to engage in additional flight tests of certain short-range ballistic missiles.[65] A formal ban or an informal moratorium on flight tests need not require a commonly agreed definition of "tactical," "battlefield," or "short-range" ballistic missiles. Instead, national leaders could publicly designate which existing missile system would not be flight-tested in the future. Alternatively, both sides could agree upon a range limit under which they would not flight-test new or existing ballistic missiles. Agreements of this kind could be tacit or formal.

Such agreements would be predicated on hard-headed assessments that the military utility of short-range ballistic missiles, whether armed with nuclear or conventional warheads, is extremely modest compared to the dilemmas of escalation control, vulnerability, command and control, and resource allocation outlined earlier in this essay. In our analysis, India's conventional military advantages would be complicated, rather than helped, by short-range ballistic missiles. We acknowledge, however, that this argument might not be persuasive to defense research and scientific organizations working on missile programs.

"Giving up" this option may be more difficult for Pakistan, because the forward deployment of short-range ballistic missiles might be viewed in some quarters as reinforcing deterrence when the order of battle is unfavorable. We have argued the opposite case – that deploying short-range, dual-capable ballistic missiles undermines, rather than reinforces, deterrence. By foregoing the option of short-range, dual-capable ballistic missiles, neither side would be impairing its ability to "signal" the other. Indeed, both Pakistan and India are able to signal resolve and to reinforce deterrence in crisis situations by other

[63] "Joint Soviet-United States Statement on the Summit Meeting in Geneva, November 21, 1985," http://www.reagan.utexas.edu/resource/speeches/1985/112185a.htm.
[64] Michael Krepon, Jenny S. Drezin, and Michael Newbill, eds., "Declaratory Diplomacy: Rhetorical Initiatives and Confidence Building" (Washington DC: The Henry L. Stimson Center, 1999).
[65] See Feroz Khan's companion essay in this book.

means, including longer-range missiles, that pose fewer, but still serious, hazards of escalation control, vulnerability, and command and control. We also discount the argument that short-range ballistic missiles might have some utility against prospective Indian missile defenses, because we find it implausible that New Delhi would spend huge sums to tackle the severe problems associated with trying to deploy ballistic missile defenses against short-range missiles.

We recognize that a formal ban or an informal moratorium not to flight test short-range ballistic missiles could be undercut by flight-testing new missiles of somewhat greater range. Tactics of this sort helped to make arms control agreements difficult to negotiate and sustain during the Cold War. The lessons we draw in this regard from Cold War experience is that if national leaders are serious about reducing nuclear danger, they must resolve to counter institutional interests that seek to nullify the value of agreements reached.

Lesser constraints on missile flight tests could also have utility. For example, flight tests for existing and new missile programs could continue, but under conditions that increase stability and that begin to lay the groundwork for long-distance, cooperative monitoring. Meeting in an unofficial "Track II" setting convened by the Henry L. Stimson Center, a distinguished group of Pakistani and Indian colleagues suggested consideration of the following measures in this regard: formalizing and properly implementing an existing, informal accord relating to the prior notification of missile launches; extending and properly implementing the time-line given for prior notification of missile flight tests; agreeing not to carry out missile flight tests in the direction of the other country; agreeing to flight test missiles only from designated test ranges and updating the lists of designated test ranges on a regular basis; and providing advance notification of the movement of missiles for training purposes. This group discussed additional accords barring the flight-testing of missiles during a crisis, or the number of missiles that could be flight-tested during a particular period of time, but concluded that these constraints were unlikely to be endorsed.[66]

Dismantling, Storing or Constraining Existing Missiles

A far more dramatic gesture to signal disinterest in developing, producing, or relying upon tactical nuclear weapons and nuclear war-fighting strategies would be to dismantle and destroy existing short-range ballistic missiles, either by designated type or by a mutually agreed range threshold. In the latter case, any ballistic missile flight tested at the agreed range or lower would be subject to dismantlement and destruction. This approach, however, could engender disputes over the demonstrated ranges of a particular class of missiles, and may need to be reinforced by flight test and range-monitoring capabilities that are not yet indigenous to the region. Relying on third parties to monitor and determine

[66] Michael Krepon and Ziad Haider, eds., *Reducing Nuclear Dangers in South Asia* (Washington DC: The Henry L. Stimson Center, 2004) p. 1, 15.

range limits is likely to be a sensitive subject and could further complicate such an ambitious agreement.

Alternatively, each side could designate a particular class or classes of missiles to be subject to dismantlement and destruction. In a companion essay, Feroz Khan advocates this approach, suggesting that Pakistan and India each designate their shortest-range ballistic missile systems - the *Hatf I* and the *Prithvi I* - for a missile-specific accord.[67] The rationale for such an agreement would be the same as for the other ideas offered in this section, but the proposed remedy would be more dramatic. An agreement of this type could be formal or informal and reciprocal.

There are many obstacles that stand in the way of such an accord. Powerful institutional interests and domestic constituencies in both Pakistan and India might be opposed to dismantling any missiles that are a source of national pride, even if they have marginal military utility and pose significant dilemmas on the battlefield. An agreement of this sort might be viewed as a significant step leading to a "slippery slope" that increasingly constrains military options. As noted above, concerns of weakening deterrence and military flexibility against a conventionally superior adversary might well be voiced in Pakistan. Those who view ground-based, forward deployed, ballistic missiles as having a greater deterrent value than nuclear-capable aircraft that are based away from prospective battle lines are unlikely to support this proposal. Concerns over constraining conventional military options and improved versions of existing missile systems might also be raised in India.

Verification would also be a thorny issue for an agreement of this kind. It would be difficult to affirm that all missiles of a designated class have been offered for dismantlement and destruction, and it is unlikely that either side would be willing to permit intrusive, challenge inspections to verify compliance. Reliance on third parties for verification, as noted above, also appears unlikely. The belated, sudden appearance of a banned missile might not have military significance, but could raise substantial political barriers to new accords, no matter how well designed and verifiable.

A less dramatic, but still highly symbolic, accord can be envisioned that sidesteps problems of verification. We have in mind an agreement to maintain existing classes of missiles, or missiles below a certain range threshold, in the inventories of Pakistan and India for as long as both sides see fit. However, national leaders in both countries could pledge publicly not to deploy such missiles, even in times of heightened tension.

An agreement of this sort faces long odds. Non-deployment pledges would face stiff opposition on the grounds that any weapon deemed necessary to

[67] See Feroz Khan's companion essay, "Nuclear Signaling, Missiles, and Escalation Control in South Asia."

produce and maintain ought not to be prohibited from appearing on the battlefield. Definitions of what constitutes "deployment" and "non-deployment" might vary, and a non-deployment ban might not be honored during a crisis.

Another alternative approach would be to designate zones in proximity to the Kashmir divide and the international border within which missiles of a particular kind, or of any kind, would not be located. An agreement along these lines would signify disinterest in nuclear war-fighting postures, and appreciation for the dilemmas of escalation control. Its rationales and downside risks are not unlike the other proposals discussed in this essay, although mitigated somewhat because this type of agreement would permit inventories, new production, and flight-testing of missiles. Verification of this accord, as with verification of a flight test ban or moratorium, should not pose insuperable difficulties.

A "missile-free zone" agreement would be politically sensitive, not only because of military considerations, but also because it might suggest, in the view of some, an endorsement of the existing *status quo* along the Kashmir divide. Specific language could address this concern by stating that such an agreement would not prejudice national positions on Kashmir nor effect in any way a final settlement of this issue. If political and military concerns could be alleviated, careful consideration would need to be given to the width of the missile-free zone, which need not be uniform along its entire length. Targeting concerns would presumably not be paramount in such calculations, since both countries possess longer-range missiles and combat aircraft that offer far greater targeting flexibility than short-range missiles.

CONCLUSION

Some of the proposals we offer here are modest, but extremely useful. The more ambitious proposals we outline will require considerable political will to enact over the resistance of powerful interest groups. For those who dismiss out-of-hand the likelihood of ambitious agreements that seriously constrain and even eliminate missile systems, we would point to the 1987 treaty concluded by Presidents Reagan and Gorbachev to eliminate not only land-based, short-range ballistic missiles, but also land-based, medium- and intermediate-range ballistic and cruise missiles.

To be sure, the circumstances surrounding the negotiation of the "INF" Treaty were unique. The treaty was backed up by intrusive verification – including on-site monitoring of missile bases and production facilities. Nonetheless, concerns over verification remained high. Because the force structure of both sides was different, serious concerns were also raised about how equitable the treaty's obligations were. The nuclear options that were given up by both superpowers were quite considerable, which engendered much resistance by the national security establishments of both countries – even though after sweeping several categories of missiles off the nuclear chess board, both superpowers retained huge nuclear arsenals.

We do not mean to suggest that the INF experience and outcome is directly translatable to South Asia. Instead, we seek to draw a more general parallel concerning nuclear rivalries. Regardless of the state of the nuclear competition or the size of nuclear arsenals, national security establishments and "strategic enclaves" will be loath to constrain military flexibility and nuclear options. It is the responsibility of national leaders to weigh these concerns against broader imperatives to reduce nuclear dangers.

Nuclear rivalries do not spring out of the ether. They are a reflection of serious differences and competing objectives. In managing a severe rivalry amidst nuclear danger, military capabilities play an essential role, but they are insufficient to ensure public safety. Diplomatic engagement that leads to agreed "rules of the road" and nuclear risk-reduction agreements is also essential. During the Cold War, engagement as well as containment worked in tandem to manage successfully a severe strategic rivalry. In their own way, India and Pakistan are now pursuing diplomatic engagement while modernizing and adjusting their military capabilities to a nuclearized environment. In this extended process, tensions are unavoidable between those who wish to maintain and enhance nuclear options, and those who see value in mutual restraint.

The dual dynamic of engagement and containment has no set equilibrium point. Dangers are present in seeking the right balance, or in losing one's balance. Other dangers lurk in the shadows – unexpected events arising from accidents, limited or faulty intelligence, the misreading of one's rival, or being hijacked by the agendas of extremist groups.

The United States and the Soviet Union were very fortunate to avoid a nuclear disaster during the Cold War. Generally speaking, the nuclear weapons that were most susceptible to disasters of various kinds were those most closely positioned near harm's way, with the shortest range and the smallest yields. Whether we call these weapons tactical, battlefield, or short-range nuclear weapons, the dilemmas they pose apply to all nuclear rivals that are unwise enough to rely upon them. National leaders in Pakistan and India have pledged not to repeat the mistakes of other nuclear-armed nations. They have an opportunity to demonstrate their opposition to nuclear war-fighting strategies and capabilities by agreeing to measures to clarify this intention. Tactical nuclear weapons are poorly suited for military purposes in South Asia, and well suited for nuclear risk-reduction measures.

— 7 —

Limited War, Escalation Control, and the Nuclear Option in South Asia

*Michael Krepon**

The title of this essay consciously borrows from the eminent western deterrence strategist, Bernard Brodie, whose book, *Escalation Control and the Nuclear Option,* is surely his least successful work.[1] The fault lies less with the author than with the subject matter, which has proven to be remarkably resistant to sensible analysis, despite the attempts of top-shelf western strategists, including Henry Kissinger, Thomas Schelling, and Herman Kahn, to tackle the subject matter.[2]

Deterrence is an abstract notion that sometimes fails real world tests. Previous failures of deterrence, including the 1999 Pakistani incursion across the Kashmir divide, have not led to nuclear detonations, but this outcome cannot be assumed forever. As Robert Jervis has written,

> Although undesired escalation obviously does not occur all the time, the danger is always present. The room for misunderstanding, the pressure to act before the other side has seized the initiative, the role of unexpected defeats or unanticipated opportunities, all are sufficiently great – and interacting – so that it is rare that decision-makers can confidently predict the end point of the trajectory which an initial resort to violence starts.[3]

Nonetheless, the best and the brightest western strategic theorists tried to envision how escalation could be satisfactorily controlled in a competition between nuclear-armed rivals, especially if the nuclear threshold were crossed.

---

* The author wishes to thank Devin T. Hagerty, Ellen Laipson, George Perkovich, and Scott Sagan for their helpful comments, and Vishal Agraharkar and Ziad Haider for their research assistance.

[1] Bernard Brodie, *Escalation and the Nuclear Option* (Princeton: Princeton University Press, 1965).

[2] Kissinger's *Nuclear Weapons and Foreign Policy* (New York: Harper & Brothers, 1957), Schelling's *The Strategy of Conflict* (Oxford: Oxford University Press, 1960) and *Arms and Influence* (New Haven: Yale University Press, 1966), and Kahn's *On Escalation: Metaphors and Scenarios* (New York: Praeger, 1965) are classics of this genre.

[3] Robert Jervis, *The Illogic of American Nuclear Strategy* (Ithaca: Cornell University Press, 1984), p. 140.

Typical of this genre was Glenn Snyder's suggestion that,

> While not incurring a serious risk of an immediate all-out response, and while causing some physical attrition of the enemy's power to move on the ground, tactical reprisals would still serve the bargaining function by demonstrating a willingness to "up the ante" and to continue doing so until the other side agreed to settle the war…Reprisals against forces, especially tactical forces, allow us to demonstrate this possible intent at minimum provocation and at minimum initial damage to our own economy and population.[4]

This kind of strategic analysis did not provide political leaders much comfort as to how escalation might be controlled up to and across the nuclear threshold. Will strategists and military planners in South Asia have more success in developing a plausible theory of, and military plans for, escalation control?

Escalation control presumed mutual agreement between nuclear rivals to fight for limited stakes. As Brodie explained, "[T]he curtailing of our taste for unequivocal victory is one of the prices we pay to keep the physical violence, and thus the costs and penalties, from going beyond the level of the tolerable."[5] Robert Osgood defined limited war as "part of a general 'strategy of conflict' in which adversaries would bargain with each other through the medium of graduated military responses, within the boundaries of contrived mutual restraints, in order to achieve a negotiated settlement short of mutual destruction."[6] This assumed, of course, that both nuclear-armed adversaries were willing to play by the same general rules – a condition, as Osgood subsequently acknowledged, that did not apply during the Cold War. "One trouble with all strategies of local war in Europe," he wrote in 1979, "is that the Soviet Union has shown virtually no inclination to be a partner to them."[7] While US strategists were constructing rungs along the escalation ladder, the Soviet General Staff was planning for a *blitzkrieg* across Europe.

Another reason why US strategic thinkers failed to devise a plausible theory of escalation control during the Cold War was the inherent difficulties in communicating with an adversary whose differences of view and objectives were so great that they would result in conflict. If miscommunication with, or misreading of, an adversary lead to conflict, this would suggest that communication to keep that war limited might also fail – assuming that lines of communication remain intact. But, as Barry Posen has noted, "Inadvertent escalation may also result from the great difficulty of gathering and interpreting

---

[4] Glenn Snyder, *Deterrence and Defense: Toward a Theory of National Security* (Princeton: Princeton University Press, 1961), pp. 210-212.
[5] Bernard Brodie, *Strategy in the Missile Age* (Princeton: Princeton University Press, 1959), p. 314.
[6] Robert Osgood, *Limited War Revisited* (Boulder, CO: Westview Press, Inc., 1979), p. 11.
[7] Ibid., p. 22.

the most relevant information about a war in progress and using it to understand, control, and orchestrate the war."[8]

Another major deterrence theorist, Thomas Schelling, postulated hopefully that a process of "tacit bargaining" during limited war might point to a settlement because of the "intrinsic magnetism of particular outcomes, especially those that enjoy prominence, uniqueness, simplicity, precedent, or some rationale that makes them qualitatively differentiable from the continuum of possible alternatives."[9] However, as Schelling himself acknowledged, since communication has presumably been limited prior to the conflict and would be quite strained during a limited war, there could be no assurance that tacit bargaining "will succeed in any particular case or that, when it succeeds, it will yield to either party a particularly favorable outcome."[10]

Western deterrence theory regarding limited war was deeply suspect because it presumed rational choices and effective command and control amidst the fog of war – especially the chaos of a radiated battlefield. Posen challenged these heroic assumptions, concluding that, "[T]he fog of war increases the likelihood of inadvertent escalation because misperceptions, misunderstandings, poor communications, and unauthorized or unrestrained offensive operations could reduce the ability of civilian authorities to influence the course of the war."[11] Another outstanding thinker on this subject, Morton Halperin, wrote that graduated escalation could "continue until both sides decide that it is not in their interest to expand the war." However, Halperin himself acknowledged that, while

> …both sides may desire to avoid the economic cost of employing greater military power, there is no reason to believe that only the losing side might expand the war. The winning side might alter its war-termination conditions in ways which require an expansion of the war…The necessary condition for the stabilization of local war is agreement with the decision system of each side – and not agreement between the two sides – that further expansion is undesirable.[12]

This keen insight further erodes the foundations of limited war theory, since it requires adversaries not only to draw proper conclusions from each other's moves on the battlefield, but also to understand the dynamics of bureaucratic politics in enemy territory, and correctly predict the outcome of internal debates. To make matters even worse, Schelling and Halperin acknowledged that, "Accidental occurrences of various kinds are also more likely during a limited

---

[8] Barry Posen, *Inadvertent Escalation* (Ithaca: Cornell University Press, 1991), p. 19.
[9] Thomas Schelling, *The Strategy of Conflict* (Cambridge: Harvard University Press, 1960), p. 70.
[10] Ibid., p. 77.
[11] Posen, *Inadvertent Escalation,* op. cit., p. 22.
[12] Morton Halperin, *Limited War in the Nuclear Age* (New York: John Wiley & Sons, 1963), pp. 32 and 35.

war."[13] Unfortunately, accidents only lend themselves to rational analysis well after the fact.

Yet another reason why US deterrence theorists and military strategists failed to produce a plausible theory of limited war was because they usually were far more interested in escalation dominance. In their view, fielding dominant war-fighting capabilities was the preferred way to deter and dissuade an adversary from doing unfortunate things. And if deterrence and dissuasion failed, dominant war-fighting capabilities could be useful to influence outcomes in limited war. After all, how could one hope to convince an adversary to forgo escalation if not from a position of dominance?

Possessing dominant nuclear war-fighting capabilities would also come in handy for an all-out war, where some semblance of victory required destroying as many opposing nuclear forces as possible before they destroyed you. In the anodyne terminology of deterrence theory and war planning, this targeting objective was known as "damage limitation." Greater "flexibility" with respect to nuclear targeting was but one of the instruments associated with this dogged pursuit.

Fortunately, these calculations of nuclear weapon strategists were not tested. Instead, the arms race became a surrogate for actual warfare during the Cold War. As a result, the jockeying for advantage – and the impulse to avoid disadvantage – was ceaseless. Targeting for victory – or at least relative advantage at war's end – required destroying the adversary's command and control nodes before yours were severely damaged. But striking these priority targets also meant damaging prospects for escalation control. As offensive nuclear capabilities grew, and as strategic defenses continued to face confounding technical challenges, western theories of escalation control appeared increasingly divorced from reality.

Since neither superpower was willing to accept the other's quest for nuclear advantage and both sought to somehow escape from the straitjacket of mutual deterrence, stockpiles and deployed forces reached dizzying heights.[14] As opposing nuclear capabilities grew, the disconnect between plans for escalation dominance and hopes for escalation control widened. So, too, did the distance between nuclear war planners and political leaders who bore the burdens of deciding when to press the nuclear button. The deeper western deterrence theorists delved into the subject matter, the more they clarified dilemmas rather than solutions. Limited war theory needed to be kept at arm's length by political leaders in the United States and Soviet Union, who understood intuitively that nuclear detonations didn't solve anything.

---

[13] Thomas Schelling and Morton Halperin, *Strategy and Arms Control* (New York: The Twentieth Century Fund, 1964), p. 30.

[14] I have borrowed the notion of "escape" from conversations with George Perkovich.

EXTRAPOLATING COLD WAR EXPERIENCE TO SOUTH ASIA

There are obvious differences and qualifiers that need to be stated when seeking to extrapolate Cold War experience to the nuclear rivalry in South Asia. The two superpowers clearly possessed much larger nuclear arsenals, a condition that India and Pakistan have no desire to emulate. Both superpowers spent heavily on communication, command and control, and intelligence capabilities in the hope that leaders would be able to make deliberate decisions, and to increase prospects that orders would faithfully be executed. Not surprisingly, Islamabad and New Delhi lag far behind Washington and Moscow in these areas. Both superpowers never shed their public concerns about a surprise attack, even as their nuclear arsenals grew to stupefying levels. In contrast, Indian and Pakistani leaders profess not to be concerned about preemptive attack, and are proceeding in a deliberate fashion to develop safeguards against vulnerability.

There were endless arguments during the Cold War about which side held what advantages in the competition, both with respect to nuclear and conventional forces. In South Asia, India enjoys expanding conventional military advantages across the board.[15] The nuclear balance on the subcontinent is opaque at this formative stage. Another obvious difference is that Cold War adversaries were not neighbors. Nor were Cold War disputes related to territorial claims, historical grievances, or religious convictions.

Do these stark differences alleviate or accentuate concerns over escalation control in the case of South Asia? The answer is far from obvious. For starters, it is not at all clear that escalation control is made any easier with large or small nuclear forces. A good case can be made either way. At the early stages of a nuclear competition, modestly sized arsenals tend to be more vulnerable to attack than large forces, but adversaries might not have sufficient intelligence and surveillance capabilities to execute successfully a preemptive attack. On the other hand, large, advanced nuclear arsenals have far more capability to permit the prompt and accurate targeting of opposing nuclear forces, but advanced nuclear powers are also more likely to have forces that are hard to target. In extremis, national leaders could face pressures to escalate either because they think they have too few nuclear options, or because they have a great many. Either way, the deliberate crossing of the nuclear threshold would be a momentously difficult decision.

Weak or robust command and control arrangements could also lead to divergent outcomes. Rudimentary command and control arrangements could inadvertently lead to an early crossing of the nuclear threshold, and could make it very difficult to control escalation once that threshold has been crossed. Or

[15] See Rodney W. Jones' companion essay, "Nuclear Stability and Escalation Control in South Asia: Structural Factors," in this book.

they could impel national leaders to maintain tight political control over nuclear capabilities. Conversely, robust arrangements could help prevent nuclear detonations, or they could provide false hope that escalation is controllable. None of this is knowable; confident assertions one way or the other are entirely based on conjecture.

Is geographical distance as much of a differential in the Cold War and South Asia cases as is usually postulated? Distance should help in escalation control, and it was surely a good thing that the superpowers did not share a common boundary. But the forces of both superpowers were positioned in close proximity along a divided Germany. Tactical nuclear weapons were deployed here in profusion. Out-manned US military forces relied on plans to use these weapons to blunt a Soviet offensive, and the Kremlin had plans to use these weapons to quicken its advance and to demoralize Western Europe.[16]

Cold War strategists sought to differentiate the potential use of these battlefield or tactical nuclear weapons from ocean-spanning, strategic nuclear capabilities. For a short time, Brodie joined this chorus, arguing that the imperatives of avoiding major wars and disastrous retreats lent value to tactical nuclear weapons in limited war scenarios.[17] But Brodie had second thoughts and retracted his argument, concluding that tactical nuclear weapons solved nothing and invited the escalation he sought to avoid.

Here again, the differences between the Cold War and South Asia cases are quite evident, but perhaps less meaningful than we imagine. Despite these stark differences, parallels can still be drawn between a divided Berlin (before Washington and Moscow accepted a territorial *status quo*) and a divided Kashmir. In both cases, one can find a concentration of forces, highly valued real estate, and potential *causus belli*. In the case of South Asia, however, we must add the destabilizing factor of *jihad*, and subtract the presence of forward-deployed tactical nuclear weapons during peacetime.

National leaders in both Pakistan and India claim to have no desire to engage in nuclear war-fighting postures, and the day-to-day status of their nuclear capabilities is remarkably relaxed by Cold War standards. Leaders in both nations assert that warheads are not mated with launchers, that nuclear forces are not deployed, even during crises, and that they have no intention of indulging in dangerous nuclear war-fighting practices, or seeking the capabilities to pursue them.

---

[16] See *Warsaw Pact Military Planning in Central Europe: Revelations From the East German Archive*s, [documents seized by Federal Republic of Germany from East German National People's Army following reunification], Translated and Annotated by Mark Kramer, Woodrow Wilson Center's Cold War International History Project, available at http://wwics.si.edu/index.cfm?fuseaction=library.document&topic_id=1409&id=6.

[17] Brodie, *Escalation and the Nuclear Option*, op. cit., p. 75.

Escalation control does not become simpler when nuclear rivals acquire and deploy more diverse nuclear war-fighting capabilities – especially when they maintain portions of these forces on "hair-trigger" alert. While prospects for escalation control are improved by refraining from these Cold War-era practices, they are far from assured. In South Asia, the nuclear rivalry is still at a relatively early stage, where the balance of forces is opaque and new technologies are being fielded. Crises have been occurring with some frequency, during which readiness rates for nuclear-capable forces have apparently been increased. Signaling during crises has been confusing, and intelligence assessments have been found wanting.[18]

Under these circumstances, how can escalation control be assured, particularly when one adds to this mix the possibility of a nuclear accident or a catalytic incident by an extremist group during a crisis? If under these tense circumstances, a nuclear "event" were to occur, escalation control would be challenging, to say the least. Much would depend upon the nature of the event, as best this can be determined. Where did the event actually occur? What kind of radioactive material was released and by which means? Was it an accident, an act of nuclear terrorism, sabotage, or an act of war? Did the event produce a mushroom cloud?

Much would also depend on the prior political context and the location in which the event occurred. Were bilateral relations improving or deteriorating before the crisis? Were the armed forces of both countries present at the site of the event? Were there clashes? Were *jihadi* or counter-insurgency operations underway at the site of the event?[19] Obtaining solid information and correct answers to these questions might take time, and national leaders may not have much time to deliberate. If the nuclear event produced a mushroom cloud, decision-making would be severely compressed. Escalation control under these circumstances would be no easier than in a case where nuclear rivals possess very large arsenals.

ESCALATION CONTROL BY MEANS OF A "DEMONSTRATION SHOT"

In western deterrence literature, one means of escalation control is the option of a "demonstration shot." In this scenario, a singular nuclear detonation would signal an adversary to stop its conventional military advance. Morton Halperin characterized this scenario as follows:

> [O]ne side might use tactical nuclear weapons as a device to increase substantially the shared risk that the war would become central either

[18] See the companion essays in this book by Rahul Roy-Chaudhury and Feroz Hassan Khan.
[19] A summary of the Henry L. Stimson Center's Track II programming on scenarios of this kind can be found in Michael Krepon and Ziad Haider, eds., *Reducing Nuclear Dangers in South Asia*, Report No. 50 (Washington DC: The Henry L. Stimson Center, January 2004).

> by expansion or explosion. The country would be using tactical nuclear weapons not because of their likely influence on the battlefield but as a symbolic act, and would therefore be concerned to use them to demonstrate its own seriousness – to demonstrate the danger that the war might get out of hand – rather than to affect the outcome of the battlefield war. In this case the response of the enemy might well be on the same level, either a backing down on the basis of this demonstration of seriousness, or a corresponding use of tactical nuclear weapons in an effort to force the enemy to desist.[20]

In this scenario, the chastened adversaries halt matters before more mushroom clouds appear, perhaps with a significant assist from the international community. This scenario presumes that the first mushroom cloud since Nagasaki appears as a result of a considered leadership decision, and not due to a break down of command and control, an accident, or the pre-delegated use of a weapon by a beleaguered local commander. This scenario further presumes that neither adversary would seek to achieve an advantageous outcome in the event of a nuclear exchange; and that command and control arrangements would suffice to prevent unauthorized use after the first detonation. To lend credence to this scenario, the demonstration shot might occur in a remote area, without significant weapon effects. In a South Asian context, a demonstration shot might even occur on the territory of the beleaguered state.

Deterrence strategists during the Cold War needed to place a great deal of credence in rational decision making and the absence of unexpected events on the atomic battlefield; otherwise, the bottom would fall out of their analysis. Even under the most charitable assumptions, however, it was hard during the Cold War to place much credence in escalation control after a demonstration shot. Both adversaries had a surplus of weapons and targeting options, and opposing forces were so spring-loaded for attack that the deck was stacked against a singular nuclear detonation.

If a national leader chose this option, or if it occurred because of a break down in command and control during an intense crisis, the likelihood of many more detonations was great. It was hard to envision that the political imperative of reciprocity, which shadowed most aspects of US-Soviet relations throughout the Cold War, would somehow not apply to a singular nuclear detonation. It was harder, still, to imagine that US and Soviet national security managers would seek to play for a tie in the event of a crossing of the nuclear threshold. Soviet nuclear doctrine envisioned massive, not singular strikes. "Limited" nuclear options came decades late to US nuclear war plans, and many of these options were "limited" only in comparison to the massive options that US nuclear forces were primed to deliver. The dictates of escalation dominance mandated raising

[20] Morton Halperin, *Limited War in the Nuclear Age* (New York: John Wiley & Sons, 1963), p. 58.

the stakes, while the imperatives of damage limitation called for skipping rungs on the escalation ladder.

In South Asia, the odds are similarly stacked against a demonstration shot remaining a singular event. Prospects for uncontrolled escalation are high early in a nuclear rivalry, when the size and status of opposing forces are unclear, and when critical vulnerabilities are presumed. When nations have relatively few nuclear options, escalation rungs could be irrelevant. In addition, a demonstration shot could be viewed – both by the initiator and the receiver – as a confirmation of weakness. It would also transfer the initiative and the extent of the response entirely in the hands of the stronger party. These gambits are alien to the thinking of Pakistan's military establishment.[21]

Given the proximity of the nuclear rivals in South Asia, the western distinction between "tactical" and "strategic" nuclear weapons loses meaning. Distances and flight times are so compressed that any use of a nuclear weapon, regardless of its range and origin of basing, is likely to have strategic consequences. Given these factors, a crossing of the nuclear threshold will likely matter far more than attempts to divine meaning from the particular target struck.

Moreover, responsible authorities in both Pakistan and India stress that they have little expectation of escalation control. Indeed, strategic doctrine and the perceived requirements of deterrence have led officials in both countries to stress their commitment to overwhelming punishment in the event that a "red line" is crossed. This analysis suggests that, despite the very substantial differences between the Cold War and the South Asian nuclear rivalries, the dilemmas of escalation control are quite profound in both cases.

PREEMPTION, VULNERABILITY, AND ESCALATION CONTROL

Concerns over preemption were a recurring theme during the Cold War, reflecting the ability of both superpowers to deliver massive attacks against opposing nuclear forces, notwithstanding the huge size of residual nuclear arsenals. In contrast, India and Pakistan possess modest nuclear capabilities. As noted above, leaders in both countries assert that they have refrained from deploying nuclear forces, even in crisis, and that they keep their warheads separate from their means of delivery. In sharp contrast, Washington and Moscow continue to maintain a large number of nuclear weapons ready for launch.

Which of these strategic force postures – large, advanced nuclear capabilities that are spring-loaded for offensive action, or modest capabilities that are maintained in an extremely relaxed state – presents a more comforting

[21] I am grateful to Feroz Hassan Khan for these insights.

picture for escalation control? Proponents of arms control rightly argue that having nuclear weapons on hair-trigger alert is dangerous, especially in a crisis. But having modest nuclear forces and rudimentary command and control arrangements that are vulnerable to preemption and decapitation in a crisis is also dangerous. "De-mating" warheads from launchers is a good thing – as long as one's deterrent and national command authority are not subject to preemption and decapitation.

Nuclear stabilization measures on the subcontinent are hampered, in part, by the absence of clearly understood definitions of key terms. For example, three quasi-official interpreters of Pakistan's nuclear posture acknowledged this dilemma in the following way:

> Early warning capability may be more problematic. Even if Pakistan could afford satellite monitoring, the warning will be no more than a few minutes. Non-weaponization and non-deployment would constitute crucial confidence-building measures. However, India's nuclear doctrine rules this out as it envisages induction and employment. The highest degree of alert will be all the more necessary.[22]

The authors' stated concern over "induction" is odd, since Indian leaders have clearly not equated induction with deployment. Their definition of "employment" is unclear. It could mean the deployment of a nuclear weapon system in a crisis, or the actual use of such a weapon. The reference to heightened alert levels is noteworthy, since it runs counter to the stated Pakistani position that all its nuclear forces are maintained in a low state of readiness.

Even in the absence of mutually understood terms, one may reasonably infer from this quasi-authoritative statement that Pakistan's security dictates an increase in alert rates – although not necessarily the mating of warheads with launchers – in the event of a severe crisis.[23] Vulnerability mandates preparedness, and nuclear preparedness compounds risk in a crisis environment. "First strike" is not in the lexicon of Indian and Pakistani authorities, but the possibility cannot be dismissed, as long as some doubt exists about the survival of retaliatory capabilities or some hope that a preemptive strike might succeed. As an independent Pakistani analyst has concluded,

> [D]eterrence is based not on the credibility of the second strike capability of either side, but on the effectiveness of the first strike. Hence, it would be a nuclear fallacy to believe first that currently both

[22] Agha Shahi, Zulfiqar Ali Khan, and Abdul Sattar, "Responding to India's nuclear doctrine," *Dawn,* October 5, 1998.
[23] For a discussion of the distinction between defensive measures and offensive preparations, see Feroz Hassan Khan's companion essay.

> South Asian nuclear rivals have credible and survivable nuclear capability, and second, that a war can remain limited…[24]

At this early stage of their nuclear rivalry, India and Pakistan have demonstrated admirable restraint in avoiding a more intense nuclear competition even though, by western yardsticks, they suffer from complementary and mutually reinforcing vulnerabilities. New Delhi's relaxed approach to command and control would appear to leave its national command authority vulnerable to decapitation. This problem can be addressed by spending money on construction projects, communication upgrades, planning, and by the dispersal of national leadership in times of extreme crisis.

Pakistan's primary nuclear vulnerability is more difficult to fix: Its deterrent is located at a limited number of airfields and missile bases, all within quick reach of Indian missiles and combat aircraft. In a crisis, this structural vulnerability can be addressed by increasing alert rates, by maintaining nuclear capabilities at covert, satellite facilities, and by moving missiles outside their bases. All of these steps appear advisable to strengthen deterrence, but also could make escalation control much harder to achieve.

Here again, it is extremely difficult to conclude with certainty which of the two nuclear rivalries presents a better model for escalation control. For very different, but quite compelling reasons, the prospects for escalation control across the nuclear threshold appear weak in both cases. As V.R. Raghavan has concluded, "Escalation is inherent in war both because [of] the desire to win, and the need not to lose."[25] This insight is not region-specific. Thankfully, analysis of the subject matter remains abstract and theoretical. Our challenge is not to decide which of these nuclear pairings is worse with respect to uncontrolled escalation; it is to seek actions so that this discussion remains abstract and theoretical.

CONVENTIONAL FORCE BALANCES AND ESCALATION

Is the order of battle in South Asia more or less conducive to uncontrolled escalation than was the case during the Cold War? This question presumes that the next use of a nuclear weapon would result from conventional imbalances, which is an arguable proposition. As discussed above, the next use of a nuclear weapon could come as a result of factors that have little to do with conventional force structure, such as an accident, or an act of terror, or a break down in command.

The overall Cold War conventional balance consisted of an accumulation of imbalances, some favoring Moscow, others favoring Washington. But in the key

---

[24] Maria Sultan, "Deterrence and limited war," *The News*, June 3, 2002.
[25] V.R. Raghavan, "Limited War and Nuclear Escalation in South Asia," *The Nonproliferation Review* 8, no. 3 (Fall 2001).

regions where war could have erupted, the Soviet Union enjoyed much shorter lines of communication and other advantages on the ground. The Soviet Union, however, did not conceive of a military campaign against the west that did not involve the heavy use of nuclear weapons.

Once again, the contrasts to South Asia are quite evident. India enjoys growing conventional advantages in many key areas, while Pakistan enjoys better lines of communication to prospective battlegrounds. Neither country seeks or anticipates that nuclear arms would be used in conjunction with a conventional offensive.[26] Despite these dramatic differences, it remains unclear which of the two cases is more problematic for uncontrolled escalation.

Large conventional forces were maintained by the United States and the Soviet Union, but the superpowers kept their powder dry. Nor, after the crises over Berlin and Cuba, did they challenge each other in locales that were of central strategic importance. The situation in South Asia is different, as India and Pakistan have not yet reached a mutual accommodation over Kashmir, as reflected by periodic exchanges of fire across this divide interspersed with wars and crises.

As military capabilities shift increasingly in India's favor, Pakistan's national security establishment could conclude that unconventional options are warranted to offset this imbalance. In response, India's leaders might be encouraged to conclude that they have the means to conduct a limited war to make Pakistan pay for supporting *jihad*. As discussed below, these outcomes would pose a stern test of the viability of escalation control measures below the nuclear threshold. Alternatively, a widening conventional imbalance, as well as the domestic blowback from supporting *jihad* and the need to address Pakistan's internal problems, could help convince the authorities in Pakistan to stop playing with fire in Kashmir. As three eminent western analysts have concluded, "Challenging the *status quo* is usually more difficult than sustaining it because, in most cases, the *status quo* power has a greater stake in preventing change than the challenger has in bringing it about."[27] While this conclusion also applies to the subcontinent, its recognition could result in the strikingly different outcomes noted above.

There are simply too many unknowns for anyone to argue authoritatively about scenarios that, if tested, could result in outcomes unique in the annals of history and warfare. Imagine the crucible of the Cuban missile crisis or a future crisis over Kashmir, and then add a mushroom cloud. Think of the public chaos and anger prompted by a singular nuclear event, and the awful suddenness in which more mushroom clouds could appear. Instead of the thirteen days that Kennedy and Khrushchev had to ponder the fate of the world, imagine the

[26] Rodney W. Jones' companion essay in this book provides a detailed assessment of this subject.
[27] Robert Jervis, Richard Ned Lebow, and Janis Gross Stein, *Psychology and Deterrence* (Baltimore: The Johns Hopkins University Press, 1985), p. 2.

pressures to make monumental decisions quickly. The decision-making dilemmas facing national leaders under these circumstances would be the most intense in recorded history – assuming, of course, that decisions are made by national leaders instead of subordinates due to a break down in command and control.

NUCLEAR OPTIONS AND ESCALATION CONTROL DURING THE COLD WAR

Henry Kissinger framed the dilemma of escalation control across the nuclear threshold in a way that remains pertinent today in South Asia:

> Given the power of modern weapons, a nation that relies on all-out war as its chief deterrent imposes a fearful psychological handicap on itself. The most agonizing decision a statesman can face is whether or not to unleash all-out war; all pressures will make for hesitation, short of direct attack threatening the national existence. In any other situation he will be inhibited by the incommensurability between the cost of the war and the objective in dispute.[28]

Kissinger also noted that, "A deterrent which one is afraid to implement when it is challenged ceases to be a deterrent."[29] Adversarial nuclear powers in South Asia, like the United States and Soviet Union during the Cold War, remain stuck on the horns of this dilemma.

During the Cold War, Washington and Moscow first attempted to escape from deterrence by promulgating strategies of massive nuclear attack. While this option remained in strategic war plans, it enjoyed a very short run in terms of US declaratory policy. No national leader likes the choice of "all or nothing" when it comes to the use of nuclear weapons. Massive retaliation was quickly eclipsed. Beginning in the late 1950s, limited war options came into vogue in the United States.

The highly imaginative mind of Herman Kahn tried to map a combined exit and victory strategy from this "all or nothing" dilemma. Kahn dove awkwardly into the task of defining the characteristics of an adversary's behavior. Knowing one's adversary and having multiple and increasingly coercive nuclear options – rungs in the escalation ladder – were Kahn's two keys to nuclear victory short of an all-out strategic exchange.[30]

These efforts were alien to the US national psyche, which found nuclear weapons acceptable as a deterrent, but reprehensible as war-fighting instruments. The likes of Kahn were easily caricatured in Stanley Kubrick's

---

[28] Kissinger, *Nuclear Weapons and Foreign Policy,* op. cit., p. 133.
[29] Ibid., p. 134.
[30] See Kahn, *On Escalation: Metaphors and Scenarios*, op. cit.

classic movie, Dr. Strangelove.[31] Behind the caricature were deadly serious questions about the competence of deterrence strategists to evaluate an adversary's national psyche when they appeared to be so far removed from the psyche of their fellow citizens.

Given the widespread, domestic revulsion to conceptions of fighting and winning a nuclear war, these matters became far too sensitive to be discussed or defended in public discourse. They were therefore relegated to the oxygen-deprived rooms of nuclear war planners. The coherence of these plans depended, above all else, on the absence of scrutiny by disbelievers. The public and the nuclear war planners had to inhabit separate universes; otherwise, both the citizenry's peace of mind and the *status quo* of the nuclear establishment would have been severely disturbed.

Throughout the Cold War, the pursuit of flexible nuclear options worked at cross-purposes with the objective of escalation control. Hawks presumed that the acquisition of superior nuclear war-fighting capabilities was necessary in order to leverage favorable outcomes and to convince an adversary that it was preferable to stop rather than to absorb even more nuclear detonations. Because an adversary might be unwilling to stop, nuclear war planners applied themselves to the task of placing all targets that could wreak terrible destruction "at risk." The term for this in deterrence theory is "damage limitation." To succeed at damage limitation, the nation would require the means to carry out a massive preemptive strike as well as missile and civil defenses that could prevent or reduce the consequences of retaliatory blows.

As superpower nuclear arsenals grew more sophisticated, targeting options proliferated. Flexible nuclear options, however, did not provide much confidence that escalation could be controlled. As Jervis noted during a particularly virulent phase of the nuclear competition, "Flexibility has become an end in itself and a substitute for the unattainable end of a strategy for terminating the war."[32]

Needless to say, targeting strategies to escape from deterrence and to achieve "favorable" outcomes were not fit topics of public conversation. Hardliners in the United States circumvented this problem by ascribing nuclear war-winning motives to the Kremlin, which had lost millions of its citizens during World War II and was ruthless enough to suffer more such losses in a nuclear war. In this view, there was, alas, no alternative but to confront hard truths and to make appropriate preparations – couched publicly in the dictates of deterrence. Hardliners in the Soviet Union no doubt ascribed similar motives to US hawks. Military planners in both superpowers inferred intentions from capabilities – and the capabilities to mount prompt attacks against nuclear

[31] The subtitle of the movie, which was released in 1964, was "How I Learned to Stop Worrying and Love the Bomb."
[32] Jervis, *The Illogic of American Nuclear Strategy,* op. cit., p. 80.

targets grew steeply in the last two decades of the Cold War. US and Soviet nuclear strategists used the language of deterrence, while seeking war-winning options.

> Neither superpower would concede being placed at such a disadvantage. As nuclear options proliferated, with an emphasis on prompt counterforce attacks against opposing nuclear capabilities, each superpower relied upon high alert rates and nuclear overkill, just in case the other decided to strike first. Since each side's deterrent was now indistinguishable from the forces tailored for a surprise attack, worst case, paranoid assumptions contoured domestic US debates. Right up until the demise of the Soviet Union, some hardliners continued to assert that Mikhail Gorbachev's "reforms" were a snare and a delusion designed to put Washington off-guard.[33]

Arms controllers held quite different, but nonetheless, strange notions. They argued that the best insurance against nuclear attack was for both adversaries to refrain from defending against one. During the Cold War, US domestic politics delivered a split decision on the continuous battles between hawks and doves. Hardliners won the battles on improving offensive capabilities, while arms controllers succeeded in codifying mutual vulnerability by means of the Anti-Ballistic Missile (ABM) Treaty. Domestic support in the United States for the defensive measures required to accompany a damage limitation strategy was as questionable as the expensive technologies proposed for missile defense. The general public remained queasy with vulnerability, but this seemed to be an unavoidable condition of the superpower rivalry.

Concerns over vulnerability provided greater impetus to new and better offensive nuclear capabilities. Technical dilemmas in this domain, unlike those plaguing missile defenses, could be overcome. Delivery vehicles and warheads piled up on both sides in a contest in which numerology substituted for battlefield performance. Who was ahead and who was lagging behind? Troubling or reassuring answers could be found by pointing to different numbers associated with the nuclear competition.

The contradictions of cobbling together war-fighting plans with the acceptance of national vulnerability to nuclear attack were evident on many levels. On the offensive side of the ledger, the United States deployed land- and sea-based ballistic and cruise missiles that were suitable for damage limitation. The Kremlin pursued civil defense programs alongside land-based missiles that were also well suited for preemption. National leaders in both countries accorded the pursuit of treaties a high priority, but the resulting accords could not impair targeting plans, which were considered sacrosanct. The central

[33] For example, a vigilant Frank Gaffney warned that "the Machiavellian schemes" of Mikhail Gorbachev had brought the Soviets "closer to achieving their strategic goals than at any time since World War II." Cited by Hendrik Hertzberg, "Comment," *The New Yorker*, June 20, 2004.

contradiction, however, remained the juxtaposition of plentiful offense and national defenselessness.

The odd mix of an intense arms competition and the acceptance of national vulnerability reflected Cold War reality. Offensive advances were achievable; despite the claims of missile defense enthusiasts, effective defenses were not. As escalatory options multiplied, prospects of escalation control shrank. Because the offensive competition was so worrisome, insurance policies were needed to reinforce wise decision-making in times of crisis. One insurance policy was national vulnerability; another was mutual acceptance of the *status quo* in particularly sensitive areas. A third was an extended process of arms control negotiations premised on mutual recognition of the mutual hostage relationship. This acknowledgment was insufficient to stop the offensive competition, but it was essential to prevent the translation of nuclear war-fighting theories into practice. Throughout the Cold War, nuclear war-fighting plans remained locked in safes. The "balloon" never went up.

The prospect of fighting a nuclear war posed intolerable choices on national leaders. In contrast, the contradictions between offensive nuclear plans and national vulnerability were tolerable – until the Soviet Union collapsed and new threats of catastrophic terrorism arose against which national vulnerability was an utterly inappropriate response. Throughout the Cold War, different calculations applied. Offensive capabilities were geared to escalation dominance and damage limitation while paradoxically, the ABM Treaty was central to escalation control. These competing objectives could not be integrated, so they stood side-by-side.

US and Soviet leaders managed this balancing act at a political level, without delving into the inherent contradictions between escalation control and damage limitation. As the close student and practitioner of crisis management, McGeorge Bundy, wrote,

> There is an enormous gulf between what political leaders really think about nuclear weapons and what is assumed in complex calculations of relative "advantage" in simulated strategic warfare. Think-tank analysts …can assume that the loss of dozens of great cities is somehow a real choice for sane men. They are in an unreal world. In the real world of real political leaders … a decision that would bring even one hydrogen bomb on one city of one's own country would be recognized in advance as a catastrophic blunder; ten bombs on ten cities would be a disaster beyond history.[34]

Nuclear planners and bomb designers still inhabit a separate universe from political leaders. If contemporary evidence in the United States is needed in

[34] McGeorge Bundy, "To Cap the Volcano," *Foreign Affairs* 48, no. 1 (October 1969), pp. 9-10.

support of this proposition, one can look to the continued, albeit downsized, deployments of tactical nuclear weapons in Europe, the maintenance of thousands of warheads on high levels of alert, and the Bush administration's interest in a new and improved "bunker busting" nuclear weapon. It is even less surprising that Russia (with the tables turned, now with inferior ground forces and having to defend Kaliningrad rather than the west having to defend West Berlin) would continue to rely on tactical nuclear weapons for forward defense. Political leaders in Washington and Moscow continue to allow their nuclear establishments to fiddle with designs – although not yet to resume nuclear testing – while intuitively understanding that planning and the authorization for use are entirely separate matters.

Try as they might, US deterrence strategists were never able to offer a persuasive case on how escalation could be controlled while seeking an advantageous outcome once the nuclear threshold had been crossed. These objectives remained at cross-purposes, because neither nuclear rival could achieve an overwhelming conventional and nuclear advantage over the other. Nor could either superpower achieve an effective defense that would permit the confident presumption of safety against nuclear retaliation. These conditions were not remotely achievable during the Cold War. Nor is it possible to envision how today, in vastly changed circumstances, a US or Russian leader could rationally conclude that the benefits of a single use of a nuclear weapon could possibly outweigh the negative consequences of breaking a taboo that has been respected for over half a century. A momentous decision of this kind is not made any easier by downsizing yields, improving earth penetration capabilities, or fiddling with weapon effects.

CONCLUSION

Will deterrence strategists and military planners in South Asia find solutions to dilemmas that have eluded their counterparts elsewhere? This analysis suggests that, despite the stark differences in the Cold War and South Asia cases, these dilemmas are extremely hard to manage by human beings with imperfect knowledge and control over events - regardless of their country of origin. A great deal of skepticism is warranted about attempts to escape from nuclear dilemmas by military means. The difficulties of escalation control remain hellish whether nuclear arsenals are excessive or minimal. Nor are the dilemmas of limited war any easier in South Asia than in Central Europe. As V.R. Raghavan has observed, "The reality of limited war is that the limits set on it make it difficult to gain a military victory, and war termination without victory closely resembles a defeat."[35]

South Asian analysts were profoundly wrong in predicting a new era of stability and security once India and Pakistan had tested nuclear weapons. If they now assert with confidence that escalation can be successfully controlled

[35] Raghavan, "Limited War and Nuclear Escalation in South Asia," op. cit.

beneath the nuclear threshold, they might usefully be reminded of their earlier claims. Unlike Herman Kahn and US strategists, Indian and Pakistani authors do not indulge in analyses about how escalation can be managed once the nuclear threshold has been crossed. On what basis, then, can they be so confident that escalation can be controlled below the nuclear threshold? Are command and control networks and nuclear weapons "fail safe?" Will accidents not happen, or uncontrollable actors not intrude? Will misjudgments no longer occur?

This comparative analysis of the Cold War and South Asian cases suggests that, at the level of operational analysis, differences are stark but still not determinative. At a macro level of analysis are common factors highlighted. Despite the best efforts of theorists and analysts in the west and in South Asia, escalation is not easy to control. Optimistic plans for limited warfare assume that adversaries have grievances deep enough to fight over, and yet they will choose to fight by an agreed set of rules. We now know from studying war plans that this optimistic assumption was not valid during the Cold War. Nor does this assumption take into account the factor of unconventional warfare on the subcontinent. Another heroic assumption relates to battlefield management in the fog of war. It is a truism that the best-laid military plans need to be changed once a conventional war begins. What becomes of plans once the nuclear threshold is crossed?

The essence of wisdom during the Cold War was an agreement not to change the territorial *status quo* by coercive or military means. The essence of wisdom as well as escalation control in South Asia lies in the avoidance of crises that leave much to chance. The cycle of escalation in South Asia, as Richard Sisson and Leo Rose have documented, begins long before conflict erupts, fed by poisonous statements, intelligence mistakes, misperceptions, violence through proxies, and coincidence. Preventing this cycle from gaining traction is the best method of escalation control. As V.R. Raghavan has written, "Deterrence stability comes not through fears and anxieties but through reassurance."[36] Reassurance, in turn, comes from the abandonment of dangerous policies with respect to Kashmir, the pursuit of reconciliation, and the negotiation, along with proper implementation, of nuclear risk-reduction measures.

This hard work is fervently expected of, but rarely performed by, national leaders on the subcontinent. The absence of peace making gives military strategists and deterrence theorists greater leeway. Strategic analysts in India and Pakistan have good reason to chafe at outsiders who extrapolate from Cold War experience. Yet they, too, draw on western concepts of deterrence, limited war, and escalation control, since western literature on these subjects provide the only basis for extrapolation. New nuclear rivals like India and Pakistan will find

[36] V.R. Raghavan, "South Asian Nuclear Dialogue," *The Hindu*, September 1, 2000, available at http://bridget.jatol.com/pipermail/sacw_insaf.net/2000/000772.html.

their own way by accepting, rejecting, or adapting western constructs to suit their own national security interests.

This process is evolving as nuclear capabilities on the subcontinent mature. At this formative stage, many different outcomes are possible. A mixed picture is emerging which contrasts starkly with, while emulating certain aspects of, the US-Soviet nuclear rivalry. This confused picture is quite evident in attempts by theorists and military planners on the subcontinent to escape from deterrence, either by means of limited or unconventional warfare. Indian and Pakistani leaders will go about these pursuits in very different ways than the United States and Soviet Union, but the underlying impulse to seek advantage despite offsetting nuclear capabilities - or to avoid being placed at a disadvantage - is the same.

Indian and Pakistani strategic analysts who stress differences from, rather than emulation of, the US-Soviet nuclear rivalry can make a strong case. The author of this essay does not wish to elicit this reflexive response. A far more constructive rejoinder would be to build on the differences between these two cases to develop constructs that reduce nuclear dangers on the subcontinent. This essay suggests that the primary determinants of escalation control in South Asia are unlikely to rest on the conventional order of battle, finely-tuned military preparations, and a nuclear balance sheet that neither side can be sure of. Instead, escalation control is likely to rest primarily on the stakes involved in the dispute at hand, the risk-aversion or risk-taking nature of national leaders, and the extent to which they can control events. Factors beyond the control of national leaders in the depths of a crisis, such as the actions of extremist groups, accidents, independent decisions made up or down the chain of command, and good or bad luck, could be as or more important. Few western authors have ventured deeply into these domains. The time is ripe for the development of a new, cautionary theory of escalation control and limited war that reflects the complexities of the subcontinent.