
**Going Tactical:
Pakistan's Nuclear Posture
and Implications for Stability**

Feroz Hassan KHAN

September 2015

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*In collaboration with the
Alternative Energies and Atomic Energy Commission*



ISBN : 978-2-36567-443-0

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Editor: Corentin Brustlein

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How to cite this publication

Feroz Hassan Khan, "Going Tactical: Pakistan's Nuclear Posture and Implications for Stability", *Proliferation Papers*, No. 53, September 2015.

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This paper is a follow up to the talk by the author at IFRI, Paris in June 2014. The author is grateful to Andrew Giesey, graduate student in the South Asia Security Studies curriculum at the Naval Postgraduate School, who provided extensive assistance for this paper. The author thanks Ryan W. French, Research Associate, Naval War College, for helpful research and review of the final draft paper and Dr. Mansoor Ahmed, Lecturer Department of Defense and strategic Studies, Quaid-e-Azam University, Islamabad for valuable inputs and comments on initial draft and research for this paper. Views and analyses expressed in this paper, however, are the author’s alone and do not reflect the views or assessments of any government, organization, or entity.

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Abstract

For decades, the Asian security environment has been characterized by multiple strategic rivalries with cascading effects. Due to its competition with China, India modernizes its armed forces, thus reinforcing its conventional advantage over Pakistan. In the subcontinent, geography, military imbalance, the legacy of past conflicts and infiltration of extremist groups considerably weaken strategic stability. To strengthen its deterrent capability against its stronger neighbour, Pakistan faces significant challenges in developing a conventional response to perceived threats from India. Islamabad thus committed to a “full spectrum” build-up of its nuclear forces, which includes the development of tactical nuclear weapons. As Cold War experience informs, far from simply strengthening its deterrent vis-a-vis India, this move poses numerous operational dilemmas for Pakistan. The ongoing regional quantitative and qualitative arms race combines with continued political tensions between India and Pakistan to create a worrying strategic dynamic in South Asia.

* * *

Depuis des décennies, l'environnement sécuritaire asiatique est caractérisé par des rivalités stratégiques multiples qui s'alimentent mutuellement. L'Inde, en compétition avec la Chine, poursuit une modernisation de ses forces armées, renforçant par là-même son avantage conventionnel sur le Pakistan. Les déséquilibres militaires, la géographie, l'héritage des guerres passées comme les infiltrations de groupes extrémistes fragilisent ainsi la stabilité stratégique dans le sous-continent. Le Pakistan se heurte toutefois à de lourdes difficultés pour renforcer par des seuls moyens conventionnels sa capacité de dissuasion face à son voisin plus puissant. Islamabad a donc entamé une montée en puissance de son arsenal nucléaire, notamment par le développement d'armes nucléaires tactiques. Ce choix, loin de renforcer directement la capacité dissuasive du Pakistan, pose à ce dernier de nombreux dilemmes opérationnels – ce que rappellent les leçons de la guerre froide. La course aux armements qualitative et quantitative qui se produit actuellement au niveau régional s'associe ainsi aux tensions politiques persistantes entre l'Inde et le Pakistan pour faire émerger une inquiétante dynamique stratégique en Asie du Sud

Introduction

Sartaj Aziz, Pakistan's leading senior statesman, said of the 1998 nuclear tests that "Pakistan was only [the] dependent variable" responding to India's "independent" decision to exercise its "nuclear option."¹ His apt mathematical analogy also applies to the broader South Asian security environment and the triangular relationship between China, India, and Pakistan, in which actions by one country have cascading effects on the others: challenges to the status-quo regularly evoke historic rivalries and mistrust. Today's trends, symptomatic of the intensity of the Indo-Pakistani rivalry, continue to defy global norms as well as the nonproliferation regime. Renowned and highly respected South Asian scholar Stephen Cohen described South Asia's dispute as "one of the five percent of global conflicts that are unsolvable."²

The South Asian nuclear rivalry, however, is influenced by more than just regional dynamics: other geopolitical variables are also exacerbating strategic competition. The U.S. drawdown from Afghanistan and pivot to the Asia-Pacific have created potential for instability in South Asia and cascading security anxieties in the China-India-Pakistan relationships. China has increased its defense spending, at least partly in response to the perceived U.S. threat, driving India to develop and modernize its own strategic and conventional forces. Meanwhile, Pakistan feels vulnerable to potential Afghan instability and discriminated against by the U.S.-India nuclear deal. Geographically exposed to potential Indian attacks on its eastern border due to its narrow territory, Pakistan lacks the resources to compete with India's superior conventional military, especially as Pakistani security forces are focused on tackling terror threats on the western border as well as internal security threats. To balance these competing security demands, Islamabad relies on nuclear weapons to offset force disparities with India and has most recently introduced battlefield-range systems, such as the 60km-range *Nasr*. Pakistan also believes that Western powers tacitly endorse India's strategic ambitions and military investments as a means of containing China's rise.³ As India

¹ Sartaj Aziz, *Between Dreams and Realities: Some Milestones in Pakistan's History*, New York, NY, Oxford University Press, 2009, pp. 188-189. He is currently Advisor to Prime Minister on foreign affairs and national security.

² Stephen P. Cohen, *Shooting for a Century: The India-Pakistan Conundrum*, Washington, DC, Brookings Institution Press, 2013, p. 1.

³ See, for example, former U.S. Secretary of Defense Leon Panetta's comments about India's relationship with the United States in 2012. "India Linchpin in New US Military Strategy, says Panetta," *Dawn*, 7 June 2012, available at: <http://www.dawn.com/news/724557/india-linchpin-in-new-us-military-strategy-says-panetta> or more recently Admiral Locklear's remarks about PACOM's developing

engages in an arms race with China, its military modernization is exacerbating an offense-defense imbalance with Pakistan that finds the bulk of India's defense purchases – especially its aircraft and naval platforms – directly affecting Pakistan in the immediate terms. Thus, the Asia-Pacific rebalance is indirectly fueling the Indo-Pakistani rivalry and incentivizing an expansion of nuclear arsenals.

After 14 years of intense engagement in the Afghanistan-Pakistan region – following the events of September 2001 – U.S. interests in South Asia are changing. The shifting geopolitical priorities are causing fear of abandonment in Pakistan that brings it closer to China, which, in turn, affects Pakistan's relationships with its neighbors, especially India.⁴ As Indo-Pakistani rivalry deepens, the introduction of new generation weaponries and innovative military doctrines makes the regional security matrix much more complex for Islamabad as it grapples with the rise of violent religious extremism and domestic political instabilities.⁵ As a result, strategic stability and *détente* appear to be unrealistic expectations for the near future.

This essay examines Pakistan's nuclear weapons trajectory by explaining the core motivating factors that currently drive the development of Pakistan's nuclear arsenal, its doctrine, and command and control structure. First, the paper discusses the academic literature on "strategic stability," and how the concept relates to the South Asian context that drives Pakistani perceptions and nuclear trajectories. Second, it recaps why Pakistan sought nuclear weapons, how Pakistan's nuclear architecture evolved, and what Pakistan's nuclear arsenal currently consists of. Next, it examines the effects of India's military doctrine and force modernization on Pakistan's nuclear doctrine and command and control arrangements. In particular, this section addresses the rationale for Pakistan's tactical nuclear weapons (TNWs) and the multiple uncertainties these weapons

relationship with India. Samuel J. Locklear, "Statement Of Admiral Samuel J. Locklear, U.S. Navy, Commander, U.S. Pacific Command Before The Senate Committee On Armed Services On U.S. Pacific Command Posture," Senate Committee on Armed Services, 25 March 2014, available at: http://www.armed-services.senate.gov/imo/media/doc/Locklear_03-25-14.pdf.

⁴ Traditionally, the United States has played a mediating role in South Asian security dynamics, pursuing bilateral relationships with both India and Pakistan yet failing to bring both sides to the table to discuss their various disputes. For its part, the United States has been in a quandary over its relations with India and Pakistan for several decades. See Feroz Hassan Khan and Ryan W. French, *U.S.-Pakistan Nuclear Relations: A Strategic Survey*, Monterey, CA, Naval Postgraduate School, April 2014.

⁵ India's new right-wing government has stalled all bilateral dialogues and negotiations with Pakistan since August 2014. A few months prior to becoming India's national security advisor in 2014, Ajit Doval suggested India might adopt a "defensive offense" policy – a fourth generation warfare concept that involves covert warfare including cyber, intelligence-based operations, and forms of economic warfare against Pakistan, which is India's response to what it believes has been decades of Pakistani proxy war against India. See Ravi Menon, "Doval's Comments Raise Serious Misgivings," *Gulf News*, 22 January 2015.

bring about.⁶ Finally, the fourth section addresses areas for concern in the nuclear environment of South Asia that affect Pakistan's nuclear future and concludes with the implications on regional stability and balance.

⁶ Pakistan refers to these short range ballistic missile systems as battlefield nuclear weapons (BNWs), but the term tactical nuclear weapons (TNWs) is more broadly recognized internationally. For the purposes of this essay, TNW refers to a nuclear weapon system that will be used in a battlefield environment.

Strategic Stability Redefined

Strategic stability is redefined in South Asia, given the peculiar strategic environment and intersection of structural imbalances and entrenched ideological differences that affect stability conditions. Derived from the Cold War, the term strategic stability has had many interpretations.⁷ Early definitions of the term were made by Thomas Schelling and Morton Halperin, where strategic stability was referred to as a condition “where risks of war are low because neither side has an incentive to strike first” and that both are “reasonably secure against shocks, alarms and perturbations.”⁸ The Cold War period, often dubbed as the first nuclear age, was characterized with the strategic posture of major powers comprising some 60,000 nuclear weapons with prospects of annihilation. The post Cold War period has witnessed the spread of nuclear capability in regional countries where security is much more complex and with particular reference to Asian states – China, India, and Pakistan – referred as the second nuclear age.⁹

In South Asian conditions, therefore, strategic stability implies the absence of incentive to commence a conventional war that could rapidly escalate into a nuclear exchange – deliberate or inadvertent. Schelling and Halperin’s “incentive to strike first” is nuanced because incentive to commence wars has persisted since 1947 when British India was partitioned into two independent countries, which left a plethora of *casus belli* that became more complex with time. India and Pakistan have used a combination of asymmetric means followed by conventional military operations in 1948, 1965 and 1971 wars – the pre-nuclear era. As nuclear capability evolved since the 1980s and beyond, militarized crises have replaced major wars. More disturbingly, the rise of violent religious extremism has gripped the region while conflict resolution remains elusive. India staunchly believes the series of terror attacks traced to violent extremist groups residing in Pakistani-controlled territory reflect a Pakistani

⁷ Elbridge A. Colby and Michael S. Gerson (eds.), *Strategic Stability: Contending Interpretations*, Carlisle Barracks, PA, Strategic Studies Institute, 2013.

⁸ Thomas C. Schelling and Morton H. Halperin, “Strategy and Arms Control,” in Gregory D. Koblentz (ed.), *Strategic Stability in the Second Nuclear Age*, Special Report No. 71, New York, NY, Council on Foreign Relations, November 2014, p. 19.

⁹ Paul Bracken, *The Second Nuclear Age: Strategy, Danger, and the New Power Politics*, New York, NY, Henry Holt and Company, 2012. See also Koblentz, *Strategic Stability in the Second Nuclear Age*, *op. cit.*, p. 19, as well as the essays compiled in Ashley Tellis, Abraham Denmark, and Travis Tanner (eds.), *Strategic Asia 2013-2014: Asia in the Second Nuclear Age*, Washington, DC, National Bureau of Asian Research, 2013.

state policy, which Islamabad forcefully denies. Equally, Pakistan believes the scourge of terrorism is a result of a series of historical events for the past four decades that gave birth and home to violent extremist organizations in the Pakistan-Afghanistan region. In Pakistan's view, New Delhi's reasoning for retaining use of force against Pakistan – in response to terror incidents – reflects India's desire for regional hegemonic dominance and concern that Sino-Pakistani strategic cooperation is a conspiracy to stymie India's rise. These entrenched beliefs are deeply socialized over generation since their birth as independent states "with each state viewing the other as significant threat to their security, survival and prosperity."¹⁰

India's former strategic force commander Lt. General (Ret.) Balraj Nagal agrees that the term of strategic stability does not have a universal definition but broadly approves Edward Warner's three broad conditions to situation in South Asia: absence of incentive for the use of nuclear weapons first (crisis stability); absence of incentives to build up nuclear force (arms race stability); and absence of armed conflict between nuclear-armed states where states enjoy peaceful and harmonious relations.¹¹ None of the three conditions apply to India and Pakistani situation, which leaves open the question on the robustness of deterrence stability – yet another term used interchangeably with strategic stability. Several authors are skeptical of the stability of nuclear deterrence in this day and age, yet many believe in the continued salience of nuclear weapons and the role of deterrence in security policy. Michael Krepon and Bruno Tertrais, both widely respected scholars on South Asia, have opposite views on the notion of "deterrence stability." While both argue that nuclear deterrence has had utility of preventing large-scale wars, Krepon does not believe "offsetting nuclear arsenals were [...] stabilizing" in the Cold War¹². Deterrence stability eluded major powers and "will be similarly elusive on the subcontinent," he debates. Tertrais maintains there are good historical grounds to claim nuclear deterrence has been an "effective tool for war prevention" and is a "valid answer to some of the 21st century's most pressing challenges."¹³

The Pakistani perspective on strategic stability differs from the Indian. Crisis stability is not simply absence of incentive to eschew nuclear use but also use of conventional force – regardless of the pretext – against a nuclear-armed country. In Pakistani assessment instability conditions will persist so long as the militarily stronger state retains the option of using conventional force to exploit the vulnerabilities of the weaker neighbor.

¹⁰ T.V. Paul, *The India-Pakistan Conflict: An Enduring Rivalry*, New York, NY, Cambridge University Press, 2005, p. 3.

¹¹ Balraj Nagal, "Strategic Stability - Conundrum, Challenge and Dilemma: The Case of India, China and Pakistan," *Journal of the Center for Land Warfare Studies (CLAWS)*, Summer 2015, pp. 1-22.

¹² Michael Krepon, "The Myth of Deterrence Stability Between Nuclear-Armed Rivals," in Michael Krepon, Joshua T. White, Julia Thompson, and Shane Mason (eds.), *Deterrence Instability and Nuclear Weapons in South Asia*, Washington, DC, Stimson Center, April 2015, p. 15.

¹³ Bruno Tertrais, *How Relevant is Nuclear Deterrence Today?*, *Nacao e Defesa*, June 2015, p. 8.

Pakistan needs time and space to tackle the militant groups that have metastasized and are waging cross-border terrorism at will and capable of bringing two nuclear-armed states into sudden crises. This dialectic of strategic beliefs, doctrines, and lack of common understanding on strategic stability between the two South Asian neighbors is analyzed subsequently in this paper.

In a special Council on Foreign Relations (CFR) report, Gregory Koblentz described three distinct challenges in the second nuclear age, which distinguish it from the first nuclear age. The first challenge is described as the “security trilemma”, where nuclear states face more than one state and defensive action by one against another state makes a third state insecure, which has a cascading affect on the strategic postures and policies. The second challenge is the nature of technological maturations in military affairs with the emergence of a suite of non-nuclear systems such as ballistic missile defenses, anti-satellite weapons, long-range precision strike systems, and cyber weapons. These systems are capable of offsetting and possibly mitigating the strategic impact of nuclear deterrence. The third challenge affecting regions is the mix of unresolved territorial disputes, cross-border terrorism and various forms of violent extremist forces in regions as military and nuclear arsenals continue to grow.¹⁴ The possibility of a breakdown in stability is far greater in this age due to the volatile nature of the security situation and absence of any arms control architecture or mutually acceptable strategic restraint agreements between major nuclear-capable states.

Pakistan’s nuclear posture is affected by all three challenges described in the abovementioned report.¹⁵ It is at the receiving end of the “security trilemma” consequential to the cascading affect of China’s modernization on South Asia. India’s quest to compete and balance the rise of China impacts Pakistan, which then pursues nuclear modernization and seeks external alliances to ensure its security.¹⁶ The pace of development resulting from the Sino-Indian rivalry finds Pakistan vulnerable, which is leading it to rely more on nuclear deterrence to offset conventional disparity and to prevent major conflict with India. Today, technologies associated with both nuclear and conventional weapons seem to be playing a greater role than the strategic concepts, to shape nuclear and conventional doctrines in the region. Further deterrence strategies adopted by India and Pakistan are challenging stability in an already fragile region.

¹⁴ The term “security trilemma” is attributed to Linton Brooks and Mira Raap-Hooper, “Extended Deterrence, Assurance, and Reassurance in the Pacific during the Second Nuclear Age,” in Tellis, Denmark, and Tanner (eds.), *Strategic Asia 2013-2014*, *op. cit.*, pp. 292-293.

¹⁵ For a detailed treatment of Pakistan’s posture see Christopher Clary, “The Future of Pakistan’s Nuclear Program,” in Tellis, Denmark, and Tanner (eds.), *Strategic Asia 2013-2014*, *op. cit.*, pp. 131-160.

¹⁶ Koblentz, *Strategic Stability in the Second Nuclear Age*, *op. cit.*

South Asian Nuclear Capabilities and Their Drivers

Nuclear weapons have undoubtedly added new complexities to the Indo-Pakistani rivalry. While both states claim security is the prime rationale for seeking nuclear capability, post nuclear test history reinforces the assessment of many experts that domestic politics and security concerns were the primary drivers of the 1998 nuclear tests in India and Pakistan. Yet these motivations have become more diversified by time and events. After India's test, Pakistan's leadership faced a crossroad: test its own weapons or bow to international pressure to refrain from testing and in the process, commit domestic political suicide. Pakistan's subsequent nuclear tests led to an international effort to dampen Indo-Pakistani competition, but the U.S.-led effort to create a structured strategic restraint regime in South Asia quickly failed. Since then, India and Pakistan have largely been left to their own devices to expand and improve their strategic arsenals, developing their own command structures and doctrines in the process.¹⁷ Lately, India's sense of vulnerability vis-à-vis China and innate desire to strategically compete with its Asian rival have added to its motivations to expand its arsenals and project its power. India's military modernization, expanding fissile stocks and strategic arsenal acquisitions are immediately affecting Pakistani vulnerabilities, which sees in the near-term India force postures as threatening to its security.

Since its birth as a sovereign state in 1947, Pakistan's strategic geography has been both a blessing and a curse. Its strategic importance grew out of geopolitical compulsions during the Cold War. Pakistan's geographical proximity to the erstwhile Soviet Union and China and its location at the crossroads of South, Southwest and Central Asia attracted the United States to seek Pakistani alliance in the "containment" of the Communist bloc. In the 1980s Pakistan played a vital role in waging asymmetric warfare in Afghanistan to defeat the Soviet Union. To an extent, Pakistan's strategic role in the Cold War facilitated its proliferation activities, enabling it to defy political and technical barriers and ultimately acquire the nuclear capability.¹⁸

¹⁷ Feroz Hassan Khan, "Strategic Restraint Regime 2.0" in Michael Krepon and Julia Thompson (eds.), *Deterrence Stability and Escalation Control in South Asia*, Washington, DC, The Stimson Center, 2013.

¹⁸ For this comprehensive history see Feroz Hassan Khan, *Eating Grass: The Making of the Pakistani Bomb*, Stanford, CA, Stanford University Press, 2012.

After the September 2001 terror attacks in United States, Pakistan once again became a front line state in what was termed as global war on terror in Afghanistan. And, again, to an extent this important role brought the international community to be more indulgent with Islamabad, especially after the unraveling of the A.Q. Khan proliferation network. Pakistan's strategic importance continues even as geopolitical locus shifts to the Asia-Pacific region. Today its pivotal geographic position provides vital strategic transit to the landlocked Central Asia and its land and maritime corridor provides for Chinese energy and trade flows euphemistically referred as the "new silk route."¹⁹

Geography also brought with it harsh realities and equal curse. Described as "truncated and moth-eaten" by its founder Jinnah after the blooded partition at the birth of the nation-state, its security environment was never tranquil both from within and without. Borders drawn primarily on ethno-religious districts produced an elongated geography, which saw Pakistan's lines of communication run perilously close, parallel and vulnerable to a limited advance from India. Equally challenging is its second geostrategic challenge in the form of turbulent and disputed border with Afghanistan.²⁰ Pakistan's defense planners are facing two-front defense challenge; unable to trade space on either border, Pakistan is forced to sacrifice maneuverability in favor of forward defensive military posture with India.²¹ Vipin Narang describes Pakistan's security choice dilemma as "a state facing conventionally superior proximate threat would have no option but to adopt asymmetric escalation posture... Pakistan's attempts to compensate its numerical inferiority against India by operating on interior lines of communication, cannot escape the fact that large scale conventional war with its larger neighbor would occur across easily traversable plains and deserts... India on the other hand, is buffered against China's larger conventional land capability by the inhospitable terrain."²²

Some authors such as Walter Ladwig III have argued that combination of geography and conventional force capability makes Pakistani conventional deterrence posture quite robust. He challenges the common belief that Pakistan's nuclear force posture is a result of conventional force asymmetry with India.²³ Ladwig's analysis, however,

¹⁹ In April 2015, during the Chinese President Xi Jinping visit to Pakistan, the two countries signed the historical pact to develop the China-Pakistan Economic Corridor (CPEC) that would link Pakistan's coastline with China's Xinjiang province. Both countries would develop a network of roads, rail and energy pipelines. China has pledged \$46 billion, which includes development of strategic hub port at Gwadar. The corridor will link China to the Middle East and West Asia.

²⁰ Pakistan's borders with India (Radcliff Line) in 1947 and with Afghanistan (Durand Line) in 1893 were the result of colonial history.

²¹ Feroz Hassan Khan and Diana Wueger, *Battlefield Nuclear Weapons and Deterrence Strategies: Phase III, 2014 workshop report*, Monterey, CA, Naval Postgraduate School, March 2015, p. 14.

²² Vipin Narang, *Nuclear Strategy in the Modern Era: Regional Powers and International Conflict*, Princeton, NJ, Princeton University Press, 2014, p. 35.

²³ Walter C. Ladwig III, "Indian Military Modernization and Conventional Deterrence in South Asia," *The Journal of Strategic Studies*, Vol. 38, No. 5, May 2015.

overplays the impact of geographical frictions against the very obvious Pakistani vulnerabilities; he also underplays the growing qualitative and quantitative conventional asymmetry between India and Pakistan and completely ignores Pakistan's security predicament in balancing three-dimensional responsibilities, which are unlikely to mitigate in the near future. Pakistani security forces are deployed in the western tribal borderlands with Afghanistan undertaking major military operations against terrorists; fighting internal insurgencies, violent extremist organizations and domestic disturbances; and as a result weakening its defenses on the eastern border with India, especially against the backdrop of recent volatility on the Line of Control (LoC) in the disputed Kashmir region.²⁴ Several Track-II war-games and simulation exercises organized by this author, involving players from the region, indicated that escalation control, de-escalation and war termination would rapidly become nearly impossible in a South Asian crisis. For this author, it is hard to conclude that the taboo around nuclear use would withhold for long in the event of a future India-Pakistan war. These deductions will be analyzed ahead in this paper.²⁵

Nuclear Motivations: India and Pakistan

Traditionally, states seek nuclear weapons for three reasons – security, prestige, and ideology – but one reason typically stands out. India sought a nuclear bomb as a way to achieve stature on the international stage among the world's leading powers. While both India and Pakistan objected to the Non-Proliferation Treaty (NPT) because of its discriminatory provisions, for India the treaty restricts the new currency of power, nuclear weapons, to an elite group of nations who have shown little resolve to relinquish their arsenals. India sought power and stature commensurate with its dominating position in the subcontinent. Hence, India balked at signing the treaty and conducted a so-called “peaceful nuclear explosion” in 1974 to set it on a path toward joining the superpowers. Certainly, security and ideology also influenced India's calculus. China, having decisively defeated India in the short 1962 Sino-Indian border war, tested its own nuclear bomb in 1964, an event that could not go unchallenged. Also, the 1998 test itself was ushered in with great fanfare by the Hindu-right Bharatiya Janata Party (BJP). Yet as the recent finalization of the U.S.-India nuclear deal has demonstrated, India's primary motivation has been the prestige of possessing the currency of international power.²⁶

²⁴ In 2003 India and Pakistan declared a ceasefire on the Line of Control (LoC) dividing disputed Kashmir. For over four years both countries engaged in back-door channels to find an agreed formula to resolve the dispute but in November 2008, after the Mumbai attack and subsequent change of leadership in both countries, the centrality of the Kashmir issue returned.

²⁵ Four simulation exercises in past two years have revealed that except for the initial periods of war, India's conventional preponderance depletes Pakistani forces as war continues into a week or so, especially in air force and naval losses as well ground forces losses along the LoC in Kashmir. India would not give up unless it has significantly reduced Pakistani combat potential, and Pakistan would not give up because despite conventional force losses, it has nuclear weapons and the option to employ them.

²⁶ For a very accessible review of the motivations for seeking nuclear weapons, see Joseph Cirincione, *Bomb Scare: The History and Future of Nuclear Weapons*,

Pakistan, however, sought nuclear weapons primarily to obtain security, specifically against India; prestige and ideology have played secondary and at times complicating roles. Like India, Pakistan rejected the NPT on discriminatory grounds, even though President Ayub Khan had rejected nuclear weapons entirely for their destructive power. Then in 1971, India intervened into the East Pakistan crisis, severing the two wings of Pakistan and producing the new country of Bangladesh. This singular event was far greater in its psychological impact on Pakistan than the Sino-Indian war had been for India, and drove Prime Minister Zulfikar Ali Bhutto to declare that “never again” would India be permitted to destroy Pakistan. India’s subsequent 1974 nuclear test unified an otherwise divided Pakistan in its quest for deterrence and gave Bhutto a chance to integrate nuclear aspirations into domestic politics. Generations born since have lived with the myth of the invincibility of nuclear-armed states, and of nuclear weapons as the *sine qua non* for state’s survival.

Despite national pride in building a nuclear arsenal, Pakistan has not been able to leverage its nuclear status to improve international prestige; on the contrary, Pakistan has suffered sanctions and pariah status on several occasions. Pakistanis believe that at least part of this international censure stems from the fact that Pakistan is the only Muslim country to possess a nuclear bomb.²⁷ More damage to its international reputation, however, was caused by the exposure of the A.Q. Khan network just when its nuclear capability became an unavoidable fact and soon after U.S. administration removed the sanctions. In the wake of the September 11, 2001 terror attacks, Pakistan had once again become a front line state, this time in support of a global war on terror in Afghanistan.

Nuclear weapons did not bring stability to the Indo-Pakistani rivalry: just over a year after the nuclear tests, the two countries were again at war. The 1999 conflict over Kargil defined the India-Pakistan relationship for years to come.²⁸ Kargil raised serious questions concerning the future direction of nuclear weapons in South Asia – would nuclear dynamics follow the pattern that Glenn Snyder predicted as the “stability-instability paradox” wherein states, confident in the deterrent power of nuclear weapons to prevent a major war, would resort to smaller scale or sub-

New York, NY, Columbia University Press, 2008. For more authoritative commentary, see Scott D. Sagan, “Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb,” *International Security*, Vol. 21, No. 3, Winter 1996-1997, pp. 54-86. For a Pakistan-specific analysis, see Feroz Hassan Khan, “Nuclear Proliferation Motivations: Lessons from Pakistan,” *The Non-Proliferation Review*, Vol. 13, No. 3, November 2006, pp. 501-517.

²⁷ Khan, “Nuclear Proliferation Motivations,” *op. cit.*, p. 505.

²⁸ In early summer 1999, India and Pakistan went into a bloody border skirmish on the northern fringes of the Line of Control (LoC) in Kashmir near the border town Kargil in Indian administered Kashmir. The crises triggered when India found out that Pakistan had infiltrated troops across the LoC to occupy certain heights that overlooked the strategic highway in Indian controlled Kashmir. Fierce fighting across the disputed border terrain resulted into hundreds of casualties on both sides. This mini-war within a year of nuclear tests worried the international community of escalation into broader war and nuclear exchange. The crises defused after U.S. President Clinton intervened in July 1999.

conventional wars? Or would South Asia fumble and follow mistakes out of inexperience and learn what Robert Jervis described as the “meaning of nuclear revolution”? Historical examination of South Asian crises suggests a more conditional answer, where specific events have reinforced certain strategic beliefs in the minds of Indian and Pakistani elites. Kargil represented a lack of nuclear learning in both India and Pakistan; neither side fully appreciated the effects of its newly acquired weapons on strategy, diplomacy and statecraft. For Pakistan, Kargil was a serious blunder coming close to the heels of nuclear tests and ensuing sanctions. Pakistan found itself isolated internationally, allowing India to turn the tables. For India, the diplomatic and operational victory of Kargil validated the belief that a potential for limited conventional war under the nuclear umbrella exists. Its leading policy makers decided to adopt a no-first use (NFU) doctrine with little articulation of its nuclear command structure. In contrast, Pakistani policymakers wish to deny India any use of space to carry out conventional operations, and retained an undeclared option of first-use combined with well-defined command and control in an effort to lend ambiguity to any future conflict.²⁹ India and Pakistan had set themselves on divergent paths.

The period between 1999 and 2008 saw a series of domestic, global, and regional crises that further influenced nuclear developments in Pakistan. Kargil contributed to a growing domestic political crisis in Pakistan that led to the October 1999 military coup in Pakistan led by the Chief of Army Staff General Pervez Musharraf against Prime Minister Nawaz Sharif. Musharraf’s assumption of power placed military leadership over an already military-led nuclear bureaucracy. Pakistan’s nuclear bureaucracy focused on explaining their command and control organization and how it would control and secure its nuclear weapons to demonstrate Pakistan’s ability as a responsible custodian of its nuclear capability. Unlike India, which announced an officially declared nuclear doctrine in 2003, Pakistan decided to keep its nuclear doctrine officially undeclared. Despite the transition to civilian rule in 2008 and 2015, subsequent political leaders have retained the same nuclear management structures that were developed during Musharraf’s military rule.³⁰

The terror attacks of 9/11 created a structural shift against sub-conventional warfare and made Pakistan a front line state in the U.S.-led Global War on Terror. Even as Pakistan was enlisted in the U.S. effort,

²⁹ See a detailed and comprehensive analysis of the Kargil Conflict and its aftermath in Peter R Lavoy, *Asymmetric Warfare in South Asia: The Causes and Consequences of the Kargil Conflict*, New York, NY, Cambridge University Press, 2009.

³⁰ Pakistan’s National Command Authority has a secretariat, the Strategic Plans Division (SPD) at the Joint Services Headquarters that comprises of military officers. The Pakistani NCA system that functioned under the NCA Ordinance of 2007 was legislated in 2010 under constitutional amendment. In the meantime the President who was heading the NCA devolved his Chairmanship to the Prime Minister. See Feroz Hassan Khan, “Political Transitions and Nuclear Management in Pakistan,” in Henry D. Sokolski and Bruno Tertrais (eds.), *Nuclear Weapons Security Crisis: What Does History Teach?*, Carlisle Barracks, PA, Army War College, 2013.

India and Pakistan nearly went to war after the December 2001 terror attack on India's parliament that was traced back to terrorist organizations based in Pakistan. Both countries mobilized their militaries, but the standoff ended with Pakistani concessions following attempts at international mediation. India learned that war could be useful under the nuclear umbrella if only its forces could mobilize fast enough, leading the Indian Army to develop a new doctrine euphemistically dubbed as the "Cold Start" doctrine. Pakistan learned that its combined counter-mobilization and nuclear capability deterred India, leading the Pakistani strategic establishment to enhance these capabilities.³¹ Neither side achieved stability on its own terms; the exogenous variable of international intervention certainly played a key role in defusing the crisis.³² Regardless, starting in 2002 both sides transitioned their nuclear forces from a recessed to an operational deterrent posture.³³

In 2004, U.S. investigators unraveled the proliferation network of Pakistani scientist A.Q Khan.³⁴ Public revelations of the network's activities severely tarnished Pakistan's already damaged image and increased India's international standing by comparison. The A.Q. Khan affair exposed the lack of accountability and oversight in the Pakistani system, driving a massive effort to clean up and enhance Pakistan's nuclear development and command and control systems. The U.S.-India nuclear deal followed in 2005, further alienating U.S.-Pakistan relations and raising concerns in Pakistan that India would have a significant advantage in terms of fissile material production capabilities. Once the deal was set in motion in 2008, India gained the right to import nuclear fuel and technology in exchange for placing civil nuclear sites under IAEA safeguards, while remaining outside of the NPT. Yet despite these tensions and Pakistani concerns about the U.S.-India deal, both countries made a concerted effort to forge a structure of peace, security, and détente.

The 2008 terror attacks in Mumbai, however, created distrust and anger and shattered these positive trends. Once again, the perpetrators of carnage in Mumbai were traced back to Pakistani based organization *Lashkar-e-Toiba*. India concluded that elements within the Pakistani state

³¹ Pakistan has shorter mobilization timeline on interior lines, which would make it ready to defend itself before India's forces are effectively mobilized for offensive. India loses surprise, finds Pakistan ready, and enough time lapses for international diplomacy and political reconsideration to allow defusion or de-escalation of the crisis. For a comprehensive analysis see Zachary Davis (ed.), *The India-Pakistan Military Standoff: Crisis and Escalation in South Asia*, New York, NY, Palgrave Macmillan, 2011.

³² This dynamic came to be known as yet another paradox – the independence-dependence paradox. See Feroz H. Khan, "The Independence-Dependence Paradox: Stability Dilemmas in South Asia," *Arms Control Today*, October 2003.

³³ Feroz Hassan Khan, "Pakistan's Nuclear Force Posture And the 2001-2002 Military Standoff," in Davis (ed.), *The India-Pakistan Military Standoff*, *op. cit.*, pp. 127-129.

³⁴ For a detailed assessment of the AQ Khan network and its impact see, International Institute for Strategic Studies (IISS), *Nuclear Black Markets: Pakistan, A.Q. Khan and the Rise of Proliferation Networks, A Net Assessment*, London, International Institute for Strategic Studies, 2007. Also see Khan, *Eating Grass*, *op. cit.*, pp. 162-173; 359-376.

remained committed to using terrorism to derail the peace process. Indian military threats of airstrikes against terrorist training camps across the border, meanwhile, convinced Pakistan that India seeks pretext to attack Pakistan and intends to keep Pakistan weak by eliminating Pakistan's potential. These shared conspiratorial mindsets drove elevated threat perceptions, driving both countries to seek enhanced deterrence through nuclear weapons.

South Asian Nuclear Arsenals Today

To remain competitive with India, Pakistan has augmented its fissile production capacity from one plutonium production reactor at Khushab in 1998 to a possible operating fourth reactor as of 2015. Pakistan has expanded the uranium hexafluoride production capacity at the Chemical Plants Complex at Dera Ghazi Khan and installed new-generation gas centrifuges (P-3 and P-4) at Kahuta.³⁵ The new Shanawa feedstock mine may boost annual production of natural uranium from approximately 36 to 54 metric tons.³⁶ Open-source analysis from 2012-13 estimated Pakistan to have 3 metric tons of highly enriched uranium (HEU) and 150-200 kg of plutonium (Pu), enough to produce up to 150 HEU warheads and 40 Pu warheads.³⁷ Pakistan is currently believed to have 140-160 warheads and has an estimated capacity of annually producing 5 HEU warheads (100 kg/yr) and 8-10 Pu warheads (40 kg/yr). Pakistan can further stretch these stocks with composite warhead designs or deuterium-tritium weapons boosters. At this rate (including production constraints and limitations), Pakistan could be reaching a figure of 200 weapons anytime between 2017 and 2020.³⁸ Despite their stated commitment to "minimum credible deterrence," Indian and Pakistani arsenals continue to grow because the strategic environment is dynamic.³⁹

³⁵ Author's interview with Dr. Javed Mirza, former head of Khan Research Laboratories (KRL) for the book *Eating Grass: The Making of the Pakistani Bomb* in June 2007.

³⁶ *Global Fissile Material Report 2010: Balancing the Books: Production and Stocks*, International Panel on Fissile Materials, 2010, p. 127.

³⁷ "Pakistan," International Panel on Fissile Materials, 3 February 2013, available at: <http://www.fissilematerials.org/countries/pakistan.html>.

³⁸ Open source assessments of Pakistani fissile production capacity and stocks vary with different studies and conclude different figures. The basis of calculations is derived from capacity of uranium ore, production efficiency and whether or not Pakistan is seeking composite warheads. See Daryl Kimball and Tom Collina, "Nuclear Weapons: Who Has What at a Glance," *Arms Control Association*, available at: <http://www.armscontrol.org/factsheets/Nuclearweaponswhohaswhat>; see also the *Global Fissile Material Report 2015. Nuclear weapons and fissile material stockpiles and production*, International Panel on Fissile Materials, 2015. Christopher Clary for example has estimated Pakistan's weapon grade fissile stocks by 2020 to be approximately 480 kg of Plutonium and 6,000 kg of highly enriched uranium (HEU). Assuming 4-6 kg of Plutonium and 12-15 kg of HEU per weapon, Pakistan could possess between 210-620 weapons equivalent of fissile stocks. Christopher Clary, "The Future of Pakistan's Nuclear Program," in Tellis, Denmark, and Tanner (eds.), *Strategic Asia 2013-2014, op. cit.*, p. 135.

³⁹ Mark Fitzpatrick, *Overcoming Pakistan's Nuclear Dangers*, London, International Institute of Strategic Studies, 2014, p. 27.

In contrast, India's arsenal contains a similar number of warheads with HEU stockpiles at 2.4 (± 0.9) metric tons and weapons-grade plutonium stockpiles at 0.54 (± 0.18) metric tons.⁴⁰ Already, India has substantial reserves of reactor grade plutonium, which Pakistan fears might be useful for military purposes. Little wonder, then, that Pakistan continues to drag its feet in international negotiations on a Fissile Material Cut-Off Treaty (FMCT).⁴¹ Over the long term, however, as Pakistan's current sources are depleted, India's nuclear program will benefit from the external supply sources provided under the U.S.-India nuclear deal.

India continues to modernize its strategic forces under an ambitious program that demonstrates the country's burgeoning power projection capabilities. In April 2012, India tested its 5,000 km *Agni-V* solid-fueled intercontinental ballistic missile (ICBM) that may be equipped with multiple independently targetable reentry vehicles (MIRVs) to penetrate and defeat enemy missile defenses when the system becomes operational in 2015.⁴² While the *Agni-V* and its associated missile defense penetration aids are primarily aimed at deterring China, Pakistani security managers have cautiously noted the rapid pace of Indian technological modernization. India has also declared its 290-km supersonic submarine-launched cruise missile (SLCM) *BrahMos* "ready for fitment on submarines in vertical launch configuration" after testing in 2013.⁴³ India also has plans to field submarine-launched ballistic missiles (SLBMs) such as the 700 km-range K-15 *Sagarika*, whose development trials were completed in January 2013.⁴⁴ *Sagarika* is designed to launch from the *Arihant*-class SSBN and carry a 1,000kg nuclear warhead. Each *Arihant*-class submarine would be able to carry 12 K-15 missiles, which would later be replaced by the 3,500km-range K-X. Three *Arihant*-class SSBNs are currently under construction – one at Visakhapatnam and two in Vadodara, India.⁴⁵ Then,

⁴⁰ Tilman Bruck, *SIPRI Yearbook 2013 Summary: Armaments, Disarmaments and International Security*, Stockholm, Stockholm International Peace Research Institute, 2013. "India," *International Panel on Fissile Materials*, 4 February 2013, available at: <http://www.fissilematerials.org/countries/india.html>.

⁴¹ Pakistan contends that the FMCT fails to address the asymmetry of existing stocks and would cement Pakistan's disadvantage vis-à-vis India. For details, see "The South Asian Nuclear Balance: An Interview with Pakistani Ambassador to the CD Zamir Akram," *Arms Control Today*, December 2011, available at: http://www.armscontrol.org/act/2011_12/Interview_With_Pakistani_Ambassador_to_the_CD_Zamir_Akram.

⁴² Raja Pandit, "Agni-V, India's first ICBM test-fired successfully," *The Times of India*, 19 April 2012, available at: http://articles.timesofindia.indiatimes.com/2012-04-19/india/31367147_1_agni-v-mirv-payload-targetable-re-entry-vehicles.

⁴³ "India test-fires submarine-launched version of BrahMos missile," *Times of India*, 20 March 2013, available at: <http://timesofindia.indiatimes.com/india/India-test-fires-submarine-launched-version-of-BrahMos-missile/articleshow/19091295.cms>

⁴⁴ "DRDO to test SLBM from INS Arihant by early 2014," *Defence News India*, 17 September 2013, available at: <http://www.defencenews.in/defence-news-internal.aspx?id=vSuwgGlcah4=>

⁴⁵ "Indian Navy's K-15 SLBM successfully completes development trials," *Naval Technology.com*, 29 January 2013, available at: <http://www.naval-technology.com/news/newsindian-navys-k-15-slbm-successfully-completes-development-trials>. Also see Kelsey Devenport, "India Moves Closer to Nuclear Triad," *Arms Control Today*, September 2012, available at: <http://armscontrol.org/a>

Prime Minister Manmohan Singh launched the first nuclear powered boat of this class in July 2009 at Visakhapatnam with great fanfare, with talk of India joining the elite club of nations equipped with nuclear submarines.⁴⁶ In tandem with these new offensive capabilities and delivery systems, India is also actively developing ballistic missile defenses (BMD).

Pakistan's strategic forces comprise of various types of short-range and medium-range ballistic and cruise missiles. These include the Hatf-1A, Hatf-II (*Abdali*), Hatf-III (*Ghaznavi*), Hatf-IV (*Shaheen-1*, *Shaheen-1A*), Hatf-V (*Ghauri*), Hatf-VI (*Shaheen-2*), Hatf-VII (*Babur*), Hatf-VIII (*Ra'ad*), and Hatf-IX (*Nasr*).⁴⁷ On March 9, 2015, Pakistan announced the test of the 2,750 km-range *Shaheen-III*, a missile capable of reaching India's Andaman and Nicobar Islands, making it the longest-range system yet tested by Pakistan.⁴⁸ Pakistan is also reportedly developing sea-based delivery systems, as indicated by the 2012 inauguration of the Naval Strategic Forces Command. The sea-based deterrent will most likely comprise *Agosta*-class diesel submarines armed with nuclear-tipped cruise missiles, as Pakistan currently lacks submarines capable of firing ballistic missiles.⁴⁹ To date, Pakistan has shown no inclination towards ICBMs and it has consistently declared its nuclear program is "India specific."

The rapid development and deployment of delivery systems is not likely to slow down in the near term. In particular, India's BMD gambit along with reported MIRV program threaten the integrity of Pakistan's nuclear deterrent, compelling Pakistan to diversify its delivery methods and develop penetration aids that could include experiments in MIRV technology. Mutual mistrust and security anxieties are on the rise in South Asia, and with new suites of nuclear weapons, the stakes of conflict are higher than ever before. Today, India and Pakistan now possess more types of nuclear weapons delivery vehicles – including families of cruise and ballistic missiles – than the United States and Russia.⁵⁰

[ct/2012_09/India-Moves-Closer-to-Nuclear-Triad](#). For India's strategic force modernization, see Hans M. Kristensen and Robert S. Norris, "Nuclear Notebook: Indian Nuclear Forces, 2012," *The Bulletin of Atomic Scientists*, Vol. 68, No. 4, July/August 2012.

⁴⁶ "PM launches INS Arihant at Visakhapatnam," *The Economic Times*, 26 July 2009, available at: http://articles.economictimes.indiatimes.com/2009-07-26/news/27650185_1_indigenously-built-nuclear-powered-submarine-ins-arihant-naval-dockyard.

⁴⁷ Khan, *Eating Grass*, *op. cit.*, p. 250.

⁴⁸ "Press Release," Pakistan Inter-Services Public Relations, n° PR61/2015 ISPR, 9 March 2015, available at: https://www.ispr.gov.pk/front/main.asp?o=t-press_release&date=2015/3/9.

⁴⁹ For details of Pakistan's Strategic Forces, see Hans M. Kristensen and Robert S. Norris, "Pakistan's Nuclear Forces, 2011," *Bulletin of the Atomic Scientists*, Vol.67, No. 4, July/August 2011.

⁵⁰ Michael Krepon and Julia Thompson, *Deterrence Stability and Escalation Control in South Asia*, Washington, DC, The Stimson Center, 2013, p. 9.

Pakistan's Nuclear Doctrine: The TNW Challenge

Since the 1971 War, India's preeminence in the subcontinent was recognized; India sought to achieve regional stability on its terms by enforcing dominance. Pakistan, however, has refused to accept India's dominance a way to achieve stability. Islamabad doggedly defends its sovereignty and resists Delhi's coercive pressures; its nuclear posture reflects such policy.⁵¹ Over the four decades since, as conventional and nuclear capabilities increased and military doctrines evolved, the region has been in constant flux, witnessing a seesaw in strategic balancing and unbalancing.

Dialectic of Doctrines

The 1971 Indo-Pakistani War dismembered Pakistan, created Bangladesh, and simplified the strategic landscape for India and Pakistan: no longer would either country face a two-front war with each other in the future. But the elongated nature of Pakistani geography was too tempting now that India could divert all resources to a single western front with Pakistan. In the early 1980s, the Indian military sought a strategy to defeat Pakistan in a conventional war to destroy its nascent nuclear capability before it became operational. India's army chief General K. Sundarji reorganized India's army formations into strike corps intended to quickly sever Pakistan in the event of a crisis.⁵² The Indian army's subsequent doctrinal tests produced the 1986-7 military crisis that followed the massive *Brasstacks* Exercise in the Rajasthan desert, which Pakistan feared was the preparation for an all-out Indian invasion.⁵³ The end of the Soviet-Afghan War and the beginning of the Kashmiri insurgency added a sub-conventional element to the Indo-Pakistani rivalry, while the 1998 nuclear Indian and Pakistani nuclear tests added the element of nuclear escalation to any future major war. The 1999 Kargil War and the 2001 militant attacks on the Indian parliament building proved that nuclear weapons could not bring stability. The events of the next decade, however, challenged the relevance of the Sundarji doctrine as

⁵¹ Peter R Lavoy, "Islamabad's Nuclear Posture: Its Premises and Implementation" in Henry D. Sokolski (ed.), *Pakistan's Nuclear Future: Worries Beyond War*, Carlisle Barracks, PA, Strategic Studies Institute, 2008, pp. 129-165.

⁵² See Walter C. Ladwig III, "A Cold Start for Hot Wars? An Assessment of the Indian Army's New Limited War Doctrine," *International Security*, Vol. 32, No. 3, Winter 2007/2008, pp. 158-190.

⁵³ In the 1980s, Pakistan and the United States were jointly waging an asymmetric war in Afghanistan to defeat the Soviet occupation. Pakistan was therefore in a state of war at its western border when the Indian military initiated *Brasstacks*.

new military developments appeared on both ends of the military spectrum of conflict.

A year after India's success in the Kargil conflict, India considered developing a new concept dubbed "limited war under the nuclear umbrella." India's limited war concept envisaged finding space for a limited military operation that involved shallow penetration in lieu of the deeper penetrations conceived in the early 1980s to sever Pakistan. By 2001 Indian planners were convinced that a war limited in time, scope and geography would not cross Pakistani nuclear threshold and thus that a quick military victory was feasible. The new military strategy would heavily rely on India's conventional superiority as an answer to what it perceived as a Pakistani state sponsored sub-conventional war.

Stunned by the audacity of the parliament attack, India activated its army by deploying strike corps along the border to threaten Pakistan, but during the three-week mobilization, international intervention and Pakistan's counter mobilization produced hesitation from India's political decision makers. As a result, Indian military planners began to rethink the sluggish mobilization process with a singular focus on fighting and winning a war against a nuclear-armed adversary. India ultimately decided that rapid maneuvers using heavy air-land firepower across a broad, shallow front could degrade the Pakistani military without triggering Islamabad's nuclear redlines or allowing sufficient time for the international community to launch a diplomatic intervention. The so-called Cold Start doctrine, revealed in 2004, plans for brigade-plus sized forces known as Integrated Battle Groups (IBGs) to strike across the international border within 72-96 hours of a crisis, creating gaps for follow-on forces to exploit. India has structured its military procurement and nuclear policies to support the "Cold Start" concept.⁵⁴ Indian officials, however, have insisted that there is no official Cold Start doctrine. India maintains that it has no intention to wage war against Pakistan except to conduct punitive operations in retaliation to a terror attack that is traced to Pakistan.⁵⁵ Pakistan is equally convinced that India's constantly evolving military doctrines and organizational changes in force postures are designed to wage a military operation against Pakistan.⁵⁶

⁵⁴ The IBG concept is a modified version of the Sundarji doctrine, which was based on the Soviet "Operational Maneuver Group" concept of operations involving heavily armored force supported by artillery that would exploit a breakthrough in its opponent's defenses. Soviet military journals in the 1980s portrayed this as the doctrine the Soviet Union would have employed if it became involved in a war with NATO.

⁵⁵ India has officially called its evolving conventional military shifts as "proactive operations." Regardless of Indian official position on "Cold Start" doctrine, Indian military is consistently revamping its operational concepts; it carries out regular air-land and tri-service exercises that indicate organizational changes and refinements of its limited war doctrine.

⁵⁶ The author has spearheaded four crisis simulation table top exercises (TTXs) at the Track-II level involving recently retired military officials from both countries. The crisis scenario narrative is derived from real events in recent geopolitical history of the region and projection of future crises is made from predictable trajectories

Pakistan adapted its defenses with more obstacles, shorter mobilization times, and plans for counteroffensives in an effort to delay India's IBGs and defensively beat India to the punch. As the Pakistan Army's 2011 doctrine "Comprehensive Response" points out, "with the possibility of Pakistan being drawn into a war on a very short notice, all formations organize their administrative and routine activities in a manner that effective combat potential can be generated within 24 to 48 hours from the corps to unit level and two to three days at the Army level."⁵⁷ The Pakistan Army, however, still faces the dual challenges of geography and insurgency: main lines of communication along the border are vulnerable to a Cold Start-style offensive, and Pakistani troops are continually drawn from the border in support of counterinsurgency operations elsewhere. Pakistani military planners sought a solution for these disadvantages in tactical nuclear weapons (TNWs), a class of weapon systems that blur the line between conventional and nuclear war.

Indian and Pakistani nuclear doctrines differ as much as the two countries' conventional doctrines, if not more so. India officially endorses no first use (NFU) doctrine but reserves the right to retaliate massively if Indian forces are ever attacked with nuclear, chemical, or biological weapons regardless of the location of the attack. Pakistan, however, maintains the possibility of a first use, and deliberately avoids declaring specific red lines in order to prevent India from circumventing them while embarking on a hostile course of action. The most detailed information about the nature of the Pakistani nuclear threshold was released in the midst of the 2002 military standoff with India, when then Director-General of the Strategic Plans Division (SPD), Lt. General Khalid Kidwai, listed four general conditions that could elicit a Pakistani nuclear response. Kidwai stated that Pakistan would use nuclear weapons if India either conquers a large portion of territory (space threshold), destroys a large part of its armed forces (military threshold), strangles the economy (economic strangulation), or pushes Pakistan into political destabilization (domestic destabilization).⁵⁸ By leaving its policy ambiguous, Pakistan intends to create uncertainty in the minds of the Indian military by denying it room for a conventional war. Should this fail, the presence of TNWs on the battlefield creates such a high level of uncertainty that India could not prosecute conventional war for fear of the unknown. In essence Pakistani deterrence strategy is based on risk manipulation.

drawn from open sources such as *The Military Balance*, *Jane's Intelligence*, etc. The conclusions from these TTXs reached by this author indicate dangerous assumptions of intentions and capabilities of each other and increased chances of accidental wars arising out of cognitive biases and gross misperceptions.

⁵⁷ Government of Pakistan, Army Doctrine and Evaluation Directorate, *Pakistan Army Doctrine 2011: Comprehensive Response*, December 2011, pp. 43-44.

⁵⁸ Interview of Pakistan's former Director-General of the Strategic Plans Division, Khalid Kidwai, by the Landau Network-Centro Volta in February 2002, available at <http://www.pugwash.org/september11/pakistan-nuclear.htm>. See also Lavoy, "Islamabad's Nuclear Posture," in Sokolski (ed.), *Pakistan's Nuclear Future*, op. cit., p. 136.

In contrast, India's strategy is to call Pakistan's nuclear "bluff" and punish the state for waging asymmetric warfare, while India's massive retaliation doctrine promises an overwhelming response to any use of Pakistan's TNWs. In other words, neither side believes that the other's stated nuclear use doctrine is credible. India believes that Pakistan's nuclear weapons provide a shield for waging proxy war, and so continues to refine its doctrines to call Pakistan's bluff and negate its advantages. Equally, Pakistan is ready to call India's bluff about its doctrine of "massive retaliation" following a Pakistani TNW use.⁵⁹

An analysis of this Pakistani deterrent strategy by Peter Lavoy indicates that nuclear weapons offer five operational advantages. . The assessment concludes that Pakistan's nuclear weapons augment effective conventional fighting force with last-resort weapons, provide for an assured second strike, are physically secured against sabotage and conventional military attacks, and are strictly controlled to prevent accidental use in peacetime and ensure prompt operational readiness during conflict.⁶⁰ Furthermore nuclear weapons may also provide three additional strategic benefits: provide a buffer for low-intensity conflict that bogs down conventional military forces that would otherwise be free for offensive operations; provide a diplomatic tool to internationalize the regional disputes, which carries the risk of nuclear war; and provide options to offer extended deterrence to friendly states in the Middle East. All of these roles are hotly contested as Pakistani officials deny any role of nuclear weapons other than deterring India's decision makers from undertaking a military adventure.⁶¹ To date, Pakistan has not been able to leverage its nuclear weapons to achieve a favorable resolution to its many disputes with India, but Pakistan's doctrinal and nuclear responses have raised the stakes for any conventional, cross-border attacks that India might contemplate under its limited war doctrine.

Challenges Posed by TNWs

Pakistan's most recent technical and doctrinal evolution, to develop and field TNWs, has prompted a great deal of comment and speculation from security analysts and South Asia watchers. Based on interviews and available information, a close analysis of TNWs reveals several deployment and employment dilemmas that Pakistan must solve to make the weapon system strategically effective.

⁵⁹ Some Pakistani retired officials recently asserted in Track-II dialogues and personal discussions with the author that India's dismissive attitude towards Pakistani nuclear deterrence is a bluff. In reality, they believe, India is deterred by Pakistani nuclear capability but India's strategic elites do not wish to accept it. Thus, in peacetime, demonstrations of intense and heavy destructive use of conventional military force during exercises are designed to shake Pakistan's confidence in its nuclear deterrent.

⁶⁰ Lavoy, "Islamabad's Nuclear Posture," in Sokolski (ed.), *Pakistan's Nuclear Future*, *op. cit.*, p. 131.

⁶¹ For detailed analysis of roles of nuclear weapons see Feroz Hassan Khan and Peter R. Lavoy, "Pakistan: The Dilemma of Nuclear Deterrence," in Muthiah Alagappa (ed.), *The Long Shadow: Nuclear Weapons and Security in 21st Century Asia*, Stanford, CA, Stanford University Press, 2008, pp. 215-240.

Pakistan first unveiled its TNWs in April 2011, when a press statement by Pakistan's Inter-Services Public Relations wing announced a flight test of a 60km-range, road-mobile short-range ballistic missile (SRBM) known as *Nasr*. According to the press statement, *Nasr* "carries nuclear warheads of appropriate yield with high accuracy, [and] shoot and scoot attributes," thus qualifying as a tactical nuclear weapon.⁶² The revelation was widely seen as a riposte to India's Cold Start doctrine – an attempt to lower the threshold of credible nuclear use and thereby deny India the space to prosecute a conventional war under the nuclear overhang. TNWs complicate the pursuit of military and strategic objectives on the battlefield in multiple ways. Militarily, the fusion of conventional and nuclear forces will create confusion and fear among India's military forces at the tactical and operational levels. TNWs also complicate the strategic environment of India's political decision makers due to the inherent risk of escalation toward mutual destruction. Moreover, the risk of escalation will invite an international response that will focus on dissuading an Indian response that could risk trigger a nuclear war. Theoretically, TNWs provide increased flexibility and thus enhance deterrence, yet this flexibility incurs an escalatory cost. To sum up, Pakistan believes that TNWs can deter any Indian military adventurism via Cold Start because the weapon system causes tactical uncertainty, strategic hesitation, and international resolve to prevent nuclear war.

TNWs, however, come pre-packaged with a host of operational dilemmas. First is the deployment dilemma, which commences from the moment the decision to flush out the short-range nuclear weapons from the peacetime storage facilities into forward battlefield locations is taken. Western experience of the Cold War in Europe informs that deploying TNWs creates problems in terms of movement, positioning and timing, as well as trade-offs between authority and security. Since TNWs have a limited range they must be relatively close to the forward line of troops to be effective, yet deploying them too far forward risks their destruction and capture, while deploying them too far to the rear limits their reach and value. Similarly, given the concerns with interdiction due to possible deteriorating air situation in later stages of war, TNWs must be deployed early but not so early that they precipitate a crisis or too late that the weapon system ceases to make any difference. Due to premature move or late movement, TNW deployments could lose their desired deterrent effect or become counterproductive due to complications in the conventional force domain. Given Indian counter strike (air force) capabilities and other forms of precision weapons, the chances of TNWs getting destroyed in the close proximity of friendly forces will also cause immense complication for conventional force operational efficiency that would be caught balancing between prosecuting the conventional battle with India and protecting the vulnerable TNW batteries.⁶³

⁶² "Press Release," Pakistan Inter-Services Public Relations Directorate, n° PR94/2011 ISPR, 19 April 2011, available at: https://www.ispr.gov.pk/front/main.asp?o=t-press_release&id=1721

⁶³ These findings are drawn from the conclusions of several Track-II dialogues, simulation games, and a "staff ride" to the Inner German Border that was organized

In addition, Pakistan must reconcile launch authority with field security. Pakistan's current security measures keep the weapon system safe from accident and attack when stored in peacetime facilities, but field security poses yet another set of challenges. Pakistan has declared that all of its nuclear weapons will remain under centralized authority. Though centralized control makes sense from a safety and control standpoint, in the case of TNWs that are deployed forward, assertive control would render it safe from unauthorized or premature use but also ineffective and vulnerable due to the proximity of the enemy. Further, given the potential of communication breakdown in the fog of war due to either friction or enemy initiatives, the ineffectiveness of the deployed TNW would add more complication to the planning tasks of corps and division commanders. In contrast, pre-delegated launch authority assures effective potency and assured employment, while risking premature or unauthorized use, possibly causing unintended escalation.⁶⁴

Pakistani officials have assured that they have integrated conventional and military plans in a manner that assures safe deployment, retains assertive command and control, reliable communications systems and assured effectiveness of TNWs in the battlefield. American and NATO commanders that have dealt with TNW's during the Cold War, however, have experienced "the futility of attempting to develop either doctrine or force structure to employ [TNWs] on the battlefield." In the assessment of one American officer "rather than contributing to deterrence by offsetting the conventional military superiority of the Soviet Union, the use of tactical nuclear weapons instead would have almost certainly guaranteed uncontrolled escalation in the event of a Soviet invasion of Western Europe."⁶⁵

As a matter of fact, given their limited range and need to move from peacetime to forward-based wartime locations, TNWs would be vulnerable to counterforce initiatives coming from both ground and air. Pakistan commanders would be facing a trade-off between effective ground security – which increases the signature from the air – and reduced visibility from the air – which render the vehicles vulnerable against ground attacks or proxy forces. These deployment problems suggest that while Pakistan assumes TNWs will enhance deterrence, their deployment during a crisis would nonetheless be provocative, adding incentive for India to strike immediately to eliminate the weapon system rather than running the risks of facing its effects.

by the author involving regional participants. The principles involved and challenges encountered in optimally deploying TNWs – referred to as the Goldilocks dilemma – in South Asia are no different than those faced in the NATO-Warsaw Pact standoff in Europe in the erstwhile Cold War.

⁶⁴ For detailed evaluation of the deployment-employment dilemma, see Feroz Hassan Khan, "Challenges to Nuclear Stability in South Asia," *The Non-proliferation Review*, Vol. 10, No. 1, March 2003.

⁶⁵ David O. Smith, "The US Experience with Tactical Nuclear Weapons: Lessons for South Asia," in Krepon and Thompson (eds). *Deterrence Stability and Escalation Control in South Asia*, *op. cit.*, pp. 65-92.

On several occasions, Pakistani officials have insisted that TNWs are meant simply to deter Indian conventional forces. The Pakistani predicament is that even if TNWs are only intended for deterrence, a mere force-in-being status remains ineffective unless the weapon is configured into a usable weapon system.⁶⁶ For a weapon to have a deterrent effect, it must present a credible threat against a specific target. Given their limited ranges, however, the problems of deployment discussed earlier would make it intrinsically hard for tactical nuclear weapons to credibly threaten relevant/significant targets.

Several security experts have suggested that TNWs would be most effective against reserve choke points, logistical nodes and supplies involving soft targets. But again, to target these locations, the weapon system would have to be deployed far forward, in increasingly vulnerable locations. Against India's deployed Integrated Battle Groups, however, the weapon system would only be of limited effectiveness against armored formations or even follow-on mechanized troops. Its counterforce use against advancing tank mechanized columns would probably not cause significant destruction on dispersed columns, but rather bring numerous other problems relating to the proximity of Pakistan's own troops, along with radiation and electromagnetic pulse (EMP) effects.⁶⁷ The sheer proximity to the forward line would mean that Pakistan's own troops would be as vulnerable to effects as the intended target. Military leaders can accept some risk of radiological hazard, but for practical purposes, the large-scale mixing of nuclear fallout with conventional tactics is uncharted territory. No one truly knows how such an environment would affect operations, let alone troop morale. Lessons from the study of the Cold War in areas such as Fulda Gap on the Inner-German Border reveal that TNWs are thus less credible when they lack a discernible target and suffer from difficulties in deployment and employment itself.⁶⁸

Given the challenges of deployment and employment, TNWs seem more intended as a force-in-being rather than as a practical weapon system for effective war fighting. Pakistan could reasonably choose not to employ or even deploy TNWs during a crisis with India due to the likelihood of communications jamming, air or ground interdiction, and the risks to de-escalation. If TNWs are intended to deter conventional war under Cold Start, however, then non-deployment, late deployment, or non-employment might only communicate a lack of resolve and affect the credibility of the Pakistani deterrence posture. Pakistan's risk manipulation strategy relies on a full spectrum deterrence which implies an assortment of weapons systems including longer range ballistic and cruise missile system that does

⁶⁶ These findings are based on interviews conducted by the author and several Track-II dialogues organized and attended by the author.

⁶⁷ Damage assessment and calculations have suggested that the destructive potential of low yield TNWs on advancing armor columns is not significant. Modern armored vehicles are radiation-safe and mechanized forces operating in nuclear environment have adopted measures to operate through TNW blasts.

⁶⁸ Khan and Wueger, *Battlefield Nuclear Weapons and Deterrence Strategies: Phase III, op. cit.*

not require deployment in the battlefield and can hold India's heartland at risk should India decide to wage a "limited war" with Pakistan.

For better or worse, TNWs are now a part of Pakistan's security architecture that is unlikely to go away; the weapon systems seem to have had at least some positive effect in forcing India to reconsider its strategy vis-à-vis Pakistan. TNWs may complement deterrence, but ultimately, Pakistan's conventional forces are the backstop that defends the nation and poses the most credible deterrent threat to India's conventional military doctrine. Pakistan continues to defend the *Nasr*, claiming that Pakistan's doctrinal shifts and military developments are driven by the technological and quantitative conventional force imbalance with India as well as India's limited war doctrine. India tested its own SRBM, *Prahaar*, in 2011. India is ambiguous whether or not *Prahaar* carries nuclear warheads, but given its 50-150 km striking range and its possible role as a replacement for aging *Privthi* missiles, a dual-use mission is probable – especially since India is believed to have tested compact warhead designs.⁶⁹ If confirmed, India's introduction of TNWs would indicate a subtle shift in its doctrinal thinking. Several elites in India's strategic enclave are now advocating shifting away from "massive retaliation" to flexible response.⁷⁰ In their own ways, South Asian nuclear pathways are reproducing the Cold War pattern of Warsaw Pact-NATO nuclear dynamics.

The implications of the Indo-Pakistani nuclear doctrinal mismatch are potentially grave for future crisis management and resolution. Based on the belief that its massive retaliation policy will deter Pakistan from employing TNWs, India may respond to a crisis by initiating Cold Start, sending its IBGs charging across the international border into Pakistan. However, Pakistan, doubting the credibility of the Indian massive retaliation doctrine in response to low-yield tactical strikes, and confident in the survivability of its nuclear reserves, could deploy its TNWs anyway, with unknown results. This potential but risky cycle of misperceptions and action-reaction would pose a great challenge to regional stability. India and Pakistan are essentially playing a doctrinal game of chicken. The results of several crisis simulation exercises indicate that a limited war in South Asia would quickly escalate to an uncontrollable total war.⁷¹ Neither side will

⁶⁹ Vivek Raghuvanshi, "India Tests New Tactical Missile," *Defense News*, 21 July 2011, available at <http://www.defensenews.com/apps/pbcs.dll/article?AID=2011107210309>

⁷⁰ Several Indian former officials attending Track-II events hosted by the author have advocated change in India's doctrinal thinking. Also see former India Strategic Force Commander Lt. Gen B.S. Nagal (Ret.), "Checks and Balances," *Force*, June 2014. Also see by Lt. Gen B.S. Nagal (Ret.), "Perception and Reality: An In-Depth Analysis of India's Credible Minimum Deterrent," *Force*, October 2014.

⁷¹ See, for example, Feroz Hassan Khan and Ryan W. French, *South Asian Stability Workshop: A Crisis Simulation Exercise*, Report Number 2013 008, Monterey, CA, Naval Postgraduate School, October 2013. For an in-depth analysis of escalation risks in the event of a hypothetical Indian ground offensive into Pakistan, see Ryan W. French, "Deterrence Adrift?: Mapping Conflict and Escalation under the Nuclear Overhang in South Asia," paper presented at the 2015 International Studies Association Annual Convention, New Orleans, LA, 2015.

give up because neither side believes it has to: India retains the conventional advantage and the ability to conduct nuclear second strikes, yet with survivable nuclear weapons of its own, Pakistan still believes in the survivability of its strategic forces and believes it could respond to Indian second strikes with third strikes. Neither side is convinced of the credibility of its adversary's deterrence doctrine, yet both sides gain great confidence from their own doctrine.

Pakistan's Nuclear Future and Challenges to Stability

At the time of the 1998 nuclear tests, both India and Pakistan had no experience concerning the behavioral norms that apply to nuclear weapon states. Hence, they have learned by doing, following the previous patterns of iterative brinksmanship forged during the earlier Indo-Pakistani crises.⁷² For example, the 1999 Kargil crises taught Pakistan the implications of limited military adventure between two nuclear armed neighbors, the 2001-2002 crisis taught India the limits of action under the nuclear shadow, while Pakistan attributed the long military standoff to the virtue of its nuclear deterrent. By 2004 both realized that as nuclear neighbors their mutual behavior is under the constant microscope of the international community, especially in the immediate environment after September 11, 2001. The quick succession of events, however, led some to believe that the crisis unfolded too rapidly to permit adequate learning about nuclear redlines and escalation dynamics.⁷³ Meanwhile, both sides have learned to use escalation spirals to invite third party conflict mediation to forego conflict on their own terms. Few scholars can agree whether or not nuclear weapons have brought stability to South Asia by preventing major wars or encouraged instability by permitting asymmetric conflict prosecuted from behind a protective nuclear shield.

The nuclear history of South Asia produces several disturbing conclusions that demonstrate the difficulty of achieving stability or arms reduction in the near future. India and Pakistan lack a mutual understanding of each other's escalation dynamics, nuclear capabilities, motives, or force modernization goals. Pakistan comes under scrutiny regarding its perceived complicity when terror attacks in India are traced back to entities located in Pakistan. The latter's explanation stressing domestic negligence has few takers abroad. India amasses international sympathy as a result and makes its case for deserving the right to retribution through punitive use of conventional force. Decision makers in both countries have a limited grasp of the subtleties required to refine nuclear policy. Polemics and media hype undermine serious discussion of nuclear behavior and security policies. Both countries pursue force

⁷² Feroz Hassan Khan and Ryan Jacobs, "The Challenge of Nuclear Learning in South Asia," in Feroz Hassan Khan, Ryan Jacobs and Emily Burke (eds.), *Nuclear Learning in South Asia: The Next Decade*, Monterey, CA, Naval Postgraduate School, May 2014.

⁷³ Davis (ed.), *The India-Pakistan Military Standoff: Crisis and Escalation in South Asia*, *op. cit.*, pp. 229-235.

modernizations goals that are not consistent with stated minimum deterrence postures.

Technological Change and South Asian Stability

Despite unresolved security issues that can lead to sudden crises and war, both India and Pakistan have recently upped the nuclear ante by introducing an assortment of delivery means in what appears to be an escalating arms race. The absence of shared beliefs and understandings about each other's military and nuclear doctrines leaves a void in understanding the escalatory consequences of technological maturation and military modernization. For Pakistan, meanwhile, the widening gap in strategic trajectories in relation to India is generating new threat perceptions and posing new challenges for nuclear stability.

Six major technological innovations are continuously swinging the offense-defense balance in South Asia: ballistic missile defense (BMD), multiple independently-targetable reentry vehicles (MIRVs), sea-based deterrents, tactical nuclear weapons (TNWs), cruise missiles, and advances in aircraft and air defense capabilities. While BMD and TNWs have had destabilizing effects respectively by driving technological countermeasures for offensive forces and by lowering nuclear thresholds, other delivery systems could, conceivably, reinforce mutually assured destruction and deter escalation. Accompanying the assortment of delivery systems is the emergence of force-multiplier technologies in intelligence, surveillance, and reconnaissance (ISR), communications, and navigation, which could change the character of a future conflict between India and Pakistan. One critical area where Pakistan is technologically well behind India is in the ISR realm. Also, unlike India, Pakistan lacks space assets. Recent patterns of peacetime military exercises in both countries culminate in testing of missile systems and also simulate network-centric warfare involving the launch of various missiles suitable for counter-force and counter-value targeting. The focus on counter-force targeting implies warfighting roles for nuclear weapons and call for operational integration of conventional and nuclear forces.

For the past seven years, Indian scientists have announced plans for building up a deployable BMD system that may dramatically alter future conflict dynamics in South Asia.⁷⁴ While the Defense Research

⁷⁴ "Missile defense shield to be ready in three years: India," *Dawn*, 13 December 2007; "India's AAD-O2 performs first endo-atmospheric kill," *Missiles & Rockets*, Vol. 12, No. 2, February 2008, p. 1. See also "Delhi, Mumbai selected for ballistic missile defense shield," *The Times of India*, 12 June 2012, available at:

http://articles.timesofindia.indiatimes.com/2012-06-24/india/32392757_1_bmd-missile-system-enemy-missiles. The DRDO chief V. K. Saraswat commented in an interview on 6 May 2012: "The Ballistic Missile Defense (BMD) shield is now mature. We are ready to put phase one in place and it can be put in very short time." See "India's missile defense shield ready: Defense Research and Development Organization," *NDTV*, 6 May 2012, available at <http://www.ndtv.com/article/india/india-s-missile-defence-shield-ready-defence-research-and-development-organisation-206946>. See also Jawed Naqvi, "Indian missile defense shield ready," *Dawn*, 7 May 2012.

Development Organization's (DRDO) claims about the system's current effectiveness are questionable at best, India has entered into cooperative defense agreements with Israel, Russia, and the United States. BMD in a bilateral framework erodes mutual vulnerability to nuclear strikes and therefore erodes the very stability upon which the South Asian deterrence equation rests. Writing about the efficacy of BMD, India's former Strategic Force Commander Lt. General B. S. Nagal asserts that "the system will provide security to important command and control centers besides protecting value centers. The BMD increases the credibility of the command and control mechanisms by protection as well as denial to the adversary."⁷⁵ Such assertions and developments do not go unnoticed in Islamabad (and possibly Beijing). Displays of confidence in the so-called invincibility of the command centers/structures thanks to BMD push Pakistan's strategic planners to redouble their efforts towards developing countermeasures.

Pakistan is further concerned about the effects of BMD at the international level, since BMD technology, however, may be driving doctrine rather than the other way around. Some believe that the BMD initiative emanates more from India's prideful scientific establishment than from any coherent strategic plan authored by India's strategic decision makers or planners. Whether or not this is the case, BMD has certainly increased the potential for vertical proliferation in South Asia. In the Pakistani perception, BMD in conjunction with other strategic modernizations tilts the balance toward India, forcing Pakistan to undertake countervailing technological measures to defeat the system's capabilities. Pakistan is thus relying more on lower or flatter missile trajectories through TNWs and cruise missiles, and could also possibly counter BMD with MIRVs, decoys, and increased fissile material and ballistic missile stockpiles.⁷⁶ Between 1998 and 2012, Pakistan conducted 42 ballistic missile tests and 13 cruise missile tests.⁷⁷ The latest test involved the Shaheen-III, which has a declared range of 2,750 km.

Pakistan's TNWs are altering conflict dynamics by lowering the nuclear threshold. As one Pakistani author asserted, the advent of TNWs "symbolizes Pakistan's resolve to develop nuclear weapons and delivery systems for use at the sub-strategic level, designed to deter India from exploiting Pakistan's nuclear thresholds and attempting limited war or pro-

⁷⁵ Nagal, "Perceptions and Reality," *op. cit.*, p. 10.

⁷⁶ Zafar Jaspal, "The Implications of Introduction of Ballistic Missile Defenses in South Asia: Implications on Strategic Stability," in Khan, Jacobs, and Burke (eds.), *Nuclear Learning in South Asia*, *op. cit.* Also see Moeed Yousuf and Khalid Banuri, "India's Quest for Ballistic Missile Defense: A Slippery Slope," in Subrata Ghoshroy and Gotz Neuneck (eds.), *South Asia at a Crossroads: Conflict or Cooperation in the Age of Nuclear Weapons, Missile Defense, and Space Rivalries*, New York, NY, Nomos Publishers, 2010, pp. 103-104.

⁷⁷ Between 1998 and 2012, India and Pakistan have carried out a total of 60 and 55 flight tests of nuclear-capable missiles respectively – 32 ballistic and 28 cruise missile tests for India. See Toby Dalton and Jaclyn Tandler, "Understanding the Arms Race in South Asia," *The Carnegie Nuclear Policy Papers*, September 2012, p. 7.

active military operations.”⁷⁸ Essentially, Pakistan is seeking to offset the offense-defense imbalance vis-à-vis India by threatening the use of nuclear weapons during a conflict, particularly if Pakistan’s conventional capabilities become significantly degraded in an escalating air-land war, setting the stage for a disastrous escalation spiral culminating in a nuclear exchange.⁷⁹ To avoid this trajectory toward nuclear war, Pakistan could showcase TNWs as a dual-use system that could carry either nuclear or conventional warheads.⁸⁰ In this scenario, Pakistan could deploy the weapon system during a crisis as a signal to Indian decision makers that nuclear weapons may – or may not – be present on the battlefield, allowing Pakistan to choose not to employ the weapon system without the attendant risks of losing credibility. In several crisis simulation exercises, former senior Indian military players indicated they would not distinguish between and nuclear-capable and non-nuclear weapon systems in a conflict; as such any weapons systems that would appear in the battlefield would be considered legitimate targets. It is difficult to conclude whether the ambiguity of a dual-capable system would induce caution and enhance deterrence or become a priority target.

Quest for Triad

In the air and naval domains, India’s conventional superiority and technological advancements have also incentivized Pakistan to augment its nuclear arsenal. India has been developing submarine launched ballistic missiles (SLBMs) designated as the “K” missile family for deployment on the INS *Arihant* class ballistic missile submarines (SSBNs), which are undergoing sea trials.⁸¹ While the long-range K-4 missile is not yet ready for fielding, the K-15 missile, whose short range can nonetheless target Pakistan, may soon be fitted for the INS *Arihant*. Pakistan is prepared to respond in kind, following the historic tit-for-tat nuclear dynamics.⁸²

⁷⁸ Usman Ansari, “Pakistan Missile Test Underscores Need for Deterrence,” *Defense News*, 1 June 2012, available at: <http://www.defensenews.com/apps/pbcs.dll/article?AID=2012306010001>. Also see Mansoor Ahmed, “Why Pakistan Needs Tactical Nuclear Weapons,” *Weekly Pulse*, 6 May 2011, available at: <http://www.weeklypulse.org/details.aspx?contentID=563&storylist=9>.

⁷⁹ The likelihood for inadvertent escalation in the maritime and air domains was illustrated during several Track-II table-top exercises that involved political-military crisis simulations. U.S. Naval Postgraduate School has conducted several workshops in the past two years involving security experts, former military officials and diplomats.

⁸⁰ Though Pakistan insists its doctrine is deliberately ambiguous and undeclared, Pakistan made it explicit that *Nasr/Hatf-IX* system carries a nuclear warhead. In contrast, India, whose doctrine is official, has stayed ambiguous regarding *Prahaar*’s payload.

⁸¹ T. Yoshihara and J. R. Holmes, *Strategy in the Second Nuclear Age*, Washington, DC, Georgetown University Press, 2012.

⁸² Mansoor Ahmed, “Trends in Technological Maturation and Strategic Modernization: The Next Decade,” in Khan, Jacobs and Burke (eds.), *Nuclear Learning in South Asia*, *op. cit.*; Farhan Bokhari, “Pakistan to Start Formal Talks with China to Buy Submarines,” *Jane’s Defence Weekly*, 18 March 2011. Also see Usman Ansari, “Pakistan Acknowledges Sea-Based Nuclear Deterrent,” *Defense*

The Pakistani Navy plans to develop a modified version of the nuclear-capable *Babur* land-attack cruise missile and modify existing anti-ship missiles for launch from *Agosta*-class submarines or surface ships.⁸³ Pakistan formally announced its intention to develop a sea-based deterrent in 2012 with the inauguration of the Naval Strategic Force Command that was heralded as the “custodian of nation’s second strike capability.”⁸⁴ Pakistan’s quest for a triad is not without challenges, however. There were unconfirmed reports that experiments on a miniaturized nuclear power plant ran into budgetary and technological challenges. Pakistan thus decided to follow the Israeli model of mating a nuclear-tipped cruise missile on diesel submarines equipped with air-independent propulsion. Pakistan’s *Agosta-90* class submarines seem the most suitable and likely choice. Some experts have suggested that “conventionally powered diesel submarines aren’t equipped for vertical launch tubes” that are typically required for firing missiles and required modification would take time and several trials. This perception was reinforced when former SPD Director-General Kidwai stated, during a March 2015 seminar in Washington, that nuclear arsenals would be deployed on ships and submarines “within a few years.”⁸⁵

Theoretically, sea-based deterrents enhance stability by ensuring mutually assured destruction through secure second-strike capability. Stability, however, is contingent upon mutual acceptance of the credibility of a second strike, and if history provides a guide, both India and Pakistan will continue to engage in iterative brinkmanship to test the other’s nuclear resolve.

Meanwhile, the air imbalance continues to favor India, quantitatively, qualitatively, and geographically. In a contest with Pakistan, India’s larger numbers of aircraft would face a smaller Pakistani force and a more geographically concentrated set of targets. Any Pakistani air foray into India, meanwhile, would face not only more aircraft and more geographically dispersed targets but also a more robust air and missile defense force. Since the Pakistani Air Force may prove unable to penetrate India’s defenses, Pakistan is improving its standoff ability through advanced and possibly nuclear-armed cruise missiles that can evade Indian aircraft and defeat BMD. Additionally, India’s obvious air advantages allow for aggressive air-land campaigns against Pakistan in a Cold Start scenario, yet any such attack would likely trip Pakistan’s nuclear redlines and lead to a nuclear exchange. The air and maritime trajectories in South Asia in

News, 23 May 2013, available at: <http://www.defensenews.com/apps/pbcs.dll/article?AID=2012305230004>.

⁸³ *Ibid.* Also see “Pakistan Navy acquires ASW helicopters from China,” *Daily Times*, 1 October 2009, available at: http://www.dailytimes.com.pk/default.asp?page=2009%5C10%5C01%5Cstory_1-10-2009_pg7_26.

⁸⁴ Iskander Rehman, *Murky Waters: Naval Nuclear Dynamics in Indian Ocean*, Washington, DC, Carnegie Endowment for International Peace, 2015, p. 17.

⁸⁵ Quoted in David Tweed, “Xi’s Submarine Sale Raises Indian Ocean Nuclear Clash,” in *Bloomberg Business*, 16 April 2015.

terms of military doctrines and technological modernization and arms racing are undermining strategic stability in both the short and long term.⁸⁶

One further threat to strategic stability emanates from another DRDO pet project: MIRVs. Although technically feasible, MIRVs could significantly increase India's ability to engage numerous Pakistani nuclear targets in a first strike and thus limit the damage from Pakistani retaliatory strikes. If deployed in conjunction with BMD, MIRVs could provoke a potentially unstable arms race dynamic, creating a window of opportunity for India to launch a successful disarming first strike against Pakistan with only limited retribution. To achieve a credible deterrent threat, however, both countries must improve the targeting accuracy against mobile targets/launchers through real-time ISR capabilities and better access to space-based assets. India is clearly ahead in this field. On the other hand, for Pakistan, as of yet, without reliable indigenous assets it may be difficult to undertake precision targeting ability during crisis or wartime.⁸⁷

Given the state of Indian domestic politics, a public perception of relative invulnerability could place undue pressure on decision makers to take dangerous risks when responding to crises with their nuclear-armed neighbor. Technological maturation presents India and Pakistan with a problem of monumental proportions, yet neither side has truly come to grips with the precarious consequences of their strategic competition as evidenced by their mutual pride regarding nuclear weapons. Nuclear nationalism supports capability acquisitions rather than doctrinal innovations, and both states are acquiring new capabilities without sufficient strategic forethought into their decision-making. India's diverse suite of air and maritime response options can escalate bilateral crises and potentially violate nuclear redlines, while Pakistan's TNW, intended as war-termination devices, have lowered the nuclear threshold by merging the conventional and nuclear war domains. Thus, technology is outstripping prudence and may instigate an arms race that will be difficult to terminate.

In South Asia, technological maturation complicates nuclear learning. Cold War lessons that brought about strategic stability lose some of their relevance because doctrinal thinking becomes too complex given the ever-growing impact of disruptive technologies. In the end, both sides are likely to spend themselves into an unwinnable and distracting arms competition. While such a race was already hardly affordable for superpowers, South Asian states have less resources and more pressing domestic fissures to resolve. Ideally, decisions on doctrine and C2 should precede widespread force modernization. However, this sequence is always difficult to achieve – as was the case in the first nuclear age.

⁸⁶ Dalton and Tandler, *Understanding the Arms Race in South Asia*, *op. cit.*

⁸⁷ Currently, Pakistan's reliance on U.S.-owned GPS satellites means that Pakistan could readily lose its precision targeting ability during crisis or wartime.

Conclusion

Since Zulfikar Ali Bhutto set Pakistan on the path toward acquiring the bomb, nuclear weapons have become an integral part of the very definition of Pakistan. Pakistan has now entered the third phase of its nuclear competition with India. In the first phase from 1974 to 1998, Pakistan challenged the non-proliferation regime and the world and developed nuclear capability by responding to India's demonstration of its nuclear prowess in 1974 and 1998. Then, from 1998 to 2013, Pakistan focused on developing operational deterrence force postures, doctrines, and command and control systems when it faced immense internal and regional security challenges. In the ongoing third phase, the nuclear arms race is expanding with a plethora of new delivery systems and rising fissile material production rates in South Asia. Both states are preparing to complete the third leg of the nuclear triad by achieving sea-based long range delivery systems.⁸⁸

Yet, is Pakistan more secure? The repercussions of the A.Q. Khan affair caused Pakistan's leadership to completely reevaluate the systems that govern its nuclear weapons safety, security and control. Today, Pakistan has a robust nuclear security and command and control architecture due in part to cooperation with the United States and others to ensure access to the most demanding and sophisticated security procedures and technologies. Security itself is less a problem than recent worrying societal trends. Some segments of Pakistan's society have become increasingly extremist and violent and the government's inability to tackle it effectively has raised concerns about the future nature of the state. Nuclear weapons can do nothing to remedy this situation and could indeed make it more profoundly destabilizing.

Pakistan today faces multiple threats to its existence: domestic militancy and insurgency, instability in Afghanistan, and deteriorating relations with India, since the arrival of the tough-talking Modi regime.⁸⁹ Nuclear weapons either play no role or only a supporting role in facing these threats: they have no effect on either domestic militancy or Afghan instability, and they can only complement conventional forces in deterring

⁸⁸ Feroz Hassan Khan, "Pakistan: Strategic Competition and Nuclear Policies," in Joseph F. Pilat and Nathan E Busch (eds.), *Routledge Handbook of Nuclear Proliferation and Policy*, New York, NY, Routledge, 2015, pp. 86-96.

⁸⁹ Harish Khare, "The Doval Doctrine in High Definition: The Perils of Punching above Weight," *Tribune India*, 23 August 2015, available at: <http://www.tribuneindia.com/news/comment/the-doval-doctrine-in-high-definition/107623.html>.

India – if, in fact, they can deter India at all. The relevance of nuclear weapons to Pakistan’s security environment has changed substantially.

Given Pakistan’s difficult domestic situation, economic difficulties and tough neighborhood, Pakistani civil and military leaders have to be careful in making investment choices for their strategic arsenals. Further, as India continues to challenge Pakistani deterrent strategies, merely increasing nuclear arsenals and introducing new nuclear weapons technologies would neither bolster Pakistan’s deterrent postures nor answer Pakistan’s security predicaments. In fact given the nature of the stratagem India is using to undercut Pakistani deterrence, military investments should focus on addressing the conventional asymmetry with India. Perhaps developing precision-guided munitions and investing in other qualitative improvements to bolster conventional forces would augment nuclear and general deterrence. The 1971 war notwithstanding, the history of Indo-Pakistani wars has proved that Pakistan’s conventional forces have always dissuaded India from attempting to obliterate Pakistan. Plus, these forces are more flexible and add value in facing domestic contingencies and criminal activities and terrorism from Afghanistan.⁹⁰

Most important of all is for Pakistan to focus on improving its overall national strength. It must stay within the region and not become embroiled in other feuds. Pakistan should focus on building a better nation through economic prosperity, for economic strength ultimately translates into military strength. Money must be spent prudently now: mega projects and developing bigger and longer range weapons that invite more enemies could certainly be better spent on schools, essential services, vital infrastructure, and good governance. In addition, Pakistan needs to take some difficult steps to balance its nuclear success with “national, social and economic security interests.”⁹¹

Ultimately, nuclear weapons only make strong states stronger; they do not make weak states impregnable secure. They can be a diversion of the precious resources that weak states possess. Nuclear weapons are now an ineradicable part of Pakistan and the world has come around to accept the fact that Pakistan needs a credible nuclear deterrent as essential to its national security. Yet for Pakistan to achieve real security, it must focus on some long-term societal, economic and political problems that nuclear weapons cannot address. Only when Pakistan becomes a strong state – with a free society, economic prosperity, and sound governance – can nuclear weapons truly help bring it ultimate security.

⁹⁰ See Christopher Clary, “Deterrence Stability and the Conventional Balance of Forces in South Asia,” in Krepon and Thompson (eds.), *Deterrence Stability and Escalation Control in South Asia*, *op. cit.*

⁹¹ Toby Dalton and Michael Krepon, *A Normal Nuclear Pakistan*, Washington, DC, The Stimson Center and Carnegie Endowment for International Peace, 2015, p. 4.

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