CHAPTER 5

ISLAMABAD'S NUCLEAR POSTURE: ITS PREMISES AND IMPLEMENTATION

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This chapter examines Pakistan's strategy for ensuring the security and survivability of its nuclear deterrent during periods of peace, crisis, and war. Toward this end, five main features of Pakistan's strategic deterrence policy are described in some detail. With an understanding of how Pakistani military planners perceive the basic requirements of their strategic deterrent, the ways in which the rapidly evolving U.S.-India strategic partnership threatens Pakistan's core defense precepts become apparent. A set of new long-term Pakistani strategic concerns stimulated by the expanding U.S.-India partnership is identified and analyzed. The basic point is that projected developments in India's nuclear and conventional military capabilities eventually could threaten the survivability of Pakistan's strategic deterrent, which has always been a major concern for the country's defense planners. The concluding section of the chapter examines how the Pakistan government officials might view three emerging strategic threats posed by India and its expanding international partnerships.

FIVE DIMENSIONS OF PAKISTAN'S NUCLEAR DETERRENCE POLICY

Pakistan has relied on nuclear weapons to deter Indian aggression for over 2 decades, but a thoroughly considered and planned nuclear deterrence strategy

took shape only after the country conducted its first nuclear explosive tests in May 1998—a development that was prompted suddenly and unexpectedly by India's surprise nuclear test series earlier that month. Before then, nuclear weapons had not been integrated into Pakistani military plans, the armed forces had no nuclear employment doctrine to speak of, and command and control over the nuclear arsenal and delivery systems was only vaguely defined and loosely organized.[1] Even after the 1998 nuclear tests, Pakistani defense planners gradually recognized that premising national security on nuclear weapons required a multitude of new undertakings related to doctrine, command and control, force structure, delivery systems, and the vetting and training of specialized personnel assigned to various strategic force responsibilities.

Pakistan's efforts to establish an effective nuclear force posture, strategic organization, use doctrine, deterrence strategy, and command and control system were severely complicated, but also ultimately facilitated, by three serious crises that occurred in the past 5 years: (1) the forced reorientation of Pakistan's foreign and defense policies after the September 11, 2001 (9/11) terrorist attacks against the United States and the subsequent U.S.-led war on terrorism; (2) the 2001-02 military standoff that nearly produced a major war with India; and (3) the revelations in early 2003 of the A. Q. Khan network's illicit transfers of nuclear weapons technology and materials to Iran, Libya, and North Korea. Because of the sweeping changes Pakistan has made in its nuclear programs, strategic organizations, and force posture in the wake of these traumatic events, Pakistani security planners now have a much more effective—and "normal"—nuclear deterrence posture. However, the emergence of new

political and military challenges arising from the U.S.-India strategic partnership—particularly, the U.S.-India initiative for civilian nuclear cooperation and possible defense technology and military equipment transfers—will further test the ability of Pakistan's military leadership to maintain a robust, credible, and secure nuclear deterrent.

Today, Pakistan's strategic deterrence strategy consists of five major elements: (1) an effective conventional fighting force and the demonstrated resolve to employ it against a wide range of conventional and sub-conventional threats; (2) a minimum nuclear deterrence doctrine and force posture; (3) an adequate stockpile of nuclear weapons and delivery systems to provide for an assured second strike; (4) a survivable strategic force capable of withstanding sabotage, conventional military attacks, and at least one enemy nuclear strike; and (5) a robust strategic command and control apparatus designed to ensure tight negative use control during peacetime and prompt operational readiness (positive control) at times of crisis and war. Each of these features is described below.

Conventional-Military Components of Deterrence.

Pakistan's nuclear weapons are considered to be absolutely essential to deter India from undertaking a wide range of coercive political-military behavior that could undermine Pakistan's territorial integrity and political sovereignty. However, it is important to recognize that Pakistani defense planners still consider their conventional armed forces to be the first line of defense against Indian conventional military attack and the backbone of the country's overall deterrence posture. It could be said that 95 percent of Pakistan's

strategic deterrent relies on a robust conventional military capability and deliberate and repeated demonstrations of the Pakistani leadership's readiness to employ it decisively if attacked—or even seriously threatened with military attack.

Pakistan's military conduct during the 2001-02 crisis with India revealed this orientation. When India mobilized its armed forces for attack shortly after the December 13, 2001, terrorist strike against the Indian Parliament, Pakistan responded by immediately putting its own armed forces on a war footing. Pakistani military leaders were very satisfied that their ground forces were able to reach their designated strike positions more quickly than their opposite numbers, thus eliminating the element of surprise and nullifying any advantage that India might have by striking across the border first. It is widely speculated that Indian Prime Minister Atal Bihari Vajpayee decided against a military attack when his troops had moved into their strike positions by the middle of January because Pakistani troop deployments indicated that Islamabad was well-prepared to counterstrike at locations of its choosing, thus eliminating any advantage India would have gained by attacking first. As President Pervez Musharraf wrote in his memoir, "We went through a period of extreme tension throughout 2002, when Indian troops amassed on our borders during a hair-trigger, eyeball-to-eyeball confrontation. We responded by moving all our forces forward. The standoff lasted 10 months. Then the Indians blinked and quite ignominiously agreed to a mutual withdrawal of forces."[2]

A similar experience in coercive diplomacy occurred a few months later, when Indian and Pakistani troops were still fully deployed along the international border

and the Kashmir line of control. When the Pakistani leadership received tactical intelligence that India once again was preparing to attack in early June 2002, the Pakistani military command's response was to instruct its soldiers to counterattack immediately after the first Indian violation of the international border. Not only that, but following the traditional approach of Pakistani deterrence strategy, orders were given for at least one additional counterattack to take place in reaction to the Indian strike.[3] By demonstrating its readiness to use conventional military force in response to any Indian provocation, Pakistan hoped then, and still hopes today, to compensate for its disadvantage relative to India in conventional troop numbers and equipment quality with greater resolve and the willingness to run greater military risks.[4]

If an Indo-Pakistani military crisis were to deepen, the weight of deterrence would shift more to nuclear weapons. Pakistan's nuclear posture, which during peacetime is recessed and structured mainly for secrecy and safety, would reflect a much greater emphasis on usability and operational readiness. Of course, this is what senior Pakistani defense planners have referred to when they express concern about the degradation of Pakistan's conventional military capability lowering the threshold for nuclear weapons use: The shorter the period of time that Pakistan's conventional military (notably the Pakistan Army and Air Force) could hold out in a war, the quicker the National Command Authority (NCA) would be to order the deployment—and possibly the employment—of nuclear weapons.

A key point that emerges from this understanding of the close connection of conventional military force and nuclear force in Pakistan's deterrence strategy is the realization that escalation dominance at all rungs

of the military ladder—from low-intensity conflict to conventional war and all the way to nuclear war—is deemed absolutely essential for the weaker power to survive. Pakistani defense planners firmly believe that if they allow India to seize the advantage at any level of violence—from subconventional through conventional to nuclear warfare—then India is sure to exploit it, and all will be lost.

Minimum Nuclear Deterrence Doctrine.

Pakistan has not formally declared a nuclear employment doctrine, but this does not mean there is no doctrine. On the contrary, Pakistan has operational plans and requirements for nuclear use integrated within its military warfighting plans. In contrast to India, which has stated the basic parameters of its nuclear use doctrine but remains quiet about its strategic command and control structure, Pakistan has disclosed the basic features of its nuclear command and control organization,[5] but no official has discussed how the government plans to employ its nuclear weapons. In fact, Lieutenant General Khalid Kidwai, director of Pakistan's Strategic Plans Division (SPD)—the military organization created in 1999 to oversee the development, custody, and employment of nuclear weapons—affirmed to a pair of Italian physicists in 2002 that Pakistan would not make its nuclear doctrine public, as India did in August 1999.[6]

The primary purpose of Pakistan's nuclear arsenal, a purpose which Pakistani officials have openly stated, is to deter an Indian conventional military attack. As noted above, Pakistan prioritizes conventional military readiness for deterrence and warfighting. If this fails, Pakistani officials plan to be the first to use nuclear

weapons as a last resort to prevent the loss of Pakistan's territory, or the military defeat of the Pakistani armed forces. In the most authoritative statement on the subject, Pakistani Foreign Minister Abdul Sattar indicated in June 2001 that the government had adopted "minimum credible deterrence as the guide to [its] nuclear program.[7]

Planning for how and under what circumstances Pakistan's nuclear weapons would be employed has been only broadly outlined over the years. As early as December 1974, Prime Minister Zulfiqar Ali Bhutto declared for the first time the basic principle of Pakistan's nuclear weapons use policy. He stated: "Ultimately, if our backs are to the wall and we have absolutely no option, in that event, this decision about going nuclear will have to be taken."[8]

Three decades later, at the peak of the 2002 crisis, when Indian and Pakistani forces were deployed against each other in a military standoff unprecedented in duration and intensity, President Pervez Musharraf repeated Bhutto's policy formulation. Musharraf stated in an interview published in April 2002 in the German magazine, *Der Spiegel*: "Nuclear weapons are the last resort. I am optimistic and confident that we can defend ourselves with conventional means, even though the Indians are buying up the most modern weapons in a megalomaniac frenzy." Nuclear weapons could be used, Musharraf said. "If Pakistan is threatened with extinction, then the pressure of our countrymen would be so big that this option, too, would have to be considered." In a crisis, he said, nuclear weapons also have to be part of the calculation.[9]

In a rare departure from established procedure, Lieutenant General Khalid Kidwai selectively removed some of the traditional ambiguity over the

circumstances in which Pakistani defense planners have thought about the employment of nuclear weapons. As the military crisis deepened with India in January 2002, Kidwai told a pair of Italian physicists that Pakistani nuclear weapons would be used only "if the very existence of Pakistan as a state is at stake." Kidwai elaborated: "Nuclear weapons are aimed solely at India. In case that deterrence fails, they will be used if:

a. India attacks Pakistan and conquers a large part of its territory (space threshold);

b. India destroys a large part either of its land or air forces (military threshold);

c. India proceeds to the economic strangling of Pakistan (economic strangling);

d. India pushes Pakistan into political destabilization or creates a large-scale internal subversion in Pakistan (domestic destabilization)."[10]

The last two elements of the four nuclear use triggers are fuzzy and should not be considered in isolation. They are offshoots or preludes to a conventional war that India might undertake. In this respect, "economic strangulation" chiefly implies an Indian naval blockade or possibly also the placement of Indian dams on rivers flowing from Kashmir that could be used either to dry up or flood Pakistan's Punjab plains, depending on how India's military operations were to unfold. Similarly, "ethnic conflict" is a redline peculiar to South Asia. In Pakistan, this is seen as a threat to national survival reminiscent of India's assistance to the *Mukti Bahini* guerrillas that led to the breakdown of Pakistan's control over East Pakistan in 1971 and subsequently resulted in the creation of Bangladesh. Pakistani apprehension over Indian-abetted ethnic conflict also derives

from memories of Indian machinations in Pakistan's Sindh province in the 1980s, which were believed to have been conducted as a quid pro quo for Pakistan's alleged support to the Sikh insurgency in Indian Punjab. This concern is exacerbated today by Pakistani allegations of Indian complicity (via Afghanistan) in the ongoing ethnic crises in the two states of Pakistan that border Afghanistan: Baluchistan and the Northwest Frontier Province. Pakistan is unlikely to bring nuclear weapons directly into play in such a scenario (though a naval blockade is an act of war), as they could not play any credible role in resolving the crisis. But any conventional force posturing in conjunction with this will certainly up the ante.

Pakistan's official position is that the main function of its nuclear arsenal is to prevent India from destroying or otherwise overwhelming the country. However, the precise Indian actions that are interpreted as posing an existential threat have not been articulated. Kidwai's four existential threats for possible use are credible, but also vague. The statement was almost certainly intended to be imprecise so as to enhance Pakistani deterrence. If Pakistan were more explicit about nuclear red lines, this might enable India to adjust the scope of its strategic plans and military operations accordingly. By not specifying the precise Indian actions that would trigger Pakistan's use of nuclear weapons, Pakistani defense planners hope to create uncertainty in the minds of Indian policymakers as to how far they can press Pakistan on the battlefield.

The second objective of Pakistan's nuclear weapons policy is to deter an overwhelming Indian conventional military attack against Pakistan's armed forces. Islamabad considers that India's advantages in geography and nearly all categories of conventional

military capability make nuclear force indispensable for Pakistan's defense. Pakistani military officials believe that clearly communicated resolve to use nuclear weapons and a robust conventional military posture are the key requirements for effective deterrence. In their view, one would not work without the other. According to this logic, if India attacks, Pakistan would counterattack with conventional forces; each side would inflict significant damage on the other; and India would be forced to refrain from escalating the conflict out of a fear of Pakistan's nuclear response.

The conviction that nuclear force is required to augment Pakistan's conventional military deterrence of a possible Indian conventional attack is reinforced by the common perception among Pakistani elites that Pakistan successfully deterred attacks by India on at least six occasions—during the military crises of 1984-85, 1986-87, 1990, 1998, 1999, and 2001-2002.[11] This interpretation gained even more credibility in light of President Musharraf's December 2002 statement that war with India was averted because of his repeated warnings that if Indian forces crossed the border, Pakistan would not restrict its response to conventional warfare.[12] Despite the fact that war was only narrowly averted in 2002, Pakistani military planners now appear to have even greater confidence in their ability to manage the risks of strategic deterrence.

The Pakistani government's approach to employing nuclear weapons thus rests on a calculation of its vulnerability to India's conventional and nuclear forces, and even to India's possible use of nonmilitary instruments to threaten Pakistan's territorial integrity, political stability, and economic viability (as per Kidwai's reference to economic strangling and domestic destabilization). Armed with few viable defense

options apart from its expanding nuclear arsenal, and ever concerned about such wide-ranging threats, Pakistan is likely to continue to embrace a flexible and nonspecified doctrine for using nuclear weapons.

If at all possible, Pakistan does not intend to fight India with nuclear weapons. Pakistani civilian and military policymakers recognize that their government and perhaps even their country are not likely to survive a nuclear exchange with India. But operational military plans must include all contingencies. Pakistan's targeting policy probably includes a mix of countervalue and counterforce targets. At present, Pakistan has nuclear-capable F-16 and *Mirage* 5 aircraft, which have limited range and penetration capability. Pakistani ballistic missiles, both liquid and solid fuel, can reach key strategic points in India. Cruise missiles also have been tested and gradually will be integrated into operational plans. Pakistan's strategic development strategy includes continuous research experiments and flight-tests to improve the accuracy and penetrability of existing nuclear delivery systems. Pakistan's nuclear use doctrine probably calls for holding multiple Indian industrial centers, military-industrial complexes, defense facilities, and military bases and formations at risk. Should India push Pakistan to the brink—whether by attacking, occupying, destroying, or strangling—Pakistan's NCA could very well decide to use nuclear weapons.

Nuclear Weapons Stockpile and Delivery Systems.

Pakistan's nuclear force requirement is a tightly held national secret. Islamabad's stated goal is to maintain a credible minimum deterrent, defined primarily around Pakistan's assessment of India's nuclear force

inventory, penetrability and targeting requirements, and unspecified future adversaries and contingencies. In addition, Pakistani decisionmaking for its strategic force structure is based on the requirements of survivability, which include a sufficiently large weapons stockpile to ensure dispersal to multiple launch sites and a second-strike capability. A key strategic consideration thus is the maintenance of "sufficient" fissile stock material as well as the creation and operation of fissile material production facilities with adequate capacity to meet both short-term and long-term requirements.

According to public estimates of Pakistan's fissile material stockpile at the end of 2006, Islamabad probably had amassed between 30 and 85 kilograms of weapons-grade plutonium from its Khushab research reactor and between 1,300 and 1,700 kilograms of weapons-grade highly enriched uranium (HEU) from the Kahuta gas centrifuge facility. The Khushab reactor probably can produce between 10 and 15 kilograms of plutonium per year. Kahuta may be able to produce 100 kilograms of HEU each year. Assuming that Pakistani scientists require 5 to 7 kilograms of plutonium to make one warhead and 20 to 25 kilograms of HEU to produce a bomb, then Pakistan would have accumulated enough fissile material to be able to manufacture between 70 and 115 nuclear weapons by the end of 2006.[13] A medium estimate based on these figures would mean that Pakistan could have an arsenal of about 90 weapons, as indicated in Table 1.

Pakistani Fissile Material & Nuclear Weapons (end of 2006)			
	Low	Medium	High
Weapon-Grade Plutonium (kg)	30	55	85
Weapon-Grade Uranium (kg)	1300	1,500	1,700
Weapon Capability	70	90	115

Table 1. Pakistani Fissile Material and Nuclear Weapons.

In Pakistan's normal peacetime force posture, nuclear weapons are believed not to be deployed. That is, they are not mated with their delivery systems. Nuclear warheads and missile delivery systems probably are stored in secure locations that are separate from one another—but not too far apart. Delivery aircraft, of course, are located at one or more of the country's 10 major air bases or 10 forward operating air bases. In the past 5 years, Pakistan has started to set up strategic forces in all three services, two of which (land and air), are presently functional.

Pakistan relies on a combination of aircraft and ballistic missiles for nuclear delivery missions. Two aircraft in its inventory, the U.S.-supplied F-16 *Fighting Falcon* multirole fighter and the French *Mirage* 5PA, are particularly well-suited to this role. At present, Pakistan has about 50 *Mirage* 5s and 35 1980s-vintage F-16s, although at the end of 2006, the United States agreed to provide mid-life upgrades for Pakistan's existing F-16s and to transfer another 18 models to the Pakistan Air Force.[14]

With nonproliferation sanctions severely curtailing Pakistan's ability to modernize its air force during the

1990s, Islamabad went on a major campaign to procure technology and parts for a variety of ballistic missiles for nuclear delivery roles. Today, Pakistan possesses a missile force comprising road and rail mobile solid-fuel missiles (*Abdali*, *Ghaznavi*, *Shaheen* 1 and 2), as its mainstay, and the less accurate liquid-fuel missiles (*Ghauri* 1 and 2) for long-range strikes against deep population centers in India. Pakistan is also working on a ground-launched cruise missile (GLCM), called the Babur, which was tested first in August 2005 and again in March 2006. Table 2 lists the main air and missile delivery systems in Pakistan's inventory.

Aircraft / Missile	Range	Source	Status
F-16 A/B	925 km	United States	35 planes in inventory
Mirage 5 PA	1,300 km	France	50 planes in inventory
Hatf 1	80—100 km	Indigenous	In service since mid-1990s
Hatf 2 (Abdali)	180 km	Indigenous/China	Tested in May 2002, in service
Hatf 3 (Ghaznavi)	300 km	Indigenous/China	M-11, tested May 2002, in service
Hatf 4 (Shaheen 1)	600—800 km	Indigenous /China	First tested October 2002, in service
Hatf 5 (Ghauri 1)	1,300—1,500 km	Indigenous/DPRK	No Dong, tested May 2002, in service
Hatf 5 (Ghauri 2)	2,000 km	Indigenous/DPRK	No Dong, tested April 2002, in development
Hatf 6 (Shaheen 2)	2,000—2,500 km	Indigenous/China	First tested March 2004, in development
Hatf 7 (Babur)	500 km GLCM	Indigenous/China?	First tested August 2005, in development

Table 2. Pakistani Nuclear Delivery Systems.[15]

Survivable Strategic Force.

Since the advent of Pakistan's nuclear program, Pakistani officials have worried about preventative strikes against their nuclear production facilities and later against their concealed weapons arsenal. Concerns about the survivability of the nuclear program arose in the mid and late 1970s, when (following India's first nuclear explosive test in May 1974) the U.S. Government aggressively blocked Pakistan's attempt to acquire nuclear technology from Europe. Pakistanis believed that Washington established the Nuclear Suppliers Group (NSG) primarily to prevent them from going nuclear; meanwhile India's nuclear status was accepted after the minor opprobrium it received following its surprise nuclear detonation. Even today, Pakistanis cite as evidence of international discrimination against their nuclear effort the visit to Islamabad by U.S. Secretary of State Henry Kissinger in August 1976 to pressure President Zulfiqar Ali Bhutto to abandon the nuclear bomb development program, which was then at a very early stage. Kissinger offered 110 A-7 attack aircraft as compensation to reverse Pakistan's nuclear ambitions. Although Kissinger evidently did not issue a direct threat, to this date the Pakistani narrative consistently has maintained that Bhutto was threatened with severe consequences if he did not change the country's nuclear policy.[16]

Three years later, after U.S. President Jimmy Carter levied nuclear nonproliferation sanctions against Islamabad, Pakistani officials feared that the United States might conduct sabotage or air strikes against Pakistan's uranium enrichment plant at Kahuta. In response, Pakistan tightened perimeter security and air defenses around the sensitive fissile material

production facility. These fears were rekindled after Israel's successful attacks on Iraq's Osirak nuclear reactor in June 1981. Reportedly, in the same month, the Indian air force established contingency plans for attacking Kahuta, which the Indian government consistently has denied.[17]

Alarm bells sounded once again in the mid-1980s over the prospect of Indian air attacks against Kahuta. Islamabad's threat perceptions escalated in the summer of 1984 when the Indian army mounted military operations inside the sacred Golden Temple in Amritsar to suppress the Sikh crisis in Indian Punjab and also occupied the contested Siachen Glacier in the same month. A few years later, during the 1986-87 Brasstacks military crisis, Pakistani fears of a preventive strike against Kahuta triggered even more serious concerns. By then, sufficient evidence had convinced the Pakistan leadership that Indian Army Chief General Sundarji was planning a preventive war against Pakistan in the shadow of military exercises along the border with the ultimate objectives of neutralizing Pakistan's alleged support for the Sikh separation movement and dismantling Pakistan's nuclear weapons program.[18] This crisis, which led to the partial mobilization of troops on both sides of the border, finally subsided after President Zia ul-Haq met with Prime Minister Rajiv Gandhi at a cricket match in Jaipur, India.

During the Kashmir uprising in the early 1990s, Pakistani policymakers once again became concerned about the security of their nuclear facilities, this time suspecting a joint Israeli-Indian preventive military attack. On this occasion, the Pakistani leadership of President Ghulam Ishaq Khan, Prime Minister Benazir Bhutto, and Army Chief General Aslam Beg decided

to convey a clear threat to India that Pakistan would attack India's key nuclear facilities outside of Bombay (the Bhabha Atomic Research Center and the Tarapur power reactors) if Kahuta were struck. Soon thereafter, the military crisis ended, although the violence in Kashmir persisted for well over a decade. Partly as a consequence of Pakistan's nuclear policy reorientation during the 1990 crisis, the U.S. Government invoked nonproliferation sanctions under the Pressler Amendment, which terminated all arms transfers and nearly all economic assistance to Pakistan throughout the decade of the 1990s.

Immediately after India conducted its surprise nuclear tests on May 11 and 13, 1998, Pakistani policymakers became concerned about the possibility of an Indian or joint Indian-Israeli attack on Pakistan's nuclear production and storage facilities and its test site in Baluchistan. This threat perception was stimulated on a general level by the aggressive rhetoric of the new ruling party in India, the Bharatiya Janata Party (BJP), and more specifically by Pakistani intelligence reports of at least one Israeli aircraft that was observed operating on Indian territory during the period when Pakistan was preparing for its own nuclear test series.

According to Pakistani defense analyst, Hasan-Askari Rizvi, "two intelligence reports appeared that caused much panic among Pakistan's policymakers. First, intelligence service and Army authorities reported the sighting of an unidentified F-16 aircraft in Pakistan's airspace on May 27 (it should be noted here that India does not have F-16 aircraft; Pakistani military authorities were suggesting the presence of an Israeli aircraft in the area). The country's *Ghauri* missiles were deployed that same day. The second report came shortly after midnight of May 27-28. The Pakistani military was

put on maximum alert when the country's intelligence agencies reported an unusual movement of aircraft in India just across the border, hinting at a possible preventive air strike against nuclear installations. The Pakistani press began to talk about the possibility of an Indian air strike on Pakistan's nuclear installations a couple of days before the security alert."[19] Ultimately, nothing came of these reports—except for the Pakistan government's rush to demonstrate its nuclear weapons capability before something came up to prevent it from doing so.

A few years later, in the immediate aftermath of the 9/11 terrorist attacks against the United States, Washington's urgent response to take down al-Qaeda and the Taliban regime in Afghanistan created new worries in Islamabad about preventive strikes against Pakistan's nuclear arsenal. In a statement to the nation announcing Pakistan's full cooperation with the U.S. war on terrorism and its sudden withdrawal of support for the Taliban, President Musharraf cited the protection of the country's strategic assets as one of the main reasons for this policy reversal. As Musharraf has written in his memoir,

> The security of our strategic assets would be jeopardized. We did not want to lose or damage the military parity that we had achieved with India by becoming a nuclear weapons state. It is no secret that the United States has never been comfortable with a Muslim country acquiring nuclear weapons, and the Americans undoubtedly would have taken the opportunity of an invasion to destroy such weapons. And India, needless to say, would have loved to assist the United States to the hilt.[20]

U.S. and Indian reactions to the events of 9-11 put Pakistan in a very precarious position in which its

strategic assets and undoubtedly its overall sovereign integrity would have been threatened if it did not immediately and completely reverse its position toward the Taliban—even though sacrificing the Taliban out of geopolitical exigencies created enormous domestic problems for the Musharraf government, and still complicates its ability to rule in the northwestern part of the country.[21]

Fears of an Indian attack against Pakistan's nuclear assets resurfaced once again during the military standoff with India following the December 13, 2001, terrorist attack against the Indian parliament building. This time, however, Pakistan mobilized its conventional forces and went into full operational alert. Nuclear weapons reportedly already had been dispersed after the post-9/11 crisis; but although the entire national security apparatus was placed on high alert, there were no reports of Pakistan mating nuclear weapons to delivery systems during this 2001-02 military standoff.

Since the 1998 tests, various pronouncements, publications in the Western press, and events in the region, have eroded the credibility of Pakistan's nuclear command and control, overshadowing the efforts that have been made since 1999 to harness a coherent command system to ensure management of its nuclear capabilities. The revelation of A. Q. Khan's reckless secondary proliferation activities and information that two Pakistani atomic scientists met members of al-Qaeda in Afghanistan created further concerns over Pakistan's nuclear security. Also, U.S. intelligence reportedly believed that Pakistan readied its nuclear arsenals to threaten India during the Kargil conflict. These actions have created an overall impression of an irresponsible nuclear power.[22]

Pakistani officials admit that many mistakes had been made which allowed the A. Q. Khan saga to take place. But continuing criticism of its nuclear custodianship within Western government and think tank circles feeds Pakistani fears of being targeted and labeled as an irresponsible state, not primarily due to its nuclear policy and custody shortcomings, which it believes it has corrected, but more as a conspiracy to keep the Pakistani nuclear program on the defensive. This "conspiracy" is viewed in Islamabad as an attempt to establish the grounds for rollback of its nuclear weapons program, harkening back to the U.S. position from the 1970s through the mid-1990s. These fears are further reinforced with Washington's renewed global partnership with India, making Pakistan's nuclear weapons arsenal an exceptionally—perhaps even uniquely—"illegitimate" capability.

Today, the expanding U.S.-India strategic partnership, which goes well beyond the civilian nuclear cooperation deal, has rekindled concerns about a possible Indian preventive military attack, this time perhaps in collaboration with the United States. In response to the U.S.-India announcement of civilian nuclear cooperation during President George Bush's visit to India in March 2006, Pakistan's NCA publicly resolved that any deal that would shift the nuclear balance in South Asia would force Pakistan to reevaluate its minimum nuclear deterrence requirements. One effect of Pakistan's decades-old fears of preventive strikes against its nuclear complex has been a very high priority placed on the survivability of all nuclear production facilities, weapons and missile storage complexes, and potential launch facilities. Because of operational security concerns, no details have been revealed about the measures taken to ensure

survivability, but presumably they involve an emphasis on mobile systems; camouflage; hardened and deeply buried facilities; and strict compartmentalization of information about the plans, locations, and standard operating procedures governing the movement, deployment, and possible employment of strategic forces.

Responsive Strategic Command and Control System.

President Pervez Musharraf announced the formal creation of Pakistan's NCA on February 2, 2000. Prior to this announcement, a de facto nuclear command and control arrangement existed as part of the national military command structure, which had provided—and continues to provide—guidance over conventional military operations. The new NCA operates much like the structure that preceded it, although its membership is more formally (and publicly) articulated, and at least one dedicated communications system reportedly has been created to enable the NCA to issue guidance to operational strategic forces during serious military crises and war.

The secretariat of the NCA is the Strategic Plans Division (SPD), located at the Joint Services Headquarters. SPD supports each of the two main elements of the NCA. The apex body is the Employment Control Committee (ECC), a senior leadership group comprising both military and civilian policymakers. This decisionmaking group provides policy direction and is the authority over strategic forces. This body is chaired by the President and also includes the Prime Minister (who is Vice Chairman), Foreign Minister (Deputy Chair), Ministers for Defense, Interior, and

Finance, the three service chiefs, the chairman of the Joint Chiefs of Staff Committee (JCSC), and of course the Director General of SPD (who serves as the organization's secretary). The Finance Minister was not on the original ECC approved by Prime Minister Nawaz Sharif. He was added shortly after Musharraf assumed control of the government in October 1999.

The membership of the ECC has undergone some change even after the Pakistan Government announced it publicly in February 2000. When Musharraf first talked openly about the NCA, he was then Chief Executive of the country and indicated that the chair of the NCA would be the head of the government. Then after the October 2002 elections, when Zafarullah Khan Jamali became Prime Minister, Musharraf announced that the chair of the NCA would become the President, a post he then occupied, and that the vice-chair would be the Prime Minister.

The subordinate body of the NCA is the Developmental Control Committee (DCC), which is comprised of military and scientific elements and is tasked to optimize the technical and financial efficiency of the entire program to implement the strategic force goals set by the Employment Control Committee. This group is also chaired by the President and includes the Prime Minister (Vice Chairman), the chairman of the Joint Chiefs of Staff Committee (Deputy Chair), the three service chiefs, the heads of the concerned strategic-scientific organizations, and the Director General of SPD (Secretary). In practice, the DCC is chaired by the DG-SPD, and the operational directors of each of the military services attend in place of the service chiefs.

The organizational diagram of the NCA appears in Figure 1.

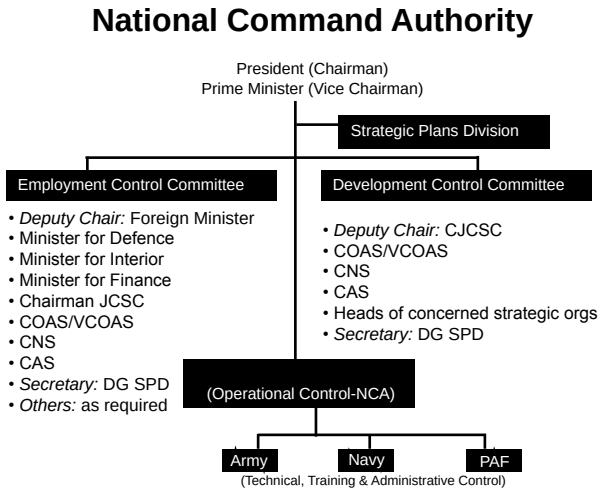

Figure 1. Pakistan National Command Authority.

The A.Q. Khan crisis has galvanized the Pakistani command and control system in ways Pakistani policymakers could not have predicted. In this instance, it was indeed true that a crisis contained both grave danger and tremendous opportunity. Out of a strange combination of necessity and desire, the military moved very quickly to tighten its grip on all of the country's strategic and scientific organizations in a professional manner—bringing about more coherence among the military planners, operators, and scientific bodies. Meanwhile, the three armed services continue to build and train strategic forces with a great deal of secrecy and compartmentalization. However, Pakistan has continued with the same personnel under the leadership of SPD Director General, Lieutenant General Khalid Kidwai, who remains the focal point of all nuclear matters in Pakistan.

Since the A. Q. Khan affair, the SPD has gone to great lengths to improve the country's command and control infrastructure. One of the greatest flaws in

the system was the lack of formal oversight over the strategic scientific organizations. The security setup arranged since the beginning of the program was designed to protect it from outside interference, spying, and physical threats (including sabotage). There was no formal reporting channel of the security apparatus that could have the ability to account for shipments (in and out), personal travels, etc. Also, there was no formalized procedure of nuclear material protection, control, and accounting (MPC&A).[23] The nuclear security and safety aspect was always believed to be a highly classified national secret because it revealed the capacity and capability of the country. This was a fatal flaw in the system, which SPD had grappled with since its formation.[24]

SPD placed particular emphasis on enhancement of its security division. Lieutenant General Kidwai appointed a dedicated two-star general to head this vital part of the organization and expanded it to include approximately 8,000 military personnel. A separate security directorate for counterintelligence was formulated, headed by a one-star brigadier general. This organization essentially coordinates with all intelligence agencies about any external threats. The Inter-Services Intelligence Directorate (ISID) forms the outermost ring of security and works closely with the security division. Prior to this, there was no formal role for the ISID in nuclear matters. Even now, the ISID director general is not a formal member of the NCA. (Reportedly, he is a regularly invited member.) Since the whole SPD organization falls under the Joint Services Headquarters, the overall responsibility of nuclear safety and security rests with the Chairman of the Joint Chief of Staff Committee. The chairman represents the highest level of joint military integration

for national security intelligence and articulation of the nuclear command authority. See Figure 2 for an organizational diagram of SPD.

Figure 2. Strategic Plans Division.

IMPACT OF U.S.-INDIA STRATEGIC COOPERATION ON PAKISTAN

The growing strategic cooperation between the United States and India has caused some consternation in Islamabad, even though Pakistani policymakers have not made a public hue and cry over the issue. Three potential implications of expanded nuclear and defense cooperation between Washington and New Delhi are particularly troubling—not as immediate concerns, but more as long-term threats that need to be monitored and countered.

1. **India may be able to out race Pakistan by rapidly expanding its production of fissile material**.

The most widely discussed implication for Pakistani security of the U.S.-India civil nuclear cooperation accord is the potential it provides for India to divert more of its indigenously produced nuclear fuel to the weapons program because of the likely boost in international supplies of fuel for India's civil nuclear power program. Both the Indian government and the Bush administration deny that this will be the case. For example, U.S. Under Secretary of State Nicholas Burns told reporters on March 2, 2006, that the agreement would not have an impact on India's strategic program.[25] However, Pakistanis may believe that unless India stops production of fissile material for weapons purposes—which it shows no interest in doing—nuclear safeguards will do little to ensure that outside assistance is not diverted.

The problem as viewed in Islamabad is exacerbated by the tendency of Pakistan's military and political leaders to view everything related to India in zero-sum terms—a particularly dangerous state of affairs considering India's growing economic and military might and its significantly enhanced political capital in the United States, Europe, China, and elsewhere. Pakistani defense planners have shown little willingness to accommodate India's growing regional preeminence. They say that what is required are firm assurances that India will respect Pakistan's independence and territorial integrity—or, to put it more colorfully, to prevent the transformation of Pakistan into a weak, subservient "West Bangladesh." However, the main "dilemma" of Pakistan's security predicament is that no Pakistani leader has ever been able to articulate what kind of assurances are required of India to reassure Pakistan that India accepts its existence as a permanent nation-state.

Although Indian government officials deny that they have any interest in significantly expanding their fissile material production capabilities, because of Pakistan's intense insecurity complex, there is a tendency in Islamabad to listen to and accept as true the aggressive and sometimes hegemonic claims of India's defense hawks such as Brahma Chellaney and Bharat Karnad—the latter of whom has been a particularly vocal critic of India's minimum deterrent posture, arguing for a force of at least four fleet ballistic missile submarines (SSBNs) armed with 48 sea launched ballistic missiles (SLBMs), 25 nuclear-armed intercontinental ballistic missiles (ICBMs), 40 nuclear intermediate range ballistic missiles (IRBMs), and 70 manned nuclear-delivery aircraft, all to be complemented by another 70 nuclear-equipped air-to-surface missiles and 25 demolition munitions.[26] While all objective evidence would suggest that the Indian government does not pay very close attention to Chellaney, Karnad, and other hawks, at least on the issue of nuclear force levels, inside the Pakistani strategic community these views are taken as a rough blueprint for India's force development. In the absence of reliable intelligence on many crucial strategic maters, worst-case analysis usually guides policymaking.

Compounding the problem is the tendency of Pakistani military officials to also pay close attention to the debate in the United States over strategic matters in South Asia. The incredible publicity over the U.S.-India initiative for civilian nuclear cooperation has provided an abundance of grist for the worst-case analysis mill in Islamabad and Rawalpindi. In 2006, for example, Robert Einhorn has stated, "the deal appears to give India complete freedom not just to continue but to expand its production of fissile material for

nuclear weapons." Joe Cirincione has been even more blunt: "President Bush has now given away the store. He did everything but actually sell nuclear weapons to India." Cirincione added: "If the deal stands, India will use foreign fuel for its power reactors, freeing up Indian uranium for its military reactors. India will be able to double or triple the number of weapons it can make annually. They could go from the 6-10 they can currently produce to 30 a year."[27]

Regardless if this prediction is merited or not, Pakistani strategic planners almost certainly put a great deal of stock in this calculation when they reviewed the implications of the U.S.-India nuclear deal for their own strategic requirements in a combined NCA meeting on April 12, 2006. During this meeting, Pakistan's strategic leadership probably concluded that Pakistan's own fissile material production plan required some adjustment—possibly to include the acquisition of an additional fissile material production facility to compensate for India's presumed expansion of fissile material production. Recent public reports about the expansion of Pakistan's plutonium production and reprocessing capabilities, if true, would seem to be further evidence of this development.[28]

2. **India may be able to identify and target Pakistan's strategic assets with its enhanced intelligence, surveillance, and reconnaissance (ISR) capabilities and it may be able to reach and destroy Pakistani strategic assets using its improved precision-strike aircraft and missile capabilities.** As discussed above, Pakistani defense planners have long been concerned about the survivability of their nuclear weapons production facilities and weapons arsenal. Although there were many scares about possible Indian preventive strikes—either alone or in combination

with some outside power—Pakistani officials probably recognized that India's ability to locate key strategic targets and then mount precision attacks against them was relatively limited. India simply did not possess either the intelligence, surveillance, and reconnaissance systems or precision strike capabilities to perform this kind of mission with a high confidence of success. However, because of India's expanding international defense relationships, especially with the United States, this situation is changing.

India is placing a real priority on developing and acquiring foreign weapons systems to deter aggressive actions from both China and Pakistan. To improve its intelligence, surveillance, and reconnaissance (ISR) capabilities, India has purchased or is in negotiation for the *Phalcon* Airborne Warning and Control System (AWACS), surveillance radars, weapon locating radars, maritime surveillance aircraft, unmanned aerial vehicles (UAVs), and satellites. In the area of precision strike, India's priorities have been on acquiring the new models of the Su-30MKI and *Mirage* 2000-5 aircraft, upgrading the *Jaguar* and the MiG-27 jets, acquiring and developing anti-tank guided-weapons systems, guided artillery weapons, multipurpose guided weapons, and the *Rafael* listening targeting pod.[29]

The ISR and precision strike systems mentioned above are expected to provide India with the ability to dissuade and deter its potential attackers by helping achieve a military edge over Pakistan and by helping bridge a quality gap between the Chinese military and the Indian military. The modern technology is expected to improve the ability of the Indian armed forces to survey potential threats to Indian security and to respond to them in a timely and effective manner. The ISR systems will provide an improved

capability to detect and track enemy infiltration, and will also provide improved queuing for patrolling assets to engage the enemy. Having precision strike capability will then allow Indian forces to effectively engage and neutralize the enemy with a high degree of success. Having an improved ISR, precision strike, and missile defense capability is expected to dissuade and deter a potential enemy by ensuring its detection and punishment, and a successful defense against a missile attack is expected to deter the enemy from launching an attack in the first place.

This pattern of arms acquisition by India has been a serious concern for Pakistan. Predictably, Islamabad is likely to view India's recent modernization efforts as a significant threat to its security. India's military modernization program has led to a growing disparity between the Indian and Pakistani conventional military capabilities. A particularly grave concern is that if India pursues its policy to achieve technical superiority in ISR and precision targeting, this will provide India the capability to effectively locate and efficiently destroy strategically important targets in Pakistan. India's new-found ISR capability, through its acquisition of the *Phalcon* AWACS, will provide India with the ability to locate targets deep inside Pakistan's territory, and direct India's superior aircraft, such as the Su-30 and the *Mirage* 2000-5, with their air-to-air and precision strike capabilities, onto those targets. Possessing advanced precision strike capability will ensure high probability of kill, and put Pakistan at a significant disadvantage. The result of this growing divergence in the two states' conventional capabilities will be either a regional arms race—as Pakistan desperately attempts to keep pace with India so as to deter a preventive strike from India—and/or a lowering of the nuclear threshold for

Pakistan—if it fails to keep up the conventional arms race with an economically powerful India and therefore needs to rely on its nuclear arsenal for a deterrent.

How this issue will play out in the coming years remains to be seen, but suffice it to say that Pakistani defense planners have considerable cause for concern as they project the evolving security environment over the next 1 to 2 decades. This concern is not particularly evident from the rhetoric of the government. For example, President Musharraf remarked in December 2006:

> If we look at the unconventional mode then Pakistan is a nuclear power. We have tested our whole missile power, and the security and safety of our missile system is that much strong that if any nuclear attack is done on Pakistan, it will not be affected. So I am sure that there is no threat against Pakistan and the Pakistani nation is fully prepared to face any threat.[30]

Despite the positive spin, it seems likely that Pakistani officials are growing increasingly concerned about the long-term survivability of their strategic deterrent owing to India's improving ISR and precision-strike capabilities.

3. **The U.S. Government, which seemingly places more value on its strategic, economic, and political relations with India than with Pakistan, may be more inclined to side with India in future regional disputes, continuing a trend that began with the Kargil conflict in the summer of 1999.** The final implication of the expanding U.S. strategic relationship with India for Pakistan's security is the most difficult to define with any precision. It is a more general apprehension held by many Pakistani defense decisionmakers that Washington's views on South Asian affairs increasingly

will be shaped by India's perceptions and arguments, rather than by a cool, objective determination by U.S. policymakers.

The Pakistani commentators who have expressed this concern have pointed to different causal dynamics. These range from the benign—a shift in U.S. perceptions that could result from the greater degree of Indian inputs coming into the U.S. system due to the heightened strategic interaction between U.S. and Indian policymakers and military officers—to the sinister—the possible tendency of U.S. officials to take a pro-Indian line because of the growing economic interaction between the two countries and the much higher money and rewards at stake than ever was the case in South Asia.

No matter what the driving force is—or is thought to be—and notwithstanding Washington's repeated reminders that the U.S. strategic relationship with Pakistan continues to be of vital importance to U.S. security interests, Pakistan's concern about becoming strategically isolated—as it was in the late 1970s and throughout the 1990s—is likely to intensify as the U.S.-India strategic relationship continues to grow. How this plays out in Islamabad's general foreign policy orientation and in its strategic policies remains to be seen.

ENDNOTES - CHAPTER 5

1. Zafar Iqbal Cheema, "Pakistan's Nuclear Use Doctrine and Command and Control," in *Planning the Unthinkable: How New Powers Will Use Nuclear, Biological, and Chemical Weapons*, Ithaca, NY: Cornell University Press, 2000, p. 159.

2. Pervez Musharraf, *In the Line of Fire*, New York: Free Press, 2006, p. 301.

3. Personal conversations with senior Pakistani military officers.

4. This is an intuitive element of Pakistan's strategic culture, but it conforms to the findings of much theoretical research by Thomas Schelling and other scholars on the nature of strategic interaction between nuclear-armed powers during military crises.

5. See "National Command Authority Established," Associated Press of Pakistan, February 3, 2000, available at *www.fas.org/news/pakistan/2000/000203-pak-app1.htm*.

6. See Paolo Cotta-Ramusino and Maurizio Martellini, "Nuclear Safety, Nuclear Stability and Nuclear Strategy in Pakistan," *Concise Report of a Visit by Landau Network-Centro Volta*, January 21, 2002, *lxmi.mi.infn.it/~landnet*. Kidwai reiterated this point in a October 27, 2007, address to the Center for Contemporary Conflict at the Naval Postgraduate School in Monterey, California. For a summary of the talk, see *www.ccc.nps.navy.mil/news/kidwaiNov06.asp*.

7. Pakistani Foreign Minister Abdul Sattar, keynote address at Carnegie International Non-proliferation conference, June 18, 2001, *www.ceip.org/files/projects/npp/resources/Conference%202001/sattar.htm*.

8. Reported in *The Pakistan Times*, December 27, 1974, p. 1.

9. Roger Boyes, "Musharraf Warns India He May Use Nuclear Weapons," *Times Online*, April 8, 2002, available at *www.nci.org/02/04f/08-06.htm*.

10. Pakistani military officials subsequently informed the authors of the Landau report that General Kidwai's remarks on what would trigger a Pakistani nuclear reaction were "purely academic." The officials stated:

> These are matters which as elsewhere, are primarily the responsibility of the political leadership of the day.

> . . . The elaborate command and control mechanisms introduced with the establishment of the National Command Authority which is Chaired by the Head of State and assisted by political and civilian leaders . . . ensure the highest level of responsibility and due deliberation on all matters of strategic importance.

See Cotta-Ramusino and Martellini.

11. Agha Shahi, Zulfiqar Ali Khan, and Abdul Sattar, "Securing Nuclear Peace," *The News International*, October 5, 1999; "Are Pakistani Nukes More Effective Than Indian?" *Daily Times*, Lahore, *www.dailytimes.com.pk/default.asp?page=story_13-12-2002_pg1_11*.

12. Musharraf did not specify the nuclear threat in his speech to an army corps reunion in Karachi, but he did state that he was prepared to act decisively at the height of the 2002 crisis: "In my meetings with various world leaders, I conveyed my personal message to Indian Prime Minister Vajpayee that the moment Indian forces cross the Line of Control and the international border, then they should not expect a conventional war from Pakistan. I believe my message was effectively conveyed to Mr. Vajpayee." "India Was Warned of Unconventional War," *The News International*, December 31, 2002, available at *www.nti.org/d_newswire/issues/2002/12/30/5s.html*.

13. Institute for Science and International Security, "Global Stocks of Nuclear Explosive Materials," July 12, 2005, revised September 7, 2005, *www.isis-online.org/global_stocks/end2003/tableofcontents.html*. A separate study by a team of Indian and Pakistani analysts puts Pakistan's plutonium inventory slightly higher (90 kilograms), and its HEU holding slightly lower (1,300 kilograms). Zia Mian, A. H. Nayyar, R. Rajaraman, and M. V. Ramana, "Fissile Materials in South Asia: The Implications of the U.S.-India Nuclear Deal," *International Panel on Fissile Materials Research Report No. 1,* September 2006, p. 3, *www.fissilematerials.org/ipfm/site_down/ipfmresearchreport01.pdf*.

14. John Grevatt, "USAF Awards Lockheed Martin Pakistan's F-16 Upgrade," *Jane's Defence Industry*, January 1, 2007.

15. Information contained in the table is from various sources, including "Pakistan: Air Force," *Jane's World Air Forces*, November 28, 2006, and "Pakistan: Armed Forces," *Jane's Sentinel Security Assessment: South Asia*, November 22, 2006, both subscription websites.

16. Dennis Kux, *United States and Pakistan, 1947-2000: Disenchanted Allies,* Washington, DC: Woodrow Wilson Center, 2001, p. 222.

17. Milton R. Benjamin, "India Said to Eye Raid on Pakistan's A-plants," *The Washington Post*, December 20, 1982.

18. Proliferation analyst George Perkovich has written that consideration of an attack on Pakistani nuclear facilities went all the way up to the most senior Indian policymakers in January 1987:

> [Prime Minister] Rajiv [Gandhi] now considered the possibility that Pakistan might initiate war with India. In a meeting with a handful of senior bureaucrats and General Sundarji, he contemplated beating Pakistan to the draw by launching a preemptive attack on the Army Reserve South. This also would have included automatically an attack on Pakistan's nuclear facilities to remove the potential for a Pakistani nuclear riposte to India's attack. Relevant government agencies were not asked to contribute analysis or views to the discussion. Sundarji argued that India's cities could be protected from a Pakistani counterattack, perhaps a nuclear one, but, upon being probed, could not say how. One important advisor from the Ministry of Defense argued eloquently that "India and Pakistan have already fought their last war, and there is too much to lose in contemplating another one." This view ultimately prevailed.

George Perkovich, *India's Nuclear Bomb: The Impact on Global Proliferation*, Berkeley, CA: University of California Press, 1999, p. 280. See also Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons: A Debate Renewed*, New York: W. W. Norton, 2003, pp. 92-95.

19. Hasan-Askari Rizvi, "Pakistan's Nuclear Testing," *Asian Survey*, Vol. 41, No. 6, November-December 2001, pp. 943-955.

20. Musharraf, p. 202.

21. For background, see Khawar Hussain, *Pakistan's Afghanistan Policy*, Master's thesis, Naval Postgraduate School, June 2005, *www.ccc.nps.navy.mil/research/theses/Hussain05.pdf*.

22. See Scott D. Sagan, "Keeping the Bomb Away from Tehran," *Foreign Affairs*, Vol. 85, No. 5, September-October 2006, pp. 51-54; Strobe Talbott, *Engaging India: Diplomacy Democracy and the Bomb*, Washington DC: The Brookings Institutions Press, 2004, pp. 166-7; and Bruce Riedel; "American Diplomacy and the 1999 Kargil Summit at Blair House," Philadelphia, PA: Center for the Advanced Study of India, University of Pennsylvania, *Policy Paper Series*, 2002.

23. For background, see Nathan E. Busch, *No End in Sight: The Continuing Menace of Nuclear Proliferation*, Lexington, KY: University of Kentucky Press, 2004.

24. For background, see Peter R. Lavoy and Feroz Hassan Khan, "Rogue or Responsible Nuclear Power? Making Sense of Pakistan's Nuclear Practices," *Strategic Insights*, Vol. 3, No. 2, February 2004, *www.ccc.nps.navy.mil/si/2004/feb/lavoyFeb04.asp*.

25. White House, Office of the Press Secretary, "Press Briefing by Under Secretary of State for Political Affairs Nick Burns," Maurya Sheraton Hotel and Towers, New Delhi, India, March 2, 2006.

26. Bharat Karnad, "A Thermonuclear Deterrent," in *India's Nuclear Deterrent*, Amitabh Matoo, ed., New Delhi: Har-Anand Publications, 1999.

27. Joseph Cirincione, "Oh Canada!" *The Globe and Mail*, March 11, 2006, available at *www.carnegieendowment.org/npp/publications/index.cfm?fa=view&id=18116*.

28. For example, see David Albright and Paul Brannan, "Chashma Nuclear Site in Pakistan with Possible Reprocessing

Plant," Institute for Science and International Security report, January 18, 2007, *www.isis-online.org/publications/southasia/chashma.pdf*.

29. *Indian Defense Yearbook 2004*, Lieutenant General R. K. Jasbir Singh, PVSM, ed., Dehra Dun, India: Natraj Publishers, 2004.

30. President Pervez Musharraf, "Address on Birth Anniversary of Quaid-e-Azam at Mazari-Quaid," December 25, 2006, *www.presidentofpakistan.gov.pk/FilesSpeeches/SpecialDays/117200733854AMPresidents%20Speech%20on%20Dec%2025.pdf*.