The Effects of Pakistan's Nuclear Weapons on Civil-Military Relations in India

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The development of Pakistan's nuclear weapons program in the 1980s contained serious implications for Indian civil-military relations in the 1990s. Towards the late 1980s, India's brief but risky military encounters with Pakistan and the rapid development of its nuclear program dramatically shaped Indian approaches to the use of nuclear weapons in the 1990s. Not only was there a fundamental shift in Indian political attitudes towards the development of nuclear technology for strategic use, but more importantly, the Indian military began playing a critical role in the development of new strategic doctrines which could effectively deal with a Pakistani nuclear attack. The Indian military's role in influencing the development of nuclear strategy is a critical part of the evolution in Indian civil-military approaches to nuclear policy. More importantly, the military's attempts to assert its expertise in nuclear policy are of fundamental importance in addressing challenges to the division of labor between civilians and the military.

Indian Political Thought and Nuclear Strategy in the 1970s

To understand how the development of Pakistan's nuclear weapons program may have affected Indian civil-military relations, it becomes important to revisit Indian approaches to nuclear strategy in the 1970s and 1980s. Interestingly, the Indian case reveals that despite the existence of external security threats in the 1970s, India's political leadership found no compelling reason to develop nuclear weapons for strategic use. In fact,

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any kind of serious thinking about the strategic use of nuclear weapons was missing on the political side.

In the aftermath of the 1962 and 1965 wars, China and Pakistan became immediate threats to Indian security. In 1964, China conducted its first nuclear tests. China also established a two-pronged relationship with Pakistan and the United States—while it pursued a military relationship with Pakistan, it simultaneously engaged in diplomatic camaraderie with the United States. China acquiesced to Islamabad's request for arms and assisted in the development of Pakistan's domestic arms-production capabilities. It also provided Islamabad with several antiaircraft guns and approximately 700 T-59 and PT-76 tanks.[1] With regard to US policy, Sino-American friendship became an important policy instrument for both Republicans and Democrats in Washington.[2]

For India, a US-China alliance contained possibilities for nuclear and technological collaboration between the two countries. American policy in the subcontinent from 1967 had also become increasingly sympathetic towards Pakistan. In the spring of 1967, the United States resumed the sale of military spare parts to Pakistan. In October 1970, reports indicated that Pakistan had received new American bombers and armored personnel carriers.[3] America's military relationship with Pakistan and Pakistan's military relationship with China compounded India's external threat environment. For Indian political leaders, China appeared to pose a much greater threat to India's external security, given its nuclear capabilities and its close military relationship with Pakistan. In its annual report for 1967–68, the Indian Ministry of Defense emphatically stated, "The Chinese danger posed to be a long-term one while the danger from Pakistan centered on certain problems which did not give it such a long-term character."[4] The report also emphasized the "accelerated pace" at which China's nuclear weapons program was developing and outlined fears about Pakistan's receipt of military supplies from China and the United States.

To counter the threat posed by China and Pakistan, New Delhi began to increase its defense expenditures and turned towards the Soviet Union for military guarantees. The Indian Ministry of Defense's 1964–65 annual report introduced a defense plan which would be implemented over a period of five years. It included strengthening India's defense production base to meet the requirements of arms and ammunition and improving the fields of procurement, storage, and training.[5] New Delhi also entered into a production agreement with the Soviets to make MiG-21s in India.[6]

From 1967 to 1971, India imported 150 Su-7 fighter-bombers, 450 T-54 and T-55 tanks, 150 PT-76 amphibious tanks, and six Petya-class frigates from the Soviet Union. The Soviet-India defense relationship was exactly the type of external security blanket that New Delhi was looking for in the face of external threats.

In 1971, India went a step ahead and signed the historic Soviet-India Friendship Treaty. This agreement secured diplomatic and military guarantees from the Soviet side and established a firm foundation for India's continued diplomatic and military partnership with the Soviets.[7] However, one of the glaring drawbacks in Indian defense policy during this time was that, except for securing military guarantees from the Soviet Union and increasing defense expenditure, India's political leadership was not doing much more to improve military affairs. The development of serious military strategy and improvements in conventional war-fighting methods to deal with possible future threats from China and Pakistan were completely absent. By the early 1970s, India's nuclear weapons program, which had begun in the 1950s under the aegis of a small group of scientists, was making sufficient progress. However, it would soon become apparent that India's nuclear weapons program had very little connection to its defense policy.

What is particularly striking is that even though India had a well-entrenched nuclear weapons program in the early 1970s and civilians displayed an intention to develop nuclear weapons, the program was developing separately from Indian defense policy. Various political statements made to the public demonstrate that India's political leadership was not thinking of nuclear weapons in strategic terms. For instance, on 2 August 1972 and again on 15 November 1973, the prime minister released a statement to the Indian Parliament that read: "The Department of Atomic Energy had been studying various situations under which peaceful underground nuclear explosions could prove to be of economic benefit; that progress in this new technology was constantly being reviewed from theoretical as well as experimental angles; and that underground tests for peaceful purposes would be undertaken."[8] Such public political statements clearly alluded to the nonstrategic use of nuclear technology. Yet, in a surprising move that shocked the international community, India went ahead and conducted its first nuclear tests in 1974.[9]

It is necessary to underscore that these tests did not contain any serious ramifications for Indian civil-military relations. Rather than think about the military use of nuclear weapons, India's political leadership maintained an ambiguous approach to nuclear policy. This was not uncommon, as political arguments favoring a nonmilitary use for nuclear technology had been made as early as the 1950s. India's political leadership had frequently argued in favor of the development of nuclear technology and not nuclear weapons. In making such claims, they had made a conscious distinction between the use of nuclear *technology* and the use of nuclear *weapons*. For civilians, nuclear *technology* was "good," as it was essential for India's economic development. On the other hand, nuclear *weapons* were "bad," as they had the potential to unleash enormous destruction. This, however, does not mean that civilians were unaware of the potential use of nuclear technology for strategic purposes. Stated simply, they were just not interested in developing it for strategic use.

In trying to explain why Indian political leaders gave such little importance to the strategic use of nuclear weapons in the 1960s and 1970s, Rajesh Basrur argues that throughout history, Indian strategic culture accorded limited value to nuclear deterrence as a basis for national security. Moreover, this strategic culture was "consistently incremental in its responses to external and internal pressures for substantial policy change."[10] When it came to nuclear weapons, the approach adopted by civilians was that of "nuclear minimalism."[11] For many Indian security experts, like K. Subhrahmanyam, "nuclear weapons were not weapons of war; they were political weapons."[12] India's political leadership perceived a very limited utility of nuclear weapons as a source of national security. Civilians also exhibited a political rather than technical understanding of nuclear weapons. On one hand, while they recognized that power was an important requisite for security, they also considered nuclear weapons morally reprehensible because of the risks associated with their use.[13] Indian defense experts further suggest that New Delhi's lack of strategic thinking on nuclear weapons was directly tied to its inexperience with total war. Unlike the United States, India had remained relatively isolated from the experience of the First and Second World Wars. Its inexperience with total wars kept most sections of Indian society insulated from questions of national security and strategy. Moreover, the "indifference and apathy induced by years of British rule" just helped sustain a lack of strategic thought.[14] Former vice-chief of the Indian army, Vijay Oberoi, observed that the military was always viewed as "a

repressive instrument of British policy and India's political leadership continued to think along such lines even after independence."[15] Therefore, one could claim that due to a very different set of historical experiences, the absence of Indian strategic thought on security issues may have been the single most important reason explaining why Indian political leaders were not thinking of nuclear weapons in strategic terms during the 1970s.

Political hesitancy in accepting the strategic value of nuclear weapons, of course, left Indian nuclear policy with no coherent shape or structure. In addition, the collusion of India's political leaders and scientific establishment in the development of its nuclear weapons program with no strategic purpose in mind had the net effect of excluding the Indian military from nuclear policy making. Civilians had routinely shared the scientists' optimism about nuclear weapons being the prime symbol of India's technological prowess—a resource which could enhance its economic development by channeling its energy base. However, some sections of the Indian military thought otherwise. More specifically, the Indian armed forces appeared unconvinced about the scientists' capability to develop nuclear weapons without military expertise. When the 1974 nuclear tests were conducted with the aid of the scientists, the military appeared rather alarmed that the scientists had been able to pull off this gargantuan feat with the help of India's political leadership. But critics may ask: Why did the Indian military not make a stronger case for their inclusion in nuclear policy in the 1970s?

In examining the nature of Indian civil-military relations during this time, it may appear arbitrary or unfair to place all the blame on India's political leadership for the military's exclusion from nuclear policy. This is because, prior to the 1974 tests, there was no evidence that the armed forces had made a powerful case for the strategic use of nuclear weapons. In fact, throughout the 1960s and up until the early 1970s, the Indian military had remained quite ambivalent about the benefits accrued from nuclear weapons. Stephen Cohen pointed out the reasons for such ambivalence—from a military point of view, an Indian nuclear weapons program in the 1970s seemed institutionally disruptive, as the military had to deal "with questions regarding the control of nuclear weapons, the targets against which the weapons could be deployed and the effects of nuclear weapons on conventional war strategy."[16] As the Indian military had adhered to a nineteenth-century organizational structure for the longest time, its experience had been limited to relatively unsophisticated military

technologies, and it was completely unfamiliar with the use of nuclear technology. Hence, despite some realization about the inherent value of nuclear weapons for strategic purposes, the military's deep unfamiliarity with such modern weapons precluded them from exerting unnecessary pressure on the civilians to develop nuclear capability.[17] This situation, however, was soon going to change. In the 1980s, India's external security considerations and a series of crises with Pakistan would prompt a major shift in military approaches to the development of nuclear strategy.

Indian Military Thought and Nuclear Strategy in the 1980s and 1990s

From the late 1970s, India observed a surge in Pakistan's nuclear weapons program. Some South Asian scholars argue that Pakistan's nuclear weapons program was developing simultaneously with an Indian nuclear program.[18] As one Pakistani scholar noted, "India's superiority in conventional weapons and its quest for political pre-eminence in the region appeared to be a plausible motivating force for Pakistani policy makers to pursue a bomb option."[19] Moreover, various Pakistani leaders, including Zulfiqar Ali Bhutto, who served as Pakistan's president from 1971 to 1973, displayed concerns about India's nuclear weapons program back in the 1960s. Pakistan's war with India in 1965, the liberation of Bangladesh in 1971, and the 1974 Indian nuclear tests aroused fears within Pakistani political circles about Indian intentions of developing a nuclear weapons program that, in the future, could be used to deter Pakistan from attacking India. The Bangladesh war also demonstrated India's conventional arms superiority, which further compounded Pakistan's insecurity.[20] And so, India's conventional superiority is often cited as an important reason for Pakistan's move to build its own nuclear weapons program.

The development of Pakistan's nuclear weapons program began around the same time India launched its nuclear program in the late 1950s. The Pakistan Atomic Energy Commission was established in 1955 to promote and develop nuclear energy for economic development.[21] From the 1960s, as relations with India began to deteriorate, Pakistan's nuclear weapons program underwent a simultaneous change. Discussing the reasons for a change in Islamabad's nuclear weapons program, Samina Ahmed noted that the 1965 war with India marked an "important turning point" in Pakistan's nuclear program because by the end of the war, the conventional

weapons disparity had quickly shifted in India's favor.[22] After the war, Pakistan began securing military guarantees from China, which supplied it with an armory of conventional weapons. Pakistan's defeat in the 1971 war with India further pushed Islamabad in the direction of a full-fledged weapons option.[23] In 1971, Pakistan began to operate a secret network to obtain necessary materials for developing its uranium enrichment capabilities. President Bhutto entered into an agreement with North Korea in September 1971 to obtain critical weapons, following which North Korea dispatched an arms shipment to Pakistan. During most of the 1970s, Pakistan acquired artillery, multiple-rocket launchers, and ammunition from North Korea.[24] Also, under the leadership of Dr. Abdul Qadeer Khan, a German-trained metallurgist, Pakistan developed its first nuclear facility at Kahuta in 1976.[25] News about the development of Pakistan's nuclear ambitions would soon reach the United States.

In the early 1980s, the US State Department published a report outlining how Pakistan was well on its way towards developing a nuclear weapons program. This report further stated that Pakistan had obtained nuclear technology from Europe and China and that China had cooperated with Pakistan in the production of fissile material.[26] In April 1981, Senator Alan Cranston reported news of a construction activity at the Pakistani test site in Baluchistan. By the late 1980s, Pakistan published various articles on centrifuge design, making its nuclear weapons capability public.[27] After 1988 its ballistic missile program further expanded with aid from the Chinese, and in 1989, Pakistan tested its short-range nuclear missile, Hatf-I and Hatf-II.[28]

The possession of nuclear capabilities by Pakistan intensified Indian security concerns. By the mid-1980s, India was clearly convinced of a Pakistani nuclear program.[29] Sumit Ganguly noted that "in the early 1980s, the clamor for the acquisition of nuclear weapons grew as US sources provided evidence of Pakistan's quest for nuclear weapons and the Chinese supply of a nuclear weapons design to Pakistan."[30] In 1983 India began to process weapons-grade plutonium. Under the leadership of Prime Minister Rajiv Gandhi, the scientific-military establishment in India acquired a declared nuclear weapons capability. Several reports written during this time suggest that India had plutonium resources sufficient to build between 12 and 40 weapons.[31] While debating whether to keep India's nuclear weapons option open, Prime Minister Gandhi

underscored a simultaneous shift towards military modernization. But few within India's political establishment realized how the development of Pakistan's nuclear program was going to affect Indian security in unexpected ways.

By the mid-1980s, Pakistan's nuclear weapons program was developing at an alarming pace. In 1984 Pakistan had acquired the capability for producing low-enriched uranium.[32] Dr. A. Q. Khan held periodic interviews with the press in which he publicly talked about Pakistan's developing nuclear program. During one such interview in February 1984, Khan claimed that Pakistan had already acquired nuclear weapons capability.[33] By the end of the 1980s, under Khan's leadership, the Pakistan Kahuta Laboratories acquired the means to produce highly enriched uranium. But more importantly, Pakistan had begun trading nuclear secrets with Iran, North Korea, and Libya.[34] As Gaurav Kampani notes, beginning in the 1980s and during the 1990s, Khan and some of his top associates began "offering a one-stop shop for countries that wished to acquire nuclear technologies for a weapons program." All these countries had obtained blueprints, technical design data, specifications, components, machinery, enrichment equipment, and notes on Khan's P-1 and next-generation P-2 centrifuges.[35] In the 1990s, there were also frequent reports of visits by Iranian nuclear scientists to Karachi for technical briefings on Pakistan's nuclear designs.

Pakistan's clandestine nuclear operations did not go unnoticed. From the early 1990s, Washington began raising concerns about nuclear proliferation with Pakistan. In the mid-1990s UNSCOM inspectors in Iraq had uncovered documentary proof that A. Q. Khan had approached Saddam Hussein's regime to assist the Iraqi nuclear weapons program in the area of centrifuge-based uranium enrichment.[36] Despite international concerns, on 7 February 1992, Pakistani foreign minister, Shahryar Khan, in an interview with the *Washington Post*, announced that the country had developed the capability to assemble one or more nuclear weapons.[37] Shahryar Khan's public pronouncement made the international community increasingly worried about the effects of a Pakistani nuclear program on Indian nuclear policy. In 1988 the *New York Times* reported that India had embarked on an ambitious nuclear energy program that required the storage of tons of plutonium for potential use for nuclear weapons. The report further stated that from 1985 to 1987, India had produced large quantities of plutonium from domestically built sites. During the same year, a

task force report published by the Carnegie Endowment for International Peace concluded that by mid-1987 India "may have accumulated a stockpile of 100 to 200 kilograms of plutonium which was sufficient to build 12–40 weapons."[38] And so, the biggest challenge for the international community in addressing nuclear proliferation concerns in South Asia was the growing evidence of nuclear weapons development for strategic use in both countries.

The development of Pakistan's nuclear capability thus provides a background for the discussion of a series of brief military encounters that would occur between India and Pakistan in the 1980s. More importantly, the manner in which the Indian military responded to these crises is vital in understanding the sudden importance of nuclear strategy for Indian civil-military relations.

By the early 1980s there were several indications that India's political and military leadership had begun to consider the strategic use of nuclear weapons. George Perkovich claims that when Prime Minister Indira Gandhi came to power in 1980, she hoped to keep India's nuclear weapons option open. In 1981 Gandhi had raised concerns about Pakistan's ability to develop the nuclear bomb. She argued that the possession of nuclear weapons capability by Pakistan had compelled New Delhi to weigh its nuclear weapons option more seriously. In other words, Pakistan's nuclear capability was directly pushing India's decision to declare its own nuclear capability.[39] Moreover, various American intelligence reports published in 1982 suggested that Indian military planners were urging Prime Minister Gandhi to draw up a plan to destroy Islamabad's facilities.[40] For example, following the induction of British-procured Jaguar aircraft in the 1980s, the Indian air force developed a brief study in which it weighed the possibility of attacking Pakistan's nuclear facilities at Kahuta. The objective of the study was to neutralize the threat posed by Pakistan through a direct attack on its nuclear facilities.[41] Prime Minister Gandhi, however, did not support any preventive war plans, owing to fears that a Pakistani attack on Indian facilities would prove very costly for India.[42] Yet, Gandhi kept India's nuclear option open in fear that Pakistan would declare its nuclear weapons capability.[43]

By 1984 the possibility of a nuclear confrontation between India and Pakistan became real when Pakistani president, Gen Muhammad Zia-ul-Haq, informed the United States that India was trying to emulate Israel's attack upon Iraq's Osiraq reactors with the prime intention of destroying

Pakistan's nuclear program, an allegation that Indira Gandhi vehemently denied.[44] Amidst such accusations, the inability of American satellites to locate two of India's Jaguar squadrons intensified the threat of a nuclear confrontation between the two adversaries.[45] The United States was alarmed that both countries were making public threats about going nuclear. While neither side came up with any conclusive evidence about its intentions to attack the other, this initial crisis forced India and Pakistan to seek commitments from their allies—the Soviet Union and the United States, respectively.[46] Pakistan's plea to the United States made India secure guarantees from the Soviets that in case of a nuclear conflict, the latter would intervene on India's behalf. But despite fears of a nuclear war between India and Pakistan, both countries reached an accord in December 1985 in which they agreed not to attack each other's nuclear facilities.[47]

Tensions between India and Pakistan, however, continued after 1985. A second crisis erupted in 1986–87, popularly known as the Brasstacks crisis. What began as a routine military exercise conducted by the Indian army in 1987 contained the seeds for a nuclear confrontation with Pakistan. Under the leadership of Gen Krishnaswamy Sundarji, the Indian army launched an exercise to test the mechanization of the armed forces.[48] The Brasstacks exercise was General Sundarji's invention. He specifically wanted to integrate India's special weapons, including tactical nuclear bombs, into day-to-day field maneuvers.[49] The exercise was held in the northern Rajasthan and involved 10 divisions of the Indian army, including two strike corps and approximately 400,000 troops. But the large buildup of Indian troops along the Line of Control (LOC) set off alarm bells in Islamabad. Fearing an attack from India, Pakistan began deploying large numbers of troops along the LOC. Pakistani troops quickly moved close to the India-Pakistan border near Punjab in a dangerous maneuver that threatened to cut off communications between Kashmir and the rest of India.[50]

During the height of the crisis, the international community became legitimately concerned about the outbreak of a nuclear war between India and Pakistan (even though, in hindsight, such fears were exaggerated).[51] While both countries refrained from engaging in a nuclear conflict, the crisis revealed how India's military leadership was thinking about the possible use of nuclear weapons. Anticipating Pakistani fears of a nuclear attack from India, certain sections of the Indian army felt that the military

balance had shifted in India's favor. Moreover, the chief of army staff, General Sundarji, and other senior military officers believed that the situation was ripe to take out Pakistan in a first strike.[52] Although India's political leadership did not share the military's views, Sundarji had apparently made some of the army's sentiments clear to Defense minister Arun Singh. Sundarji had also gone a step further by taking the Indian air force into confidence about the army's plans to divert forces to Pakistan-occupied Kashmir. Accordingly, the Indian army began to develop preventive war doctrines without complete knowledge of the civilians.[53] Of course, on being informed about the military's plans, there was immediate intervention from the political side. Rajiv Gandhi was particularly outraged at the way in which the Indian military had kept the civilians uninformed about their strategic plans for so long.[54]

A third and final crisis, and perhaps the most dangerous, occurred in 1990. In the 1980s the Muslims of Indian-held Kashmir began organizing themselves against the central government in New Delhi. In 1984 the Congress Party ousted a popularly elected state government and rigged the Kashmiri state elections in 1987, creating further unrest amongst the Kashmiri youth.[55] Towards the latter part of 1989, Pakistan conducted a large military exercise called *Zarb-i-Momin*. Soon after, there was a sharp increase in insurgent-related activities in the Indian state of Kashmir. Consequently, Pakistan began to extend its support to disaffected Kashmiri youth by arming and training Kashmiri Muslim terrorists.[56] New Delhi responded by strengthening its military forces in Kashmir and Punjab, which came as another big surprise to Pakistan's political leadership. Islamabad was apparently unclear about Indian intentions and feared that a larger number of forces deployed by New Delhi would launch an offensive operation against it.[57] The conflict was prevented from escalating to the nuclear level through direct US intervention. William Clark, US ambassador to New Delhi, and Robert Oakley, US ambassador to Pakistan, assured the public and the international community that the military on both sides had not made any large-scale preparations for war. The Gates Mission, headed by the deputy director of the CIA, Robert Gates, marked the culmination of American efforts in resolving tensions between the two countries.[58]

The 1990 crisis had important ramifications for Indian civil-military relations. During that crisis, India's political leadership was alerted by the Indian military to the possibility of a nuclear attack from Pakistan.

The Indian army had expressed concerns about Pakistani intentions to explode a nuclear weapon to communicate the threat of a nuclear attack against India. To counter an imminent Pakistani attack, Indian prime minister V. P. Singh ordered a group of scientific advisors to undertake specific emergency measures.[59] The new emergency measures included a reconsideration of India's nuclear policy options if Pakistan "employed its nuclear power for military purposes."[60] Towards the end of the crisis, V. P. Singh consulted his principal secretary and noted that "the situation between India and Pakistan was scary" and that decisions "could not be left just between the Prime Minister and Scientific Advisor." Singh was particularly concerned that in the event of a possible nuclear strike from Pakistan, "there was no formal procedure to decide who would do what." Therefore, it was necessary for the civilians "to institutionalize it."[61]

Concerned by the apparent lacuna in military strategy, V. P. Singh enlisted the support of Minister of State for Defense Arun Singh, who was asked to undertake a classified review of India's nuclear capabilities and work out the parameters of a nuclear command and control structure. Accordingly, Arun Singh set up an informal committee, which consisted of members from the Department of Atomic Energy (DAE) and the Defense Research and Development Organization (DRDO). Along with the scientists, senior officials from the Indian military and bureaucracy were invited to be part of this committee. At the end of the deliberations, Arun Singh was "dismayed" to learn that the three services had little knowledge about India's nuclear capability. Following the meeting, in an attempt to make the decision-making process transparent to both civilians and the military, he commented: "It is clear that we had to end the wink and nudge approach. When it is crunch time you just can't ring up the Chief of Staff and say press the button. The army will not take the scientists' word that it will work. They will want to know if they do have a usable credible deterrent. Otherwise they are likely to say buzz off. It is a significant disadvantage if you don't have a command and control structure."[62] Arun Singh's conclusion indicated a major gap between the scientific and military understanding of India's nuclear policy and the absence of a command and control system to deal with Pakistan's developing nuclear capability. The committee's deliberations only helped sharpen the ongoing debate about the Indian military's role in nuclear strategy.

The Significance of Military Expertise on Indian Nuclear Strategy

The development of Pakistan's nuclear weapons program and a series of military encounters between India and Pakistan in the 1980s point to the emergence of a professional Indian military—a military that was seriously thinking about the strategic use of nuclear weapons. When compared to the 1970s, this shift in the Indian military's approach to nuclear weapons and its influence on nuclear policy was nothing short of dramatic. The various crises with Pakistan had created legitimate concerns in Indian political and military circles about the possible use of nuclear weapons. The biggest push for their strategic use had come from a few senior military officers in the Indian army who were desperately trying to assert the military's expertise in nuclear policy. This, in itself, was the beginning of a monumental change in Indian civil-military relations.

It is common knowledge that as early as 1981, India's former chief of army staff, General Sundarji, was one of the first in the Indian army to compile two major essays calling for the introduction of nuclear weapons into the Indian military.[63] A few years later, Sundarji explained in an interview that "throughout the 1980s, the armed forces tried to create doctrines and military formations that would meet both conventional and nuclear threats with existing hardware."[64] Moreover, nuclear doctrines were being developed alongside conventional doctrines.[65] The Indian army had also acquired equipment with nuclear, biological, and chemical defense capabilities while trying "to incorporate a doctrine of denial based on an ability to disperse and concentrate quickly."[66] These new doctrines of mobility and mechanization, also known as RAPID doctrines, were tested in the Brasstacks exercise. For the Indian military, the creation of such doctrines had been a direct response to the Pakistani threat. In 1986, pointing to the problems emanating from Pakistan's nuclear capability, Sundarji wrote,

> There are enough indicators to suggest that Pakistan has achieved or is close to achieving nuclear weapons capability. The Indian military was gearing its organization, training and equipment in such a manner that is not only effective in conventional use but in the unlikely event of nuclear weapons being used by an adversary in the combat zone, the Indian military would limit damage both psychological and physical.[67]

And so, under the leadership of General Sundarji, some sections of the Indian military began to think seriously about the potential use of nuclear weapons.

Besides the army, the Indian air force also took a bold initiative in developing nuclear weapons. The air force wanted a strategy that would develop a conventional offense against nuclear weapons and create a strategic air command that could effectively integrate aircraft missiles with strategic reconnaissance.[68] Moreover, in an attempt to ward off any possible preventive attack from Pakistan and develop doctrines of denial, the Indian air force dispersed its Jaguar, MiG-23, and MiG-27 tactical strike aircraft.[69] Evidence of such operational changes in military doctrines to deal with Pakistan's nuclear capability supports how the Indian army and air force were thinking about the military utility of nuclear weapons. The attempt to develop sophisticated military doctrines that incorporated the use of nuclear weapons underscored a greater role for the Indian military in nuclear strategy.

From the mid-1980s, Indian military doctrine had developed a distinct shape to address Pakistan's nuclear weapons capability, moving away from a purely conventional deterrent to "one that incorporated nuclear weapons."[70] Even though India lacked any sophisticated nuclear doctrine during this time, the presence of nuclear weapons was conditioning a debate in Indian civil-military relations about the effects of nuclear weapons on conventional war. The Integrated Guided Missile Development Program called for a series of missile systems to be developed over subsequent years. Even though the program was run under the auspices of the DRDO, Indian scientists had begun to tie civilian and military research together.[71] India also adopted a deterrence policy without actually developing nuclear weapons. The new deterrence policy included concepts like "existential deterrence" and "nonweaponized deterrence."[72] Existential deterrence meant that while India had the capability to develop nuclear weapons, its nuclear weapons program was still rudimentary.[73] Yet, the presence of a growing nuclear capability was sufficient to deter Pakistan or any other enemy from attacking India in the first place.

Emphasizing the impact of nuclear weapons on conventional war, General Sundarji noted that "while leaders on both sides had once viewed war as a means to achieve certain policy objectives, today, the same calculus did not apply."[74] While no one really knew what type of assembly system was in place, the assumption was that India had either assembled nuclear weapons or deployed nuclear weapons in the field.[75] It is important to note here that the use of concepts such as nonweaponized deterrence or existential deterrence were important indicators of a shift in thinking about nuclear weapons.

These concepts may appear primitive compared to American doctrines of massive retaliation and flexible response, but they were significant in that Indian political leaders and the military were struggling to adopt an appropriate deterrence policy for the first time and, in doing so, were simultaneously thinking about the strategic use of nuclear weapons.

By the late 1980s and early 1990s, the threat posed by Pakistan's nuclear arsenal and the dangers of an all-out nuclear confrontation with Pakistan had become obvious to almost everyone in Indian political and military circles (especially since both countries had already shared a series of crises). Interestingly, India's political leadership was beginning to pay careful attention to what the military was saying with regard to the country's nuclear options. At a seminar organized by the United Service Institute (USI) on 10 March 1990, serving and retired Indian officials from all three services, diplomats, and academics debated whether India should exercise its nuclear option. The deliberations of this meeting revealed that most senior officers were in favor of building a strong nuclear arsenal. For instance, the chief of naval staff, Admiral Nadkarni, argued that a functional nuclear policy would help offset Pakistan's nuclear weapons capability. Nadkarni further noted that a nuclear arsenal would be cheaper to maintain than conventional forces.[76] Underscoring concerns about Pakistan's growing nuclear weapons capability, another senior military official, Gen V. N. Sharma, remarked that India would have "no option" but to possess "nuclear capability" if a potential hostile neighboring nation "acquired a capability to deploy nuclear weapons."[77] Other military officers also alerted Indian policy makers to the dangers of miscommunication and miscalculation between the two countries in a heightened nuclear environment. For instance, Lt Gen M. Thomas said that prospects of miscalculation in the ambiguous climate between India and Pakistan were of biggest concern for the military high command in India.[78] VADM K. K. Nayar, former vice-chief of naval staff, also pointed out that Pakistan's admission of having a capability to assemble a nuclear device "should force India to have a realistic assessment of security environment in the region."[79] Such statements made by all three services of the Indian military provide further evidence of a push for military doctrines that included ideas about the strategic use of nuclear weapons. But while civilians were only now beginning to pay attention to what the military was saying, the military had already taken the lead in developing India's nuclear strategy.

It is necessary to remember that the efforts of the Indian military to influence nuclear strategy were emerging in response to a strategic vacuum driven by the absence of civilian thinking on strategic issues. Civilians in India had "not shown any professional interest in either strategy or tactics of military operations" and "one of the grave weaknesses of the Indian system was that civilians had not developed a careful understanding of military matters."[80] An Indian observer claimed that "Indian political leaders had seen nuclear weapons as a way of enhancing their own domestic standing and were always reluctant to talk about their use in military terms."[81] Similarly, "there had been no serious effort to institutionalize nuclear weapons by incorporating them into the armed forces through the development of doctrine and military organization."[82] Such statements have frequently appeared in commentaries made by Indian strategy and defense experts. All these statements, undoubtedly, point to the absence of serious political thinking on the military utility of nuclear weapons. For decades, India's political leadership had been sending ambiguous signals to the entire world about what nuclear weapons meant for Indian security policy. They also kept the military far removed from nuclear policy due to fears that the military would become much too powerful if introduced to nuclear weapons.[83] But for the Indian military, the absence of strategic thinking by India's political leadership on such vital national security issues indicated a lack of commitment to develop serious military doctrines. Moreover, the ambiguity in civilian approaches to nuclear weapons, of course, made the Indian military disenchanted, as "they were not getting what they wanted."[84]

The Indian military's role in thinking about nuclear weapons in the 1980s and early 1990s was an attempt to fill the void created by an absence of political thinking on nuclear strategy in the 1970s. The need to fill this void had been fuelled by the nature of nuclear technology, which introduced questions about the military's expertise in using these weapons. Samuel Huntington noted that the military has a specific domain of competence, which distinguishes it from civilian functions. This area of military competence is called "the management of violence" and is separate from the act of violence itself.[85] The distinction between the military's role in the management of violence and the military's act of violence is critical in addressing why any professional military might want to assert its expertise in nuclear policy. The Indian military's push for a nuclear strategy arose because of its dissatisfaction with a civilian policy that fre-

quently used the armed forces as an instrument of violence without giving it any power in the management of violence.

Huntington argued that the military can be used as a tool of political advice but "it is not a mindless tool because professional military officers possess expertise in judging the capabilities of the military instrument of power."[86] The nature of nuclear technology and the military functions associated with its use had introduced India's political leadership to the importance of professional military expertise in the use of such weapons. More importantly, as civilians had thought very little about the military use of nuclear technology in the 1970s, the problem of delineating political and military functions in nuclear policy had emerged as a serious issue in Indian civil-military relations in the 1980s. As Brig Gurmeet Kanwal notes, the biggest challenge to civil-military relations was that "India first went nuclear and then began to worry about things like doctrine and strategy."[87]

The introduction of new weapons required new methods for the management of violence. Moreover, as Huntington underscored, while the military man is conservative in strategy, he is inclined to be open-minded and progressive with respect to new weapons.[88] The Indian military and, more specifically, General Sundarji and other senior officers, had clearly displayed evidence of such thinking during and after the brief military encounters with Pakistan. Some observers believe that Sundarji had used the Brasstacks exercise to "judge the military's professional competence with new weapons."[89] Others claim that Sundarji tried to assert his expertise only because he was obsessed with Islamabad's nuclear weapons capability and constantly worried about Pakistan's use of nuclear weapons in an attack on India.[90] By the late 1980s, it had become quite clear that the short conflict-like situations with Pakistan had brought India's political leadership face-to-face with the professional judgments of a military that was concerned about the management of conflicts in the shadow of nuclear weapons.[91]

For the Indian military, political discussions on the command and control of nuclear weapons were a significant development in itself. To aid India's political leadership in discussing nuclear command and control issues, senior Indian military officers like General Sundarji continued to emphasize problems with not having a sound nuclear strategy. To develop sophisticated command and control structures, Sundarji proposed the creation of a nuclear doctrine. He observed that "the lack of a nuclear doctrine in India and Pakistan was a dangerous thing. If you keep it

under wraps, you don't know what will develop." By the end of the 1990s crisis, Sundarji had also begun arguing for the creation of formal military doctrines which could control for possibilities of miscalculation in a war with Pakistan. To reduce the incidence of miscalculation, he suggested the adoption of a "declared" nuclear weapons posture.[92]

Political and military statements addressing nuclear command and control operations were indicative of an emerging agreement in Indian civil-military relations on the strategic use of nuclear weapons. When the V. P. Singh government was replaced by a new Bharatiya Janata Party (BJP) government, India's political leadership began paying even greater political attention to military inputs on nuclear strategy. There is evidence to show that the BJP government supported much of what the Indian military was telling the civilians. For instance, all India secretary of the BJP, J. P. Mathur, concurred with General Sundarji's position on nuclear weapons and believed that India "should go in for nuclear weapons by national consensus without wasting more time."[93] Also, in its election manifesto, the BJP proposed to arm the three services with nuclear weapons.[94] The BJP's affirmation of military views was a major step in the evolution of Indian political attitudes towards the military's role in nuclear policy.

Encouraged by a change in civilian attitudes towards the military's role in nuclear strategy, the Indian armed forces began to expand their influence on nuclear policy. In a rather significant development, the three services stepped up their programs to incorporate nuclear weapons in military strategy. By the early 1990s, the Indian navy had begun developing a nuclear submarine project commonly known as the Advanced Technology Vessel (ATV) project. VADM Premvir S. Das observes that the Indian navy's efforts to build nuclear submarines were deemed necessary to cope with threats from Pakistan, which was rapidly modernizing its navy.[95] A nuclear submarine project was also felt necessary to address "other burgeoning naval powers in the Indian Ocean."[96] By early 1997 India's chief of naval staff, ADM Vishnu Bhagwat, ordered a "technical audit" of the ATV project. Under Bhagwat's leadership, there emerged a committed cadre of officers who were dedicated to designing and building nuclear and diesel submarines.[97] Reports of the Indian navy's nuclear submarine project began appearing in various local newspapers. By late 1997, the *Pioneer* reported that India's nuclear submarine project was "on the verge of a critical breakthrough, with the Prototype Testing Center (PTC) at Kalpakkam getting ready for trials."[98] The PTC, located within

the Indira Gandhi Center for Atomic Research, was developed to test the submarine's turbines and propellers. Other reports suggested the operation of similar testing facilities at Vishakhapatnam.[99]

With the Indian navy having taken the lead in developing a nuclear submarine project, the army and air force stepped up pressure on civilians to develop a more sophisticated nuclear arsenal. In what may have been considered a monumental move in the history of Indian civil-military relations, Prime Minister Narasimha Rao permitted the "Chiefs of Staff" targets to be assigned to the army's Prithvi-1 (150-km range/1,000-kg payload) ballistic missiles.[100] This development was extremely significant for Indian civil-military relations, as civilians were taking specific measures to assign the military an appropriate role in nuclear affairs. Amidst such instances of civil-military collaboration on nuclear policy, New Delhi decided to conduct a second set of nuclear tests in 1998. But despite ongoing political debate about the military's role in nuclear affairs from the early 1990s, the decision to conduct nuclear tests in 1998 was made by civilians and scientists at the exclusion of the Indian military! Following a historical tradition of keeping the military subservient to civilian control, Indian political leaders appeared hesitant to seek the military's advice on the decision to test nuclear weapons. However, India's declared nuclear weapons status made it even more difficult for civilians to exclude the military from future decisions on nuclear strategy.

One of the major challenges for civilians in the immediate post-1998 nuclear environment was thinking about the allocation of military responsibilities in nuclear decisions. A growing debate was emerging in political, military, and academic circles about the effects of India's declared nuclear weapons status on the military. Most scholars agreed that a declared nuclear weapons posture would make it necessary to include the military in future nuclear decisions. A senior official from the Indian navy noted that India's overt nuclearization would bring civilians and the military closer, as the military had expressed a desire for adequate preparation time in a possible nuclear war with Pakistan.[101] Former Indian ambassador to the United Nations, Arundhati Ghose, also recalls that "post 1998, civilians had brought the military much closer into the decision-making process."[102] But debates concerning the Indian military's role in nuclear policy became even more visible after Pakistan also conducted nuclear tests in 1998 and launched a military attack on India in the summer of 1999.

Political Recommendations in Favor of Military Professionalism

The Indian nuclear tests of 1998 were immediately followed by Pakistani nuclear tests. A year after both countries became overt nuclear states, Pakistan attacked India in what became known as the Kargil war to test the Indian military's conventional strength. Pakistan's declared nuclear weapons capability, and the short duration within which it tried to test India's nuclear threshold, made the threat of a nuclear confrontation between the countries very real. While both countries avoided a nuclear confrontation, the end of the Kargil war witnessed the creation of several proposals that supported an expansion in the Indian military's war-fighting methods. A few of these proposals also addressed the Indian military's growing importance in nuclear policy.

The Kargil war was Pakistan's attempt to avenge its military reverses suffered during the 1971 war and the Siachen dispute with India. The operational planning for the Kargil war had begun soon after Gen Pervez Musharraf took over as chief of army staff in October 1998.[103] Islamabad used the war to achieve three fundamental aims. First, the war provided Pakistan with an opportunity to internationalize the Kashmir issue.[104] Second, Kargil was Pakistan's attempt to push infiltrators across Indian borders to keep cross-border terrorism alive. As Pakistan's extremist activities had been thwarted by the Indian army in the past, Islamabad wanted to reverse that trend. Finally, Pakistan initiated the conflict to test Indian military capability in the wake of the 1998 nuclear tests.[105] By launching a surprise attack on India, Pakistani political leaders believed that if the Indian military could push back Pakistani forces despite facing an element of surprise, then India could defeat Pakistan anywhere.[106]

The war, code-named Operation Vijay, was marked by three phases. The initial phase began in early May 1999, during which Indian soldiers suffered heavy casualties and most Indian military operations failed until the introduction of airpower. On receiving reliable information on the location of intruders along the Drass-Batalik-Kaksar heights, the air force was called in to launch air strikes on Pakistani positions. During the second phase of the war, the Indian army consolidated its positions, cleared the Drass heights, and launched a systematic campaign to evict the intruders. Following the Indian army's capture of the Tololing peak on 13 June 1999, the armed forces held an advantageous position vis-à-vis Pakistan. The third and final phase of the war was characterized by significant military

victories on the Indian side. The Indian army captured vital positions, such as Tiger Hills, and successfully evicted intruders from the Mushkok, Kaksar, and Turtuk sectors in Jammu and Kashmir. In the final stages of the war, Pakistan's misadventure was stalled by speedy American intervention. In May 1999 US secretary of state Madeleine Albright and British foreign secretary Robin Cook met with India's external affairs minister, Jaswant Singh. The UN secretary general, Kofi Annan, also held discussions with Indian and Pakistani envoys. The scenario began to improve steadily amidst frequent diplomatic activity. Hostilities ceased by early July when Pres. Bill Clinton sent the Indian and Pakistani prime ministers an official letter urging them to respect the Line of Control in Kashmir.

As the Kargil war was fought in the shadow of nuclear weapons, Indian political leaders exercised a great deal of caution in preventing the war from escalating to the nuclear level. During the course of the war, civilians made all the strategic and political decisions, while the Indian army and air force enjoyed significant autonomy in tactical operations.[107] More importantly, Indian political leaders worked together with the military in fighting. Gen V. P. Malik observed that after the Cabinet Committee on Security met on 25 May, "the three chiefs were closely enmeshed in the political-military decision-making process." The decision-making process was "open and direct" and "after discussions, the concerned executive authorities, including the three chiefs, received directions from the prime minister and the national security advisor, Brajesh Mishra."[108] In a changed nuclear environment, there emerged "an integrated approach to war management with the political, economic, media, and military aspects enmeshed together cogently."[109] The presence of nuclear weapons had also made the military less bashful in advising political leaders about the consequences of using airpower against Pakistan. For instance, at a public press conference in Srinagar, when Air Chief Marshal A. Y. Tipnis was asked about the utility of an air offensive, he stated that consequences of the restricted use of airpower had been made clear to the government. Such instances of civil-military collaboration on military strategy were common during the Kargil war.

The end of the Kargil war raised fundamental questions about Indian defense preparedness in a nuclear environment. In the immediate postwar period, a committee was set up to evaluate the successes and failures of the war. Their report is popularly known as the *Kargil Review Committee Report* (also called the *Subbrahmanyam Report*, after its primary architect,

K. Subhrahmanyam).[110] In explaining the lessons of the Kargil war, the committee highlighted critical lapses in India's intelligence system and structural problems in its higher defense organization. But more importantly, the Kargil report made serious recommendations supporting the Indian military's professional role in nuclear policy.

Prior to highlighting that role, the committee suggested a serious reorganization of India's higher defense system to allow for greater military involvement. The need to set up a national defense headquarters and a defense intelligence agency and to create the post of national security adviser was strongly emphasized. The committee further suggested that "members of the National Security Council, the senior bureaucracy servicing it and the Service Chiefs had to be continually sensitized to intelligence pertaining to national, regional and international issues." Proposals outlining changes in India's institutional structure of civil-military were meant to generate greater synergy between civilian and military branches and also to provide the military with a large range of options in grand strategy. The report also underscored problems in coordinating different intelligence operations within India. The committee observed that "the present structure and processes in intelligence gathering and reporting" had led to "an overload of background and unconfirmed information and inadequately assessed intelligence."[111] There was an absence of an institutionalized process which could allow different intelligence agencies, such as the Research and Analysis Wing (RAW), Intelligence Bureau (IB), and Border Security Forces (BSF), to interact periodically below the level of the Joint Intelligence Committee (JIC). While the JIC was doing its job as the chief custodian of intelligence, subsidiary organizations like the RAW and IB were not doing as thorough a job. A sharp disconnect between various intelligence agencies had led to faulty intelligence reports during the Kargil war. For instance, as early as 1998, the RAW had detected the presence of one additional Pakistani unit in Gultari but had failed to follow up on the lead through aerial reconnaissance flights. Moreover, as the Indian military had no shared system for exchanging intelligence information with agencies such as the JIC and RAW, the armed forces could do very little to report Pakistan's initial incursions.[112] As a result of these problems, an immediate upgrade in India's intelligence services was considered crucial.

With regard to the Indian military's professional role in nuclear strategy, the *Kargil Report* made a critical recommendation. It suggested that the military had to be made as well informed as its Pakistani counterpart on

nuclear policy. Committee members noted that during the Kargil war, Pakistani political leaders had been thinking very clearly about the role of nuclear weapons. The clarity in Pakistani political thought about the role of nuclear weapons was a result of strategic decisions being taken jointly by both civilians and the military. In India the military's exclusion from nuclear policy for several decades had left it at a more disadvantaged position. Senior Indian military officers had alerted the committee to contradictory approaches taken by civilians on nuclear policy. Air Chief Marshal Mehra had observed that even though flight trials for the delivery of Indian nuclear weapons were conducted in 1990 and several political leaders from V. P. Singh to Rajiv Gandhi had sustained a nuclear weapons program, most Indian prime ministers had tried to keep the program confidential.[113] Again, while civilians had routinely reassured the Indian public that the country's nuclear weapons option would remain open if Pakistan developed nuclear weapons, they had said very little about what a functional nuclear weapons program would entail. In sharp contrast to the political indecisiveness displayed by Indian leaders, several Pakistani political and military leaders, such as Benazir Bhutto, Nawaz Sharif, and chief of army staff Gen Aslam Beg, had openly shared information with the public about Pakistan's nuclear weapons capability.

Highlighting the problems in excluding the military from nuclear policy, the *Kargil Report* also noted that "the nuclear posture adopted by successive prime ministers had put the Indian army at a disadvantage vis-à-vis its Pakistani counterpart. While the former was in the dark about India's nuclear capability, the latter as the custodian of Pakistani nuclear weaponry was fully aware of its own capability. Three former chiefs of army staff had expressed unhappiness about this asymmetric situation." Moreover, the lack of an open dialogue between civilians and the military on nuclear strategy had the potential of harming the Indian military's position in the management of nuclear weapons in the future. At the end of the Kargil war, disturbed by the political neglect of its role in the management of nuclear weapons, the Indian military had expressed its dissatisfaction for not being included in the nuclear decision-making loop. And so, to facilitate greater transparency in civil-military relations on nuclear strategy, the *Kargil Report* suggested the publication of a white paper on India's nuclear weapons program.[114]

Besides recommending the integration of the Indian armed forces in nuclear decisions, the Kargil Committee contained proposals for enhanc-

ing the military's professional role in counterinsurgency operations. Members of the committee alerted the government to the inherent defects of using the military as a police force in such operations. In its recommendations, the committee noted that heavy involvement of the Indian army in counterinsurgency operations had affected its military preparedness in defending the country against external aggression. The committee further noted that such a situation had arisen because successive governments had not developed a long-term strategy to deal with insurgency. Members of the committee feared that the military's prolonged deployment in counterinsurgency operations would not only impede its training program in the future but could also lead to a military mind-set that detracted from its primary function of fighting wars. The Ministry of Home Affairs, state governments, and paramilitary forces had also frequently assumed that "the military would always be available to combat insurgency."[115] In addition, law enforcement agencies such as the Indian Paramilitary and Central Police Forces had not been adequately trained to deal with counterinsurgency operations. This led to an increased dependence on the military and "transformed it into an ordinary police force."[116] The *Kargil Report* suggested that to strengthen the military's professional role, civilians would need to use the military in fighting conventional wars only.

The Kargil Committee's recommendations outlining a professional role for the Indian military in future wars with Pakistan were an important development in Indian civil-military relations. But just as India's political leadership began to follow through with the committee's recommendations, Pakistani terrorists launched a second attack on India in 2001–02, threatening the outbreak of yet another nuclear crisis in the subcontinent.

The Military's Critique of Political Objectives in a Conflict with Pakistan

On 13 December 2001, six individuals affiliated with a Pakistani militant organization, *Lashkar-e- Taiba*, attacked the Indian Parliament. The ensuing battle between assailants and Indian security forces claimed the lives of all six attackers and eight members of the Indian security forces. To prevent Pakistan from waging future attacks of a similar kind, the Indian military undertook a large-scale mobilization of its troops along the LOC. The Indian military response to Pakistan's brazen attack is popularly known as Operation Parakram.[117] In response to the buildup of Indian military

forces along the LOC, Pakistan announced to the world that its medium-range nuclear missiles were on high alert. As the situation contained the possibility of a nuclear crisis between India and Pakistan, American officials intervened to alleviate Indian fears of a Pakistani nuclear strike. But despite American intervention, New Delhi maintained a deployed state of readiness along its borders, claiming that Pakistan had done little to eradicate militancy in the subcontinent. The Indian military also remained resolute in its strategy against Pakistan. Chief of army staff, General Padmanabhan, noted that "any country that was mad enough to initiate a nuclear strike against India would be punished severely."[118] Despite Pakistani president Gen Pervez Musharraf's assurances to end militancy, New Delhi maintained a posture of force and even went to the extent of testing a missile capable of delivering a nuclear warhead.[119] On 14 May 2002, Pakistan launched a second set of attacks on an Indian army base in Kaluchek, Jammu and Kashmir. This attack killed over 30 innocent civilians. To make matters worse, a prominent Kashmiri separatist leader, Abdul Ghani Lone, was assassinated. By the end of May 2002, war appeared imminent, and Indian troop deployments were strengthened along the border. The United States exerted diplomatic pressure on both India and Pakistan to end hostilities. By June 2002, there was a reduction in hostilities, and by October 2002, the crisis was finally over.

India's military encounter with Pakistan in 2001–02 had significant ramifications for civil-military relations. The crisis generated robust military responses from the Indian army. More importantly, during the crisis, the Indian military had become disappointed with political objectives. The Indian armed forces believed that there was a complete mismatch between strategic and tactical goals. The military underlined three basic problems with political decisions during the crisis. First, they disagreed with civilians over adopting a defensive military posture against Pakistan. Second, New Delhi's indefinite stance on war objectives had significantly undermined Indian military operations.[120] And, third, they were unhappy with civilians for blaming the Indian armed forces for a slow response in fighting the militants.

Defending the military's position, chief of army staff, General Padmanabhan noted that the Indian military's slow response during the crisis was a direct result of civilian indecisiveness rather than military unpreparedness. Reporting on poor civilian directions during the crisis, Padmanabhan argued that "significant military gains could have been achieved in January

2002 had politicians made the decision to go to war." These objectives, he says, could have included "degradation of the other force, and perhaps the capture of disputed territory in Jammu and Kashmir. They were more achievable in January, less achievable in February, and even less achievable in March. By then, the balance of forces had gradually changed." Also, when Pakistan launched its attack on the Indian Parliament, the Indian army's strike formations were in garrison and very little could have been done to mobilize large military forces across the LOC. General Padmanabhan argued that political strategies against Pakistan were faulty, as the type of limited strikes civilians were pushing for would have been "totally futile." Addressing the military's hesitancy in applying limited war objectives, Padmanabhan stated that "if you really want to punish someone for something very terrible he has done, you smash him. You destroy his weapons and capture his territory. War is a serious business and you don't go in just like that."[121]

General Padmanabhan's criticism of civilian strategy during the crisis and similar sentiments expressed by serving and retired officers suggest that the biggest challenge for the Indian military was that India's political leadership had no clear plan on how to respond to a terrorist attack from Pakistan. Civilians did not clearly understand the range of military options available or their potential consequences. On the military side, the crisis highlighted the need for a military doctrine, which could go beyond just fighting a limited war. Pakistan's brazen and unpredictable attack on India had proven that a defense-oriented approach towards the enemy would be an ineffective military strategy in the long run. The Indian military was also concerned about the human cost of war. Political directives had resulted in a large number of military deaths. The Indian army had lost more men in Operation Parakram than in the Kargil conflict. During Operation Vijay (code name for the Kargil war), 527 soldiers lost their lives. During Operation Parakram, more than 680 were killed.[122] Over 100 soldiers died while laying nearly a million mines near the border, and as many as 110 soldiers died in road accidents. Despite such alarming statistics, the Indian government was unwilling to concede the extent of casualties. In fact, the government had projected the military operation as bloodless, even though casualty figures suggested that the conflict had a human cost.[123]

Padmanabhan's criticisms of political objectives during the 2001–02 crisis were a way of asserting the military's expertise in adopting a more

suitable military strategy against Pakistan. The significance of military expertise can be understood by looking at recent events in American civil-military relations in the war on Iraq. Until recently, serving officers in the US military had been cautious in criticizing the Bush administration's military policies in Iraq. But as the situation worsened, with mounting casualties on the American side, serving and retired generals began to discuss war objectives more openly. On 12 October 2006, the media reported that the former commander in Iraq, retired general Ricardo Sanchez, criticized the Bush administration's Iraq policy, calling it a "nightmare."[124] The US military's criticism of political objectives in the Iraq war further intensified after General Petraeus' testimony to the Senate Armed Services Committee in 2007. In his testimony, Petraeus described some of the major problems facing the US military in Iraq and expressed disappointment in the lack of progress toward political reconciliation there. In a letter addressed to his troops, Petraeus emphasized that although violence has diminished, "it has not worked out as we had hoped."[125]

A careful reading of military responses to political objectives in India and the United States suggests that the biggest concern for any professional military is to find appropriate methods that can match military objectives to political decisions. Civilian policies that do not reflect military objectives adequately tend to compromise the military's professional expertise. Unless civilians can find ways to match military objectives with strategic policy, the military will continue to remain critical of civilian policies. And, in an effort to introduce favorable civilian approaches to military strategy, the military uses a crisis or war to criticize political decisions publicly. By doing this, it tries to transform civilian policy without overtly challenging civilian orders. The 2001–02 India-Pakistan crisis revealed to the Indian military the ineffectiveness of pursuing limited-war objectives against Pakistan. In thinking about military responses to deal with a nuclear Pakistan, the Indian armed forces began taking a leading role in formulating new strategic doctrines, which would privilege an offensive military strategy against Pakistan in future crises.

The Indian Military's Role in the Development of Strategic Doctrines

The Indian military's push for new strategic doctrines has to be understood in the light of certain events in Indian civil-military relations. On

24 January 2000, in an inaugural address to the Second International Conference on Asian Security in the 21st Century, Indian defense minister George Fernandes introduced the Limited War Doctrine. Fernandes declared that the Kargil war was proof of India's ability to fight and win a limited war at a time and place chosen by the aggressor.[126] While the main tenets of a limited-war doctrine remained unclear, Fernandes' statements had generated further thinking in strategic and military circles about the impact of nuclear weapons on conventional wars. Questions about the manner in which Indian military doctrines had to be tailored to deal with low-intensity conflicts and the Indian military's role in such operations attained an important place in Indian strategic debates. As Swaran Singh notes, the creation of a limited-war doctrine required sophisticated force structures that could address the entire gamut of contingencies, ranging from a controlled nuclear war to maintaining civil defense awareness in suspected target locations. And to deal with various types of aggression—nuclear, conventional, military, and subconventional—the Indian army would have to develop better war-fighting techniques.[127]

At the end of the Kargil war, India's political leadership produced a formal nuclear doctrine, which discussed the major features of its nuclear capabilities.[128] The doctrine was not very detailed but did contain some essential features. It enumerated a policy of minimum nuclear deterrence and no-first-use. The nuclear command and control system would consist of a mix of land-based, maritime, and air capabilities. Additional guidelines published in 2003 indicated that nuclear weapons could be used to deter or retaliate against the use of biological or chemical weapons.[129] While the doctrine established a framework for Indian nuclear policy, most scholars seem to agree that it was rather minimalist. In other words, sections of the doctrine were ambiguous, and there was no detailed analysis of how civilians and the military would work together on nuclear decisions. Even though the nuclear doctrine lacked explicit references about the role of the military in future nuclear operations, civilian attempts to set up a command and control system marked a crucial step forward in the military's inclusion in nuclear strategy. Discussing the importance of the Indian military in nuclear operations, Arundhati Ghose remarked that "even on the definition of 'minimum' credible deterrent, civilians would need the military to come into the picture. Also, the military would insist on missiles being tested before they were willing to absorb such weapons

into their arsenal. Hence, the real change in civil-military relations was on the nuclear side."[130]

For the military, the publication of an Indian nuclear doctrine demanded some serious thinking about deterrence strategies against Pakistan. Interestingly, the India-Pakistan conflicts of 1999 and 2002 had confirmed that the presence of nuclear weapons was making it harder to achieve political and military stability in the subcontinent. The Kargil war had demonstrated the failure of deterrence at the level of low-intensity conflicts because the presence of nuclear weapons had encouraged conflict below the level of nuclear and conventional confrontation.[131] While the existence of nuclear weapons had prevented total war, stability had been undermined by the possibility of subconventional conflicts or proxy wars.[132] Some Indian experts also argued that post-weaponization military stability had not been assured in South Asia, because the presence of nuclear weapons had created possible scenarios for miscalculation and misperception of enemy responses.[133] And so, India's declared nuclear weapons status had created conditions for greater civil-military collaboration in keeping future military operations at the low-intensity level.[134] When asked about the effect of nuclear weapons on Indian civil-military relations, Gen V. R. Raghavan noted that "India's no-first-use doctrine would deter civilians from using these weapons in conflicts with Pakistan but this does not mean that the military had not thought seriously enough about fighting with nuclear weapons."[135] Raghavan's statement suggests that in the aftermath of India's overt nuclearization and subsequent conflicts with Pakistan, the importance of structured thinking in conducting future wars with Pakistan had become extremely critical. And more importantly, the Indian military was emerging as an important player in nuclear strategy.

The turn of the century witnessed the Indian military's growing influence on creating sophisticated doctrines in a war with Pakistan. The 2001–02 encounters with Pakistan had left the armed forces extremely skeptical of limited-war objectives. The end of the crisis witnessed the Indian military's efforts in developing doctrines which would be a more appropriate fit against a nuclear Pakistan. Accordingly, on 28 April 2004, the Indian army officially introduced the Cold Start Doctrine. This new doctrine called for a "rapid deployment of integrated battle groups to conduct high-intensity offensive operations."[136] The doctrine was the brainchild of senior military officers, such as General Padmanabhan, who wanted the Indian military to adopt a blitzkrieg-like strategy in future operations that included all three services.

While details of this doctrine remain classified, such doctrines had been used in NATO operations and included integrated groups in offensive military operations at the highest levels.[137] As part of this new strategy, the Indian military would have to undertake offensive military operations at the very outset of hostilities, short of a nuclear war. The objective of such a strategy was to prevent Pakistan or any other hostile South Asian state from counting on intervention by their external allies. Battle groups at various levels would be "task oriented in terms of varying composition of armor and infantry elements with integrated attack helicopters of the Army Aviation and the Air Force having close support from ground-attack Air Force squadrons."[138] Battle groups could be used individually for limited operations or in conjunction with operations on a larger scale.

The Cold Start Doctrine was certainly different from previous Indian military doctrines, as "a decisive military victory was no longer held as the only goal of any war against Pakistan." The purpose of this doctrine "was to increase the range of options available to India for fighting and winning a war against Pakistan by moving away from an all-or-nothing strategy."[139] The Indian military's preference for an offensive posture also implied that military intervention or preemptive strikes would now be considered legitimate options in South Asia.[140] To determine the effectiveness of this new strategy, the Indian army tested the Cold Start Doctrine in various military exercises. In early May 2005, the Indian army conducted an exercise called Vajra Shakti. This exercise involved the use of an infantry division and an independent mechanized brigade of II Corps, along with associated armored elements integral to the corps, to initiate offensive strikes at the outbreak of future hostilities. A year after conducting this military exercise, the Indian army retested its Cold Start Doctrine in the summer of 2006. The second military exercise, code-named Sanghe-Shakti, not only tested the feasibility of the new doctrine but also the military's capacity to respond to a nuclear, biological, or chemical attack. Twenty thousand troops together with the Indian air force concluded the week-long exercise approximately 100 kilometers from the Indian border. At the end of the exercise, Lt Gen Daulat Shekhawat, commander of the elite II Corps (one of three key strike formations of the Indian army), reported that there was room for a swift strike in case of a nuclear attack from Pakistan and that the exercise had validated the new military doctrine.[141] Senior military officials, including chief of army staff Gen J. J. Singh, were jubilant at the integration which had been achieved between ground troops and

the air force through the conduct of this exercise. Exercise Sanghe-Shakti appeared to have achieved its objective of making all three services work together in the fulfillment of a doctrine that required a "quick response" against the enemy.

Interestingly, the impact of new strategic doctrines on Indian civil-military relations has been largely ignored in Indian literature on the subject. Few Indian observers have paid attention to the implication of such new doctrines for civil-military relations. While some scholars have discussed the significance of the Cold Start Doctrine in terms of Indian responses to a Pakistani attack on India, other observers have focused on the merits of using a defense-oriented corps (better known as "Pivot Corps") to launch offensive operations into enemy territory—a technique which, they argue, can be successfully employed by other strike formations.[142] Yet, no one has tried to clarify what an offensive military strategy would mean for Indian civil-military relations.

The creation of the Cold Start Doctrine undoubtedly carries significant implications for Indian civil-military relations. First, a military doctrine which gives primacy to an offensive strategy reflects the military's desire to disassociate itself from defensive military strategies used in the past. Scholars argue that for several decades, the Indian military had subscribed to a defensive war strategy at the behest of political directives. India's political leadership had always displayed a lack of political will in developing military power in accordance with the country's national security interests.[143] By developing new doctrines, the military was not only trying to break away from antiquated military strategies but was also displaying the seriousness in taking effective steps against any future attacks from Pakistan. Underlining the importance of the military's role in developing such new doctrines, Indian nuclear expert and member of the NSAB, Bharat Karnad, notes that "it is only now that the military is getting into nuclear matters." This is an exciting time in Indian civil-military relations as the "military is trying to define a role for itself. . . . From the 1990s, the Indian army had talked about the space for conventional war in a nuclear environment. And if the military was going to start a conventional war, the Cold Start Doctrine was a way of telling the government to start thinking beforehand."[144] Indeed, the military's attempt to develop new doctrines was a way of asserting their professional judgment and expertise in strategic affairs.

A second implication of the push for new strategic doctrines is the shift from a clear separation in civil-military responsibilities to a convergence

in civil-military functions. Charles Moskos noted that a convergence in civil-military functions is often the direct consequence of changes induced by sophisticated weapons systems. The American experience with nuclear technology indicates that the presence of nuclear weapons gave rise "not just to a need for technical proficiency but also for men trained in modern and managerial skills."[145] As the United States developed a sophisticated nuclear weapons arsenal, the military began playing a major role in the management of such weapons. Moreover, the possible use of nuclear weapons in a war with the Soviet Union introduced fundamental changes in the nature of US warfare. Various strategic doctrines began to be built around deterrence theory. While nuclear capability was the bedrock of deterrence strategies, "to be effective, the American military had to exhibit a capability and credibility in pursuing policies other than nuclear war." The need to make the threat of a nuclear war credible consequently introduced a complex dynamic in US civil-military relations as American political leaders had to work together with the military in the fulfillment of political objectives.[146] More importantly, besides fighting a nuclear war, an effective deterrence strategy also required the US military to be trained in a variety of nonnuclear conflicts that demanded further civil-military collaboration. Thus, in the United States, the presence of nuclear weapons produced a convergence in civil-military functions and raised serious questions about the blurring in the division of labor between civil-military domains.

In the Indian case, military encounters with Pakistan from the 1980s had always contained a possibility for escalation to the nuclear level. By the late 1990s, new military doctrines which could include the strategic use of nuclear weapons in a war with Pakistan had become extremely critical. But, the introduction of new strategic doctrines also required a more careful review of civil-military objectives. Offensive military doctrines demand a structured and speedy political decision-making process with sophisticated crisis-management procedures so that military operations remain unrestricted and the element of surprise, vital to such doctrines, is not lost.[147] Accordingly, in any future war or crisis, the Indian army's offensive operations would require regular and unrestricted civil-military collaboration on collection, collation, and assessment of enemy information. This, of course, will integrate the military more deeply into the political decision-making process. Instead of working separately, the military can help civilians execute a successful offensive strategy.

As the American case demonstrates, the possibility for a convergence in civil-military functions significantly undermines the division of labor between civilians and the military. The success of the Indian military in the development of new doctrines in the future will depend on the Indian political leadership's willingness to accept such new doctrines. For civilians, the introduction of offense-oriented military doctrines could very well open up possibilities for a reduction in the effectiveness of civilian control. Given the "quick response time" needed as part of this strategy, combat commanders would have to exercise far greater freedom for independent initiative than would be deemed acceptable by the civilians.[148] More importantly, to make the new doctrine functional without compromising civilian control, there would be a greater need to develop institutions which support a rapid response doctrine. India's command and control system would also have to be sophisticated enough to withstand an increase in decision-making activity generated by the nature of intense combat operations. The biggest challenge for civilians in accepting new military doctrines is the likelihood of a convergence in civil-military functions. As long as there exists a possibility for future wars with Pakistan in the shadow of nuclear weapons, a clear separation in civil-military functions might be impossible to achieve. SSQ

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India's Military Aviation Market

Opportunities for the United States

Amit Gupta

What are India's future aviation requirements and what political, military, and economic opportunities do they present to the United States? Three factors are important in understanding these two phenomena:

- Indian policy makers are beginning to think in terms of projecting power extra-regionally and, therefore, are investing in the weapons systems necessary to achieve this objective.
- The US-India relationship is changing, and the transfer of technology is becoming a central part of the transformed relationship.
- India's economy is shifting from a Soviet-style command economy to a modern economy, and this is starting to impact on the procurement and development of weapons systems.

In this context, examining the Indian aviation market provides a better understanding of what are the opportunities and challenges in the broader US-India strategic relationship.

Background

As India moves toward becoming an extra-regional power, it has begun putting more muscle into its military aviation. Indian security interests require power projection beyond South Asia and into the Indian Ocean littoral and Central Asia. Further, Indian analysts view China as a long-term security concern and, therefore, see the need to develop a robust deterrent against that country; this requires enhancing both the conventional and the nuclear capabilities of India's armed forces. Logically, airpower becomes an integral part in developing an extra-regional capability. Coupled with this development is

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a recognition of the changing nature of warfare. The Indian armed forces were loath to use airpower as part of their counterinsurgency strategy, for reasons discussed below. Recently, however, they have begun to shift from this position and seek to build a counterinsurgency air capability.

To create this extra-regional capability, the Indian armed forces are modernizing the air components of each service. The Indian air force (IAF) has added air refueling tankers and an airborne early warning (AEW) system to its fleet. When coupled with the long-range Su-30 multipurpose fighter, the force is emerging with a significant capability in the Indian Ocean region. Indian naval aviation is expected to be enhanced by the acquisition of the *Admiral Gorshkov* carrier, which will permit the Indian navy to have a more effective air capability. The Indian army is also seeking to build up its own air arm. Additionally, India requires new light and medium helicopters, a medium-range combat aircraft, new reconnaissance planes, and an advanced AEW capability. What we have, therefore, is a large Indian military aviation market waiting to be tapped by every major arms producer in the world.

The requirements for new weapons systems are taking place within the context of the political and economic shifts that have come about in India in the past decade. India's market reforms have started to slowly dismantle a Victorian-era bureaucracy and a Soviet-style command economy. Politically, India has moved towards a more positive relationship with the United States—one that has opened the possibility for increased military cooperation between the two countries.

Until recently, the bulk of Indian aircraft procurements were from Russia (or the erstwhile Soviet Union), but now the Indians are seeking to move towards a more diversified procurement strategy. This creates a major opportunity for the United States to sell weaponry to India, thus not only cementing the emerging strategic relationship with the country, but also bringing lucrative business for American arms companies. Getting India's business, however, requires thinking proactively and understanding what the Indian market wants, what makes the Indians suspicious about the United States, and how the United States can help the Indians think about what their future threat environment will be like.

The Development of Indian Airpower: Rationale, Acquisition, and Production Trends

The development of Indian airpower—both land-based and maritime—was based on the Indian leadership's nationalistic vision and on the supply and resource constraints that the country faced in the attempt to build up its military capability. India's national leadership decided in the 1950s to build a domestic aviation industry from scratch. Thus, the Indian government decided to design and develop a primary piston-engine trainer, a subsonic jet trainer, and a supersonic fighter. Jawaharlal Nehru, India's first prime minister, wanted India to become one of the most technologically advanced countries in the world, and this included the development of a modern arms industry.[1]

Early Indian efforts to domestically produce aircraft led to mixed results. The piston-engine trainer and the jet trainer were put into service but only after developmental and production delays. This led India to procure emergency batches of TS-11 Iskra trainers from Poland. The supersonic jet fighter (the HF-24 Marut) was put into service in 1964 after considerable delay but never reached supersonic speed and was technically obsolete by the time it finally entered service.[2] The program was eventually abandoned in the 1970s when an attempt to put an afterburner on the plane ended in a fatal crash.

The reasons for this dismal performance lay in resource, technological, personnel, and bureaucratic constraints. India was a developing country seeking to build advanced fighter planes at a time when it lacked the experienced personnel, the industrial infrastructure, and even the basic machine tools to successfully carry out such a program. Further, the Indian government was loath to provide scarce resources for bringing such programs to fruition, depending instead on domestic industry to deliver the goods. The Indian government thus refused to pay Bristol Aero Engines the fees it required to develop the Marut's proposed engine to supersonic capability. Instead, driven by cost constraints and political agendas, the government sought to unsuccessfully collaborate with the Egyptian Helwan fighter project.

Bureaucratic constraints also affected the procurement process. The Indian armed forces viewed themselves as a professional fighting force, based on British traditions and operating within a globalized military environment. They based their requirements, therefore, on what was considered state of the art in the field of military aircraft and imposed these standards on the domestic arms industry. So instead of asking the

domestic aviation industry to build what was technologically feasible, they instead set impossible standards by asking for what was militarily desirable. Not surprisingly, the domestic aviation industry could not deliver an acceptable product.

Finally, India's defense scientists have been prone to seeking technologically ambitious as opposed to technologically feasible projects. This was seen in the 1980s when the Indian government decided to sanction the development of a light combat aircraft (LCA)—essentially a lightweight supersonic fighter to replace the IAF's aging MiG-21 workhorse.[3] The Indian arms industry had not successfully built a supersonic fighter, let alone an engine to power it, but was once again willing to take on the project. At the same time, the IAF was seeking an advanced jet trainer—a high-subsonic trainer with a weapons payload capability—and had entered into negotiations with British Aerospace for the Hawk. Building an advanced jet trainer would have been within the technological competence of the Indian arms industry but it, instead, chose to build the more complex LCA. Among the reasons given for this choice was that building the jet trainer would condemn India to "technological colonialism." India, therefore, pursued the LCA with familiar results: cost overruns, lengthy delays, obsolescence, and the inability to meet pressing air force needs for fleet replacement.[4] The IAF eventually ended up buying the Hawk, after a 20-year delay, at the cost of $5 billion to the Indian exchequer. The attitudes of the defense scientists have not changed, as they continue to demand projects that are beyond the current industrial base and technological capability of the country.

Coupled with the constraints posed by the domestic arms production and acquisition requirements were problems of suppliers and resources. As a developing nation, India's arms-procurement efforts were determined by the availability of suppliers and resources. When resources—hard currency—were available, India was able to buy aircraft from the West, most notably the United Kingdom and France. When hard currency was unavailable, it had to depend on the Soviet Union, where it was able to make purchases in Indian rupees. This led to India getting planes that did not necessarily fit its requirements or the quality that the IAF desired. India was denied the Su-24 Fencer by the Soviet Union and instead had to make do with the less-capable MiG-23BN Flogger. Spares were also a constant problem, as the Soviet Union and its successor state, Russia, were tardy in supplying them.

Even though the Cold War ended and the US-India relationship improved through the 1990s, deep-rooted suspicions remained in military and political circles alike in India about the trustworthiness of the United States as a weapons supplier. Critics liked to point out that the United States hit India with arms embargos in both the 1965 and 1971 India-Pakistan wars (although the sanctions were far more damaging to Pakistan, which was heavily dependent on US weaponry, while India had diversified its procurement), that the USS *Enterprise* was sent to the Bay of Bengal in 1971 to pressure India to halt the Bangladesh campaign, and that after the 1998 nuclear tests, India was once again a victim of US sanctions that led to significant delays in the LCA program, amongst other projects. Even now, despite significant changes in the relationship, some Indian political groups—notably the communist parties—are averse to a significant strategic partnership with the United States.[5]

Finally, US arms manufacturers did not grasp the importance of the Indian aerospace market until recently, and consequently, did not have a permanent presence in India. In contrast, the Russians, the French, the British, and even the Israelis had established permanent offices in India. In the last couple of years, however, the situation has changed as India's willingness to buy American weapons systems and the boom in Indian civil aviation have made it vital for companies like Boeing and Lockheed to set up shop in New Delhi.

Continuing Trends in Acquisition

The history of India's acquisition and production of weapons has left behind several trends that are likely to continue into the near future. One of these is the existence of a large defense production public sector that employs thousands of people. At the apex of this public sector pyramid is India's defense science base. Traditionally, defense scientists have commanded considerable political influence since, as discussed earlier, succeeding Indian governments have recognized the prestige that comes from indigenous weapons-production projects—especially in the aeronautical, space, and nuclear spheres—as well as the potential autonomy that an indigenous weapons-production capability provides. At the same time, most of India's indigenous defense projects have met with lengthy delays, cost overruns, and, when they do come to fruition, the tendency of the user

service to decline large-scale purchases because of quality questions—the Indian army recently decided to discontinue buying the Arjun main battle tank because it wanted to move on to a state-of-the-art tank.[6] Yet the Arjun spent 30 years in development and was meant to satisfy the army's requirements well into the current century.

As a consequence, India will continue to provide projects to keep its defense science base employed and ensure that its public sector companies continue to produce weapons systems. Any arms purchases that it makes, therefore, are likely to include offsets and licensed production of the weapons systems. At the same time, the poor completion and production records of the domestic arms industry will require collaborative ventures with foreign companies. India is now, for example, seeking a foreign partner to help develop the Kaveri engine for the Tejas, a power plant that has been in development for nearly three decades. Increasingly, there will be pressure to have joint development of products. In recent years India has codeveloped the Brahmos supersonic cruise missile with Russia and is seeking to jointly develop a medium-range transport aircraft as well as a fifth-generation combat aircraft with the Russians. As argued later, one step for prospective sellers may be to join such programs at the conceptual planning phase and provide critical inputs on engines, avionics, and electronics.

The other piece of historical baggage comes from the series of embargos that were placed on India during its wars with Pakistan and following its nuclear weapons tests in 1974 and 1998. These sanctions hurt the Pakistani war effort more than India's since Pakistan's arsenal was mainly of American origin while India's was a mix of Soviet and European weapons systems. India, however, viewed the embargos as an attempt at coercion, and this engendered suspicion about US motives. Matters worsened after the 1974 nuclear tests because of the technology cut-offs that set back the Indian civilian nuclear program. Residual suspicion remains in India about US motives and, therefore, there is the concern that any significant military purchases from the United States would leave India vulnerable to sanctions and coercive diplomacy in a future conflict. Eradicating this fear will be a difficult hurdle for American policy makers and aeronautical companies.

Continuing suspicion about US intentions can be seen in the lengthy and heated public debate in India about the proposed joint nuclear deal. As part of the deal, India will separate its civilian and military nu-

clear facilities and put the former under IAEA safeguards. Part of the opposition to the deal stems from concerns that India will be losing its nuclear autonomy and giving the United States a crippling control over its nuclear weapons program. In addition, the Indian Left parties are concerned that the deal would take away the foreign policy maneuverability:

> In the discussions on foreign policy and security matters, the Left has exposed the vital area of extraneous "nonnuclear" conditions inherent in the nuclear deal. The 40-year civilian nuclear agreement will put severe constraints on our independent foreign policy given the approach of the United States as reflected in the Hyde Act and the 123 Agreement. India is sought to be bound to the United States' strategic designs through the nuclear deal.[7]

The Left's opposition came despite the fact that the deal was going to remove some of the crippling sanctions that had constrained India's civilian nuclear program.

A third historical hangover comes from the traditions of the various Indian armed services. Having British traditions and British-based military doctrines, moving to an American-style force structure, doctrine, and maintenance method will prove to be a difficult but not impossible jump for the Indian armed forces and, in real terms, may also be considered unnecessary. Achieving organizational and cultural change will, therefore, require a broader debate in Indian political and military circles (that is currently ongoing) to determine the exact nature of the modern military doctrine that India wishes to pursue.

What is clear, however, is that all three services of the Indian armed forces are seeking to augment their air components. The army and the navy are seeking helicopters, UAVs, and in the case of the army, even tactical refuelers. But the major purchaser of aerial weapons systems will be the IAF. To understand the role of Indian airpower in a strategic perspective, one needs to discuss the issue in *purple* (joint) terms—even though that may not actually exist in the Indian case.

Airpower in Indian Strategy

The IAF's doctrine was taken from the Royal Air Force, from which it was born in 1947. The British influence continued into the post-independence era, since the first Indian chief of the air force was appointed only in 1954. Consequently, IAF doctrine was focused on World War II–related mis-

sions like strategic bombing and interdiction, and the service sought to procure aircraft that could carry out these tasks.[8]

In the 1965 India-Pakistan war, this doctrine led the IAF to target Pakistani air bases and engage in interdiction efforts. These tactics met with limited success because Pakistan based its aircraft deep inside its territory; the IAF suffered unnecessary and considerable losses in trying to attack these targets.[9] India had no forward bases along the border with Pakistan, and this allowed Pakistani ground forces to penetrate the area without Indian aerial interference. Further, there was little coordination with the army or the navy to provide air defenses to their forces.

By the 1971 war, the then air chief, Pratap Chandra Lal, decided that the IAF's mission, in descending order of importance, would be to (1) defend the airspace of the country, (2) provide air support to the army and the navy, (3) undertake strategic bombing, and (4) carry out operations like paratrooping and transport.[10]

The next major use of Indian airpower took place with the Kargil war of 1999. The Indian army discovered in 1999 that Pakistani forces had placed troops on the Indian side of the Line of Control (LOC) in Kashmir. The dispute had a long history. In the 1980s India had taken over the disputed Siachen glacier in Kashmir and, in subsequent years, shelled the Pakistani supply lines in the Neelam Valley that were used to resupply the Pakistani troops that faced the Indian troops on the glacier. In the winter of 1998–99, Pakistan placed troops in the Kargil and Dras sectors of Kashmir from where they could put pressure on Highway 1A, India's main artery into northern Kashmir, thus cutting off Indian access to Siachen.[11]

The Indian army discovered the incursion in May 1999 and responded with an artillery and infantry assault on Pakistani positions. The IAF was brought in after a 20-day delay (which led to a subsequent heated debate in India on jointness in war fighting), and the IAF saw itself thrown into a very different type of limited war. The IAF was not permitted to cross the LOC to bomb Pakistani supply lines. At the same time, it faced a hostile combat environment that it was unprepared for. The high, snow-covered mountains made target acquisition difficult, and the Pakistani troops were well bunkered in and had been supplied with a range of shoulder-fired, surface-to-air weapons. The latter made it difficult to fly in at low levels and, given that the Pakistani troops were lodged at 14–18,000 feet, the slant range of the SAMs was as high as 30,000 feet.[12] Carrying out air opera-

tions, therefore, was fraught with difficulties. The IAF tried to improvise by using a GPS and a stopwatch to make its munitions drops accurately but eventually had to use precision-guided munitions (PGM) to successfully attack targets—however, according to one source, probably no more than a dozen PGMs were used.[13] It made the IAF recognize that it needed better electronic countermeasures as well as dedicated aircraft to take out such targets in a future conflict.

In 2001, following a terrorist attack on the Indian parliament, the government mobilized its troops on the India-Pakistan border in an attempt at coercive diplomacy.[14] Both sides eventually backed down, and there were claims that the Pakistani government had threatened the first use of nuclear weapons. In Pakistan's subsequent public declaration about its nuclear weapons doctrine, it has been argued that the Pakistan army would use nuclear weapons if there were a fear of being overrun by Indian troops.[15] This led to discussion in India of how to use airpower in the future without crossing the red lines that would trigger a Pakistani nuclear response.[16] The preferred course of action, it would seem, would be to develop airpower so that strikes could be carried out with pinpoint accuracy to fulfill limited objectives rather than precipitating a full-scale conflict. Along with the need to find new approaches to regional conflict situations has been the call for an air force that can play an extra-regional role.

With the growth of India's role and stature in international affairs, there has been the call to make the Indian military more capable of extra-regional power projection. The current chief of the Indian air force, Air Chief Marshal Fali Major, described the changed strategic parameters of the IAF as follows:

> The redrawn strategic boundaries of a resurgent India, therefore, extend from the Persian Gulf to the Straits of Malacca and from the Central Asian Republics to the Indian Ocean. The enlarged strategic dimensions necessitate not only a radical change in our strategic thinking but also accentuate the role of aerospace power in the new security arena.[17]

The future threat environment has, therefore, been described as one that encompasses a range of scenarios that includes:

> To summarise, in the geopolitical, geostrategic and security environment that is likely to prevail in the 2020s, the dictates of national security would place the following demands on armed forces of the nation:

- To be prepared for a prolonged and widespread multi-front border war with China with only a remote possibility of employment of nuclear weapons.
- To be prepared for a short and intense conflict with Pakistan with the real possibility of the first use of nuclear weapons by the adversary.
- To be prepared for simultaneous conflict with both the potential adversaries acting in collusion.
- To sustain the capability to fight a prolonged low intensity conflict in Kashmir and other sensitive regions of the country in the pursuit of internal security.
- To develop and maintain the capability for rapid strategic intervention and power projection in the region extending from the Straits of Malacca to Central Asia and the Gulf to safeguard and promote national interests.
- To play a dominant role in the management of disasters and natural calamity in the region of interest.[18]

The IAF has responded to this expanded mission by acquiring a fleet of aerial refueling tankers and getting a long-range combat aircraft in the Su-30. It has also purchased the Phalcon airborne early warning system from Israel and put it on Russian Il-78s. Additionally, the indigenous AEW system designed by the Defense Research and Development Organization is to be integrated with Embraer jets.[19]

The Indian navy, similarly, has been enhancing its maritime air capability. The 1990s saw the acquisition of the Bear reconnaissance aircraft, and more recently, the government has acquired the Russian aircraft carrier *Gorshkov* with a component of MiG-29K fighters.

Both the navy and the air force see themselves as projecting Indian power, given the challenges posed by maintaining the free flow of energy supplies, helping in humanitarian missions, and the need to tackle regional threats in the Indian Ocean. Additionally, the IAF sees itself taking on a two-front threat from China and Pakistan. In terms of conventional airpower, Pakistan is viewed as less of a problem, since India should be able to maintain air superiority in a future conflict.

Given the changing requirements of the Indian armed forces, there is a recognition that they require more versatile and better-quality weaponry to fulfill the changing missions that they will be tackling. What may facilitate the acquisition of such weaponry is India's changed political worldview—particularly its opening to the United States.

The Changed Environment

For two reasons, the Indian arms market has changed to provide more favorable conditions for the United States: an improved relationship with the United States and the "normalization" of the relationship with Russia. Since 2005 India has reshaped its relationship with the United States, with Washington very clearly making the decision to help India become a major power. The centerpiece of this proposal has become the India-US nuclear deal.

The other reason for a changed environment is the problems in the relationship with Russia. The collapse of the USSR first saw Moscow lose interest in the relationship with India and, at a practical level, there was a contraction in the spare parts available to sustain India's largely Soviet military arsenal.[20] The relationship was revived in the late 1990s (with Vladimir Putin's 2000 visit to India leading to about $3 billion in Russian arms sales) but it became a purely commercial one.[21] The Russians wanted payment in dollars and were unwilling to sell weapons at the friendship rates that were given in the Soviet era. Since then, India has purchased Su-30MKI fighters, Il-78 AWACS platforms, Mi-17 helicopters, Kilo-class submarines, T-90 tanks, and various types of missiles from Russia. India has also agreed to jointly develop a "fifth-generation fighter aircraft," the Sukhoi T-50 PAK-FA, with Russia although the degree to which India will actually participate in the development of the plane has been questioned.[22]

More recently, the relationship has run into some turbulence because of the delays in providing new weaponry to India, the fact that Russian weapons are not matching their stated standards, and hefty cost overruns, with the Russians playing hardball with their Indian counterparts. Thus, India recently refused to accept updated Kilo submarines because the Klub missile system that was added to it did not work properly.[23] Similarly, the Russians have told the Indian navy that they require an additional $1.2 billion to complete the refurbishment of the carrier *Gorshkov* (now renamed *Vikramaditya*).[24] This puts India over a barrel since it has bought the supporting air wing based on the configuration of the carrier. India's naval chief publicly complained that the Russians had used Indian money to modernize their shipyard facilities and, in doing so, were now able to attract new business and push the Indian carrier project onto the back burner.[25] Also, the India-Russia medium-range transport aircraft project has run into funding problems.

What the Russians have also been doing is essentially tying the availability of certain weapons systems to the purchase of others. Thus, one of the reasons for buying the *Gorshkov* was that the Russians would subsequently sweeten the pot by offering India strategic systems like the Akula-class submarines (reports now indicate that India will be leasing two Akula-class boats) and Tu-22 Backfire bombers (a deal subsequently scrapped).[26] Further, when deals fall through in one area, there have been repercussions in the purchase of other weapons. When India declined to purchase Russian nuclear reactors after coming close to inking the deal, Moscow retaliated by asking for price increases on a series of weapons programs that included the *Gorshkov* and the Su-30MKI fighters.[27]

One should stress, however, that this is not the end of the India-Russia military relationship in the way that the Egypt-Soviet Union relationship ended in the early 1970s. The Indian defense minister was quick to distance his government from the remarks of the Indian navy chief about the delays and price increase with the *Gorshkov* project. Further, the Indian government continues to be interested in oil exploration in Sakhalin, has entered into an agreement with Russia to develop a fifth-generation fighter aircraft, and retains plans for the possible joint development of a transport aircraft. What we are likely to see, therefore, is a continued link with Russia, but at the same time, India will move towards other suppliers to reduce the critical dependence on Moscow in some fields.[28] It is due to this factor that a market opportunity has arisen for the United States.

The United States possesses one other advantage, and that lies in the changing geostrategic calculations of India vis-à-vis the Asian security environment—specifically, the rise of China. Indian policy makers and military strategists face the same dilemma that most Asian countries now face: on the one hand they all reap huge economic benefits from the rise of China; alternatively, they are concerned about China's military and political forays.[29] India now has a nearly $40-billion bilateral trade relationship with China, and the goal is to expand it to $60 billion by 2010 (although one estimate puts it at about $75 billion by 2010).[30]

Moreover, several contentious issues remain between India and China. Beijing has not settled the border dispute with India, and more recently, the Indians have complained of increased border incursions by Chinese forces into Indian territory. Moreover, China has moved away from its previous position of not claiming areas with settled populations and has

laid claims to the Indian province of Tawang. Politically, as the Indian commentator M. D. Nalapat argues,

> While Beijing tries to woo New Delhi away from an embrace with Washington, the Chinese leadership has tried to ensure that India does not gain significantly from any China concession. The reality is that the relationship between India and China is more competitive than complementary. While China needs to overcome India's current advantage in computer software and in other fields of the knowledge economy, India will have to become a manufacturing platform that can rival China if the country is to ensure a high level of blue-collar employment.
>
> In short, both will ultimately poach on the other's turf as they are competing for the same markets and sources of technology. Thus, there is a limit to the distance China will go in seeking to convince New Delhi that it has morphed into a close friend. There will need to be much more atmospherics than substance [during a recent visit by India's prime minister to China], and the CCP leadership will be hoping that India takes such intangible "gains" or, as some Chinese experts call it, "sweet water."[31]

China remains opposed to India becoming a permanent member of the United Nations Security Council, and it continues to have a military relationship with Pakistan that in the past has led to the transfer of both nuclear and missile technology. India also remains concerned about the fact that China is "locking down" energy supplies around the world and that this will shut out New Delhi and adversely affect India's future economic development.[32] Given this future challenge, Indian analysts see a friendlier relationship with the United States and the prospects of a true strategic partnership as the way to balance the rise of China in Asia. Part of this growing strategic partnership lies in the procurement of weapons systems to have interoperability for possible joint missions in the future.

Requirements in the Indian Aviation Market

As India modernizes its airpower, it requires combat, transport, reconnaissance, and AEW aircraft. Additionally, it has a need for light- as well as heavy-lift helicopters that can reach high altitudes to service Indian troops in the Himalayas. Along with manned aircraft, India has a growing need for unmanned aerial vehicles to patrol its borders, carry out surveillance missions, and be used in counterinsurgency operations.

Much of the buzz around aviation sales in India centers on the proposed medium multirole combat aircraft (MMRCA) competition. The IAF initially planned to purchase 126 Mirage 2000 aircraft to phase out

its fleet of aging MiG-21s. Dassault subsequently cancelled production of the aircraft and upped the ante by suggesting that India buy the more expensive Rafale. Instead of single-sourcing the order, the Indian government decided to hold a competition for the procurement, and this led to bids by the manufacturers of the Swedish Gripen, the Typhoon Eurofighter, the MiG-35, the F-16, and the F-18.

This is a $9- to 10-billion deal, so it has assumed a high level of visibility in the Indian and international press; both Boeing and Lockheed are pressing hard to win the bid. As is the case with most Indian arms deals, and despite the proclamation of new procurement guidelines, the acquisition process has been marked by lengthy delays. Coupled with these delays have been the unique dynamics of Indian coalition politics.

Nominally speaking, India has had a national consensus on its foreign and national security policies. This consensus dictated that India pursue a policy of nonalignment, retain a nuclear weapons program, and seek autonomy in international affairs. In real terms the consensus has been broken by the narrow political interests and ambitions of the various political parties both within and outside the ruling coalition. The Indo-US nuclear deal was delayed because the different political parties in the ruling coalition could not agree as to whether the deal was in India's long-term interest. The various communist parties, who account for over 60 of the 545 seats in parliament and have supported the ruling Congress Party coalition from the outside, have ostensibly argued that the deal would not allow India to conduct further nuclear tests and this would impinge on its sovereignty. The communist parties' resistance has been attributed to a degree of anti-Americanism, the belief that the deal would not best serve India's energy interests, and to questions of sovereignty, although cynics observe that the communist parties have traditionally been opposed to the pursuit of an Indian nuclear weapons program.

In the opposition, the right-wing nationalist party—the Bharatiya Janata Party (BJP)—has also been opposed to the deal, even though the party has been traditionally viewed as pro-American. Again it seems narrow political calculations rather than a broader national interest may be prevailing in the decision-making process in this case. Coalitional politics, therefore, makes progress even slower than it normally would be in the Indian system.

India's checkered history of weapons procurement, with repeated charges of bribery and corruption, has also led governments to be cautious about

how to carry out the acquisition process.[33] The present government has sought to create a transparent acquisition process, but it seems to have shelved the acquisition of the MMRCA for the time being, since elections are due in early 2009. Thus the entire process will be carried over for about a year. The next government will then have to short-list three airplanes for flight tests—which could take another couple of years—and only then would a choice be made and negotiations begun. We may well see negotiations that stretch into a five-year process.

From the perspective of Lockheed, which is trying to sell the F-16, this could be problematic, since it would mean keeping a production line open for another 5–6 years in the hope that the Indians agree to the deal. It is also likely that by the time the Indian government reaches a decision, the F-35 production line will be opening up, in which case the argument may be made, why not offer the F-35 to the Indians? This may serve to be the win-win situation that both countries want to help further their broader relationship. It would cement the relationship with the Indians by offering a fifth-generation aircraft instead of the F-16, which the Indians see as dated and flown by Pakistan—which is viewed unfavorably in Indian circles. The F-35, on the other hand, would be viewed not only as a state-of-the-art fighter but would also suggest to New Delhi that India is valued as a serious friend and ally by Washington. It could also help New Delhi distance itself from Moscow, since it would lessen the dependence on Russia for advanced weapons systems. From an American perspective, the sale of what may eventually be between 100 and 200 F-35s would help cement the future of that program by reducing costs significantly. Additionally, the plane would be a better fit for the Indian navy—rather than the F-18 Super Hornet, the naval version of the Rafale, or the MiG-29K—which has already expressed an interest in the jump-jet version of the aircraft. The configuration of the new Indian aircraft carrier, the *Vikramaditya*, requires an aircraft that can take off vertically or using a ski jump and land using arrestor wires. This effectively rules out both the Rafale and F-18, which require a catapult launch. That leaves the MiG-29, which can be launched using the carrier's ski jump but is technologically a generation behind the Rafale and the Super Hornet and would not significantly add to the Indian navy's airpower capabilities.

UAVs

The Indian armed forces have learned from the use of UAVs and UCAVs in the war on terror as well as in counterinsurgency operations in Iraq. UAVs are an ideal tool for India, which faces several insurgencies, has a rugged border terrain, and covers large maritime areas of responsibility. Infiltration by jihadi elements continues from Pakistan across the LOC in Kashmir, and India requires the capability to monitor such intrusions. The growing Maoist insurgency within the country also requires security personnel to have better surveillance and monitoring capabilities. And there is the problem posed by the insurgencies in several of the northeastern states of India, where difficult terrain and soft borders with Bangladesh and Myanmar make reconnaissance and surveillance a problem. The cost of poor aerial surveillance became apparent following the Mumbai terror attacks of November 2008, as the terrorists were able to come in undetected by sea.

To date the Indian government has refused to use airpower internally, making the argument that insurgents are citizens of India, and therefore, aerial bombardment cannot be used against them. The fear of collateral damage has also made the government reluctant to carry out air strikes.[34] Indian analysts argue that the use of airpower would up the ante and lead insurgent groups to get more advanced weaponry, like antiair munitions. There is a belief, however, that airpower can be used in an unobtrusive manner to ensure security and that is by using UAVs to carry out surveillance and monitoring—UAVs have, in fact, been used for such purposes in India.[35]

India has its own UAV program, but it has had to import unmanned aircraft from Israel. In the future, it will require more-advanced UAVs to carry out missions both within the country and along the border. There have been several incidents along the border with Pakistan of both countries' aircraft straying across and violating the other's airspace. The political ramifications of shooting down a manned aircraft are serious, as in the case of the Pakistani Atlantique reconnaissance plane that was downed by India when it strayed over Indian airspace (Pakistan claimed the plane was shot over its own airspace). In such circumstances a UAV reduces some of the political tension that would result if a similar manned flight were brought down. Further, given that the Indian government needs 24/7 coverage of the LOC to prevent jihadi infiltration, an unmanned vehicle becomes the most effective and cost-saving way to conduct such a monitoring effort.

Further, the Indian army and the Indian navy are both calling for the development of their own air arms so that they can more effectively pursue their operations. The Indian army, in what looks like a turf battle with the IAF, is seeking to have an integral "tactical" air arm that includes UAVs, helicopters—both for transport and assault—and tactical fixed-wing transport aircraft. The army is arguing that it would have control over tactical systems and leave the strategic part of the war effort to the IAF. It is too early to say how this battle will be settled, but there is likely to be an Indian market for small UAVs the size of the Raven.

Helicopters

India has a requirement for light- and medium-lift helicopters, and in both areas, American firms are competitive. The Indian government overturned an IAF decision to acquire AS 550 Eurocopters and instead—following protests by Bell, which was trying to sell its own 407—asked that the competition be reopened. The IAF also would like to acquire 80 medium-lift helicopters as well as heavy-lift helicopters; the Boeing Chinook has been mentioned as a possible purchase. The army has stated as part of its attempts to acquire an organic air capability and the Indian government has issued a request for proposals to buy 22 combat helicopters—Boeing was asked to submit a proposal for the sale of the Apache AH-64 attack helicopter.[36]

India, therefore, is seeking to develop airpower to meet the challenges of a twenty-first-century battle environment as well as to project power extra-regionally. The Bush administration recognized India's aspirations and since 2005 has taken steps to help it develop into a world-class power. However, translating this commitment into a working relationship marked by large-scale arms sales is going to require a lot more time. Residual suspicions about American intentions are only one part of the problem. The lengthy nature of the Indian arms-procurement process, along with the problems created by coalitional politics in that country, make major arms sales a long and difficult process.

There is also the fact that competing nations can offer better terms of trade or inducements. Russia's ability to not only provide conventional weaponry but also extra-regional systems like the Akula subs—a comparable transfer of nuclear submarines would not be possible under US laws—places the United States at a disadvantage in the Indian market. On the other hand, both of India's major political parties—the Congress

and the BJP—are pro-American in their orientation; this is evident in the encouragement given to US firms to compete in the defense sector. Rival firms even complain that the United States is able to successfully pressure the Indian government to cancel competitions to afford US firms a better chance (this has been one of the allegations about the cancellation of the award of a helicopter deal to Eurocopter).[37]

The opportunity, therefore, exists to succeed in the Indian aerospace market and to work towards building a long-term strategic relationship with New Delhi. Arms sales will, however, be only a small part of this process, and failure to get lucrative projects like the MMRCA should not be viewed as setbacks to arms sales or to the long-term relationship. Instead, it should be understood that the Indian government will continue to push contracts in the direction of the United States while not shutting off traditional suppliers like Russia and the EU. One should most likely expect "Solomonesque" decisions, where the Indian government splits contracts and procures weapons systems from multiple suppliers. The other possibility is that the United States gets a series of smaller contracts to allow it to be a player in the Indian market and slowly increase Indian confidence in Washington as a reliable arms supplier. We may already be witnessing this trend, as India has agreed to purchase eight Boeing P-8I maritime reconnaissance aircraft.[38] If this is viewed as a long-term process, then there is a lucrative aerospace market for the United States to develop. SSQ

Notes

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