A Cold Start for Hot Wars?

The Indian Army's New Limited War Doctrine

Walter C. Ladwig III

The latent conflict between nuclear-armed rivals India and Pakistan makes continued strategic stability in South Asia uncertain. A breakdown of deterrence between the two countries would have serious consequences, including the potential use of nuclear weapons. Since 1999 there have been two military crises involving India and Pakistan that escalated to the point where outside actors felt the need to intervene to prevent the outbreak of war. A low-level, Pakistani-backed insurgency in Indian-controlled Kashmir adds to the tense relations between the two nations. Given the nuclear dimension involved, as well as India's increasingly prominent role in world affairs and Pakistan's domestic instability, strategic and military developments on the subcontinent are of great concern to the broader international community.

In response to the perceived inability of the Indian military to react to the December 2001 attack on the Parliament building in New Delhi by Pakistani-backed Kashmiri militants and the subsequent military standoff with Pakistan, known as Operation Parakram (Operation Victory), the Indian Army announced a new limited war doctrine in April 2004 that would allow it to mobilize quickly and undertake retaliatory attacks in response to specific challenges posed by Pakistan's "proxy war" in Kashmir. This Cold Start doctrine marked a break from the fundamentally defensive orientation that the Indian military has employed since independence in 1947. Requiring combined arms operating jointly with airpower from the Indian Air Force, Cold Start represents a significant undertaking for the Indian military. This study explores the Cold Start concept, including its potential impact on strategic stability in South Asia, and assesses the Indian military's progress toward implementing the new doctrine since its unveiling.

Limited war on the subcontinent poses a serious risk of escalation based on a number of factors that are not necessarily under the control of the policymakers or military leaders who would initiate the conflict. A history of misperception, poor intelligence, and India's awkward national security

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The author would like to thank Cara Abercrombie, Stephen Cohen, Andrew Erickson, Šumit Ganguly, Matthew Jenkinson, Ronald Kinser, Anit Mukherjee, Michael Sulmeyer, and Daniel Twining for their helpful comments and advice, as well as the organizers of the Summer Workshop on the Analysis of Military Operations and Strategy.

International Security, Vol. 32, No. 3 (Winter 2007/08), pp. 158–190
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decisionmaking system suggests that Cold Start could be a risky undertaking that may increase instability in South Asia. An assessment of recent war games as well as organizational developments within India's military suggests that, at present, Cold Start is still in the experimental phase—with significant organizational and resource barriers to its full implementation. Nevertheless, India's progress toward developing an operational Cold Start capability should be monitored. As the Indian Army enhances its ability to achieve a quick decision against Pakistan, political leaders in New Delhi may be more inclined to employ force in a future conflict—with potentially catastrophic results.

This article has four parts. The first section provides an overview of the Sundarji doctrine of massive conventional retaliation to Pakistani aggression, which India began to employ in the early 1980s, and explains the pressures for doctrinal change that emerged as a result of Operation Parakram. The second section outlines the significant features of the Cold Start doctrine. Section three discusses the implications of a Cold Start–style limited war doctrine for strategic stability in South Asia. Section four assesses India's progress toward implementing Cold Start by focusing on three areas: infrastructure development, organizational changes within the military, and operational capability as demonstrated through recent war games. In addition, it offers several conclusions about the state of India's progress toward operationalizing Cold Start.

The Sundarji Doctrine and Operation Parakram

Since independence, India's military posture had been fundamentally defensive.[1] Former Defense Minister George Fernandes described it as "a non-aggressive, non-provocative defense policy based on the philosophy of defensive defense."[2] Under the so-called Sundarji doctrine, pursued by India between 1981 and 2004, seven defensive "holding corps" of the Indian Army were deployed near the border region with Pakistan.[3] The units consisted of

1. This is not to imply that the Indian military has been employed only defensively, but rather that its training and organizational outlook has traditionally favored defensive operations.
2. George Fernandes, "The Dynamics of Limited War," *Strategic Affairs,* Vol. 7 (October 16, 2000), http://www.stratmag.com/issueOct-15/page07.htm.
3. Pakistani Air Comdr. Tariq M. Ashraf terms the conventional military strategy pursued by India between 1981 and 2004 the Sundarji doctrine (after Gen. Krishnaswamy Sundarrajan) in Ashraf, "Doctrinal Reawakening of the Indian Armed Forces," *Military Review,* Vol. 84, No. 6 (November–December 2004), p. 54. General Sundarrajan's overhaul of the Indian Army's conventional doctrine in the 1980s is mentioned in Amit Gupta, "Determining India's Force Structure and Military Doctrine: I Want My MiG," *Asian Survey,* Vol. 35, No. 5 (May 1995), pp. 449–450.

infantry divisions for static defense, mobile mechanized divisions that could respond to enemy penetrations, and a small number of armored units.[4] Although possessing limited offensive power, as their name implies, the holding corps' primary role during a war was to check an enemy advance.

India's offensive power consisted of three "strike corps," each of which was built around an armored division with mechanized infantry and extensive artillery support.[5] Unlike the holding corps that were deployed close to the border, the strike corps were based in central India (I Corps in Mathura, II Corps in Ambala, and XXI Corps in Bhopal), a significant distance from the international border. In a war, after the holding corps had halted a Pakistani attack, the strike corps would counterattack in the Rajasthan sector and penetrate deep into Pakistani territory to destroy the Pakistan Army's own two strike corps (known as Army Reserve North and Army Reserve South) through "deep sledgehammer blows" in a high-intensity battle of attrition.[6] The strike corps would operate under the protection of the Indian Air Force, which would be expected to first gain air superiority over Pakistan and then provide close air support to ground operations.

The limitations of this war-fighting doctrine were exposed in Operation Parakram.[7] On December 13, 2001, five gunmen wearing military fatigues attacked the Indian Parliament building in New Delhi. In the ensuing hourlong gun battle, twelve people were killed, including all five of the gunmen, and twenty-two were injured.[8] Although no group immediately took responsibility for the attack, suspicion quickly turned to Kashmiri militants because two months earlier a similar assault had been carried out by the Jaish-e-Mohammad (Army of Mohammad) on the Kashmir state assembly building in which thirty-eight people were killed.[9] After the Kashmir attack, the Indian government warned the United States that if it did not use its influence with Islamabad to convince Pervez Musharraf's government to rein in Pakistan's support for militant groups such as Lashkar-e-Taiyyaba and Jaish-e-

4. V.R. Raghavan, "Limited War and Nuclear Escalation in South Asia," *Nonproliferation Review,* Vol. 8, No. 3 (Fall/Winter 2001), p. 8.
5. Ibid.
6. Pravin Sawhney and V.K. Sood, *Operation Parakram: The War Unfinished* (New Delhi: Sage, 2003), p. 81.
7. For a detailed account of Operation Parakram, see ibid., from which much of this section is drawn.
8. "Indian Parliament Attack Kills 12," *BBC News,* December 13, 2001, http://news.bbc.co.uk/2/hi/south_asia/1707865.stm.
9. "Militants Attack Kashmir Assembly," *BBC News,* October, 1, 2001, http://news.bbc.co.uk/1/hi/world/south_asia/1574225.stm.

Mohammad, India might be compelled to take action to force Pakistan to stop allowing militants to cross the Line of Control into Kashmir.[10]

As credible reports began to link the gunmen who attacked the Parliament to Pakistani-backed militant groups, India itself attempted to compel Pakistan to ban the Lashkar-e-Taiyyaba and Jaish-e-Mohammad, extradite twenty named individuals accused of terrorism in India, and prevent militants from crossing the Line of Control.[11] On December 18, the government mobilized for war by launching Operation Parakram, the largest activation of Indian forces since the 1971 Bangladesh war. Although uncertainty still surrounds the actual objectives of Operation Parakram, at a minimum, India clearly intended to signal to Pakistan that, nuclear weapons or not, it was willing to go to war to end Pakistani support for militants in Kashmir.[12] Unfortunately for India's efforts, the decisiveness of its message was undercut by the inability of the Indian Army to present a timely threat to Pakistan.

From the time the mobilization order was given, the armored columns of the strike corps took nearly three weeks to make their way to the international border area. In this intervening period, the Pakistan Army was able to countermobilize on the border, and more important, Western powers became increasingly concerned by the extent of India's military mobilization. Although initially sympathetic to India in the wake of the December 13 attack, the United States, which was conducting military operations in Afghanistan from support bases in Pakistan, was troubled by New Delhi's increasing forcefulness. This concern translated into U.S. involvement in the escalating conflict as an intermediary, counseling restraint on both sides of the border. The U.S. ambassador to India, Robert Blackwill, urged the Indian government to refrain from military action until President Musharraf delivered his "about turn" speech on January 12, 2002, where in a nationwide address he denounced terrorism in the name of Kashmir and pledged a renewed crackdown on militant

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10. There is a strong belief among Indian strategists that Pakistan has the ability to control the militant groups in Kashmir. For supporting evidence, see C. Christine Fair, "Militant Recruitment in Pakistan: Implications for Al Qaeda and Other Organizations," *Studies in Conflict and Terrorism,* Vol. 27, No. 6 (November 2004), pp. 489–504.

11. India also suspended transportation links to Pakistan, reduced the size of its diplomatic mission, and threatened to abrogate the 1960 Indus River treaty. Gaurav Kampani, "Placing the Indo-Pakistani Standoff in Perspective," CNS Web Report (Monterey, Calif.: Monterey Institute of International Studies, April 8, 2002), p. 10, http://cns.miis.edu/pubs/reports/pdfs/indopak.pdf.

12. As Pravin Sawhney and V.K. Sood note, "Operation Parakram was ordered without giving any political direction to the armed forces about the target to be achieved." How the mobilized army was to achieve India's demands was similarly unspecified. Sawhney and Sood, *Operation Parakram,* p. 73.

groups in Pakistan.[13] As a result of Musharraf's declaration, by the time the strike corps reached the border region, India's political justification for military action had been significantly reduced. Although tensions remained high over the coming months, and war still appeared likely in the early summer of 2002, Operation Parakram quickly lost momentum. The result was a ten-month standoff that ended with India's quiet withdrawal rather than a military clash. Musharraf's public statements aside, India had failed to achieve an end to Pakistani support for terrorism within India. This failure was made clear in the years following Operation Parakram as the death toll from terrorist attacks in Kashmir continued to rise.[14]

The Indian Army's postmortem analyses of Operation Parakram sought to understand why India had been unable to achieve significant political aims through its military deployment.[15] Part of the blame fell to the Indian political leadership, which failed to define any strategic objectives for the mobilization, making it impossible to define victory or defeat for the operation.[16] Defense analysts, however, pointed to the long delay between the mobilization order and the actual deployment of the strike corps as a key window that allowed Pakistan to appeal to its allies, particularly the United States, to intervene before India could bring military force to bear. It has also been argued that the delay created enough of a gap between mobilization and commencement of military operations for India's political leadership to lose its nerve. Such weakened resolve could have subsequently been responsible for India's decision to back down in the face of international pressure.[17]

Regardless of the cause of Operation Parakram's failure, strategic thinkers within India's defense establishment came to acknowledge serious flaws with the Sundarji doctrine. A war-fighting strategy that called for massive armored thrusts to dismember Pakistan, they argued, was too crude and inflexible a tool to respond to terrorist attacks and other indirect challenges.[18] Further-

13. "Musharraf Speech Highlights," *BBC News,* January 12, 2002, http://news.bbc.co.uk/2/hi/south_asia/1757251.stm.
14. Šumit Ganguly and Michael R. Kraig, "The 2001–2002 Indo-Pakistani Crisis: Exposing the Limits of Coercive Diplomacy," *Security Studies,* Vol. 14, No. 2 (April–June 2005), p. 307. For an external assessment that suggests India gained its political objectives in Operation Parakram, see Alexander Evans, "India Flexes Its Muscles," *Foreign Policy,* No. 130 (May–June 2002), pp. 94–96.
15. India's political leaders generally believed that Operation Parakram achieved some positive results by pressuring Washington and Islamabad to take action against Islamic militant groups based in Pakistan; this view is not necessarily held by the Indian Army's leadership, however.
16. Sawhney and Sood, *Operation Parakram,* p. 73.
17. Subhash Kapila, "Indian Army's New 'Cold Start' War Doctrine Strategically Reviewed," No. 991 (Noida, India: South Asia Analysis Group, May 4, 2004), http://www.saag.org/papers10/paper991.html.
18. Y.I. Patel, "Dig Vijay to Divya Astra: A Paradigm Shift in the Indian Army's Doctrine," *Bharat*

more, mobilizing the entire military was not an appropriate policy to pursue limited aims. A new approach was needed to meet contemporary security challenges, including the capability to respond promptly to contingencies requiring military force.

Three failings were identified with the performance of the Sundarji doctrine in Operation Parakram. First, the enormous size of the strike corps made them difficult to deploy and maneuver. By the time the strike corps had reached their forward concentration areas, President Musharraf had given his "about turn" speech, and the United States was putting significant pressure on India to restrain its response. In the eyes of many senior Indian officers, Pakistan had outplayed them. It had managed to inflict a high-profile attack on the Indian capital via its proxies and then exploited the Indian Army's long deployment time to internationalize the crisis in a manner that allowed Pakistan to escape retribution.[19] Even those in the Indian government who claim that Operation Parakram was never intended to be anything more than an exercise in coercive diplomacy had to be disappointed in the long delay between policy decisions and military action.

A second perceived flaw with the performance of the strike corps was their lack of strategic surprise. Pakistan had its intelligence agencies focused on the three strike corps, so that any action on their part would be quickly noticed—particularly given their large, lumbering composition. Furthermore, once the strike corps mobilized, their progress and destination could be easily deduced by Pakistani forces, which could move to counter any intended attack.

Finally, the holding corps' lack of offensive power was a cause for concern. These units were forward deployed in the border regions, yet could carry out only limited offensive tasks. In the eyes of Indian Army strategists, the total dependence on the strike corps for offensive power hindered India's rapid response to the December 13 attacks.

Cold Start

To correct the perceived deficiencies in India's conventional war-fighting doctrine, the chief of army staff unveiled the new Cold Start concept in April 2004.

Rakshak Monitor, Vol. 6, No. 6 (May–July 2004), http://www.bharat-rakshak.com/MONITOR/ISSUE6-6/patel.html.

19. Pakistan's perceived conventional inferiority has led it to adopt strategies that would encourage foreign intervention in future conflicts on the subcontinent and would allow it to avoid military defeat at the hands of India. Islamabad appears to believe that objectives it is unable to gain on the battlefield can be achieved in postconflict negotiations with New Delhi.

The goal of this limited war doctrine is to establish the capacity to launch a retaliatory conventional strike against Pakistan that would inflict significant harm on the Pakistan Army before the international community could intercede, and at the same time, pursue narrow enough aims to deny Islamabad a justification to escalate the clash to the nuclear level.[20]

Cold Start seeks to leverage India's modest superiority in conventional forces to respond to Pakistan's continued provocation.[21] This doctrine requires reorganizing the Indian Army's offensive power away from the three large strike corps into eight smaller division-sized "integrated battle groups" (IBGs) that combine mechanized infantry, artillery, and armor in a manner reminiscent of the Soviet Union's operational maneuver groups.[22] The eight battle groups would be prepared to launch multiple strikes into Pakistan along different axes of advance. It is envisioned that the operations of the IBGs would be integrated with close air support from the Indian Air Force and naval avia-

20. For a representative view, see the comments made by a senior Indian officer ahead of the April–May 2007 Ashwamedh war game, "Army's Wargames to Test Reflexes against Nuke, Bio Attacks," *Times of India,* April 6, 2007. This is not to deny that interservice politics played a role in the advancement of the Cold Start concept. The army is seeking to refocus attention on what it considers to be real war fighting as it increasingly finds itself drawn into internal security missions in Kashmir, Assam, and Punjab. It also is attempting to justify an increased share of the defense budget for its own modernization programs vis-à-vis the navy and air force. The author thanks Ronald Kinser for raising this point.

21. Christopher Langton, ed., *The Military Balance, 2006* (London: Routledge, for the International Institute for Strategic Studies, 2006), pp. 230–240. There is significant disagreement as to whether India possesses sufficient conventional superiority over Pakistan to warrant discussion of a limited war strategy. See, for example, Khurshid Khan, "Limited War under the Nuclear Umbrella and Its Implications for South Asia" (Washington, D.C.: Henry L. Stimson Center, May 2005), p. 21. Some analysts point to the conventional wisdom of a 3:1 superiority in offensive strength at the tactical level as a requirement for successful breakthrough operations and note that India's deployed forces in the West achieve only parity with their Pakistani counterparts. Arzan Tarapore, "Holocaust or Hollow Victory: Limited War in Nuclear South Asia," IPCS Research Papers, No. 6 (New Delhi: Institute of Peace and Conflict Studies, February 2005), p. 16. Others suggest that a 1.5:1 superiority in forces at the theatre level, which India possesses, would "guarantee" an advantage in combat power ranging from 5:1 to 6:1 "on 3 or 4 decisive strike axes." Kim R. Holmes, "Measuring the Conventional Balance in Europe," *International Security,* Vol. 12, No. 4 (Spring 1988), p. 166. As Stephen Biddle has noted, however, "Even outnumbered invaders can create a large local advantage on a chosen frontage" by differentially concentrating forces against a small section of the battle line and deploying fewer troops elsewhere. Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton, N.J.: Princeton University Press, 2006), p. 40. Some experts have argued that Pakistani forces are qualitatively superior to the Indians, which could make up for their numerical inferiority. "Pakistan Has Quality Army, India Has Quantity, Say Experts," Agence France-Presse, May 22, 2002. Yet other observers believe that when quality and sophistication of weapons systems are taken into account, India's relative superiority in military forces is increased. John E. Peters, James Dickens, Derek Eaton, C. Christine Fair, Nina Hachigan, Theodore W. Karasik, Rollie Lal, Rachel M. Swanger, Gregory F. Treverton, and Charles Wolf Jr., *War and Escalation in South Asia* (Santa Monica, Calif.: RAND, 2006), pp. 36–37.

22. Patel, "Dig Vijay to Divya Astra."

tion assets to provide highly mobile fire support. As one retired Indian general described, India is seeking to "mass firepower rather than forces."[23] At the same time, the holding corps (redesignated "pivot corps"), which would be bolstered by additional armor and artillery, would concurrently man defensive positions and undertake limited offensive operations as necessary. All elements would engage in continuous operations, day and night, until their military objectives were achieved.[24]

Rather than seek to deliver a catastrophic blow to Pakistan (i.e., cutting the country in two), the goal of Indian military operations would be to make shallow territorial gains, 50–80 kilometers deep, that could be used in postconflict negotiations to extract concessions from Islamabad. Some commentators have emphasized the ability to quickly mass ground and air firepower to deliver a punishing blow to the Pakistan Army, perceived to be the source of much of Pakistan's aggressive foreign policy, while not harming civilian centers.[25]

Although the operational details of Cold Start remain classified, it appears that the goal would be to have three to five IBGs entering Pakistani territory within seventy-two to ninety-six hours from the time the order to mobilize is issued.[26] As one Indian analyst argues, "[The IBGs] should be launching their break-in operations and crossing the 'start line' even as the holding (defensive) divisions are completing their deployment on the forward obstacles. Only such simultaneity of operations will unhinge the enemy, break his cohesion, and paralyze him into making mistakes from which he will not be able to recover."[27]

A major emphasis of Cold Start is on the speed of both deployment and operations. By moving forces into unpredicted locations at high speeds and mak-

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23. Gurmeet Kanwal, "Strike Fast and Hard: Army Doctrine Undergoes Change in the Nuclear Era," *Tribune* (Chandigarh), June 23, 2006.

24. Although there are some apparent similarities between the limited incursions envisioned under Cold Start and the Egyptian strategy in the Yom Kippur War, the approaches are actually quite different. The Egyptians sought to seize territory quickly and then move to a defensive posture to force the Israelis to assault fixed defensive positions. In contrast, Cold Start seeks to employ both firepower and maneuver to disrupt and defeat opposing forces in the field through offensive operations. Contrast the discussion of Cold Start in this article with Nadav Safran, "Trial by Ordeal: The Yom Kippur War, October 1973," *International Security,* Vol. 2, No. 2 (Fall 1977), pp. 133–170.

25. Firdaus Ahmed, "The Calculus of 'Cold Start,'" *India Together,* May 2004, http://www.indiatogether.org/2004/may/fah-coldstart.htm.

26. The majority of the Pakistan Army is based near the international border region and can mobilize to its wartime positions within seventy-two hours. S. Paul Kapur, "India and Pakistan's Unstable Peace: Why Nuclear South Asia Is Not Like Cold War Europe," *International Security,* Vol. 30, No. 2 (Fall 2005), pp. 138–139.

27. Gurmeet Kanwal, "Cold Start and Battle Groups for Offensive Operations," *ORF Strategic Trends,* Vol. 4, No. 18 (June 2006), http://www.observerindia.com/cms/sites/orfonline/modules/strategictrend/StrategicTrendDetail.html?cmaid?1504&mmacmaid?1505.

ing decisions faster than their opponents can, the IBGs would seek to defeat Pakistani forces in the field by disrupting their cohesion. The Indian Army would also seek to take advantage of surprise at both the strategic and the operational levels to achieve a decision before outside powers such as the United States and China could intervene on Pakistan's behalf. Analysts in both India and Pakistan presume that the international community would intervene and force an end to hostilities within two to three weeks of a war between the two countries—although in reality, neither side has the logistical capability to sustain a longer conflict.[28] There also appears to be an unspoken assumption that rapid operations would prevent India's civilian leadership from halting military operations in progress, lest it has second thoughts or possesses insufficient resolve.[29]

The perceived advantages of the Cold Start doctrine over its predecessor are fivefold. First, forward-deployed division-sized units can be alerted faster and mobilized more quickly than larger formations.[30] If the battle groups and the pivot corps start closer to the international border, their logistics requirements are significantly reduced, enhancing their maneuverability and their ability to surprise. Second, even though division-sized formations can "bite and hold" territory, they lack the power to deliver a knockout blow. In the minds of Indian military planners, this denies Pakistan the "regime survival" justification for employing nuclear weapons in response to India's conventional attack. Furthermore, under Cold Start, the Indian Army can undertake a range of responses to a given provocation rather than the all-or-nothing approach of the Sundarji doctrine. Third, multiple divisions, operating independently, have the potential to disrupt or incapacitate the Pakistani leadership's decisionmaking cycle, as happened to the French high command in the face of the German blitzkrieg of 1940.[31] Indian planners believe that when faced with offensive thrusts in as many as eight different sectors, the Pakistani military would be

28. This is also in line with historical experience. The 1965 war lasted sixteen days, whereas the 1971 war was thirteen days long. Ashley J. Tellis, *Stability in South Asia* (Santa Monica, Calif.: RAND, 1997), p. 13.
29. Subhash Kapila, "Indian Army's New 'Cold Start' War Doctrine Strategically Reviewed—Part II (Additional Imperatives)," No. 1013 (Noida, India: South Asia Analysis Group, June 1, 2004), http://www.saag.org/papers11/paper1013.html.
30. In a short-duration conflict, India would be hard-pressed to leverage the numerical superiority of its conventional forces to achieve a decisive outcome. As a result, increased emphasis is put on rapid mobilization of forces in an effort to quickly achieve victory.
31. Highly mobile panzer units drove deep into French territory along multiple lines of advance, bypassing defenses and strong points. The presence of German troops behind French lines disrupted the French command and control systems. Although the French still possessed numerous troops in the field, the French high command was paralyzed and unable to respond to the quickly changing events on the ground—the result of which was France's catastrophic defeat and occupa-

hard-pressed to determine where to concentrate its forces and which lines of advance to oppose. Fourth, having eight (rather than three) units capable of offensive action significantly increases the challenge for Pakistani intelligence's limited reconnaissance assets to monitor the status of all the IBGs, improving the chance of achieving surprise. In a limited war, India's overall goals would be less predictable than in a total war, where the intent would almost certainly be to destroy Pakistan as a state. As a result, Pakistan's defense against Indian attacks would be more difficult because the military objectives would be less obvious. Finally, if Pakistan were to use nuclear weapons against Indian forces, divisions would present a significantly smaller target than would corps.[32]

As the Indian military enhances its ability to implement Cold Start, it is simultaneously degrading the chance that diplomacy could diffuse a crisis on the subcontinent. During Operation Parakram, the three-week delay for strike corps mobilization provided enough time for the United States and other international actors to mediate the conflict. This is, of course, what Cold Start is intended to avoid. In a future emergency, the international community may find integrated battle groups on the road to Lahore before anyone in Washington, Brussels, or Beijing has the chance to act.[33] The next section explores some of the additional implications of Cold Start for regional stability, particularly the potential risks of conflict escalation.

Implications of Cold Start for South Asian Stability

In contrast to the Cold War, where the low risk that conventional conflict between the superpowers would escalate to the nuclear level actually facilitated low-level conflict in the periphery, scholars who study the South Asian nuclear balance have argued that if a limited clash between India and Pakistan were to expand into a full-scale conventional war, escalation to the nuclear level would likely result.[34] Nevertheless, some Indian strategic planners believe that India could fight a limited conventional war against Pakistan without allowing the

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tion. John R. Boyd, *Patterns of Conflict*, ed. Chuck Spinney and Chet Richards (Atlanta: DNI, September 2006), pp. 69–89.

32. The dispersed operations by highly mobile units envisioned by Cold Start are the kind that would be required on a nuclear battlefield.

33. For explicit discussions of the desire to achieve a decision before international interference brings a conflict to a close, see John H. Gill, "India and Pakistan: A Shift in the Military Calculus?" in Ashley J. Tellis and Michael Wills, eds., *Strategic Asia, 2005–06: Military Modernization in an Era of Uncertainty* (Seattle, Wash.: National Bureau of Asian Research, 2005), p. 253; and Peters et al., *War and Escalation in South Asia*, p. 30.

34. Kapur, "India and Pakistan's Unstable Peace," pp. 127–130.

conflict to escalate to the nuclear level.[35] For example, former Chief of Army Staff Gen. V.P. Malik has publicly argued that "space exists between proxy war/low-intensity conflict and a nuclear umbrella within which a limited conventional war is a distinct possibility."[36] Although the concept of limited war has its antecedents in the nineteenth century, its modern conception came about during the Cold War, when the U.S.-Soviet nuclear standoff made the use of total force or the goal of total victory impossible in a clash between the two superpowers. Robert Osgood has defined "limited war" as one "fought for ends far short of the complete subordination of one state's will to another's, using means that involve far less than the total military resources of the belligerents and leave the civilian life and the armed forces of the belligerents largely intact."[37]

Can India undertake limited conventional operations against Pakistan without triggering a nuclear response? Although the exact conditions under which Pakistan would use its nuclear weapons remain ambiguous, it has not ruled out employing them in response to a conventional attack. The clearest articulation of Pakistan's "red lines" comes from Lt. Gen. Khalid Kidwai, who, while head of the Strategic Plans Division, outlined the general conditions under which nuclear weapons could be used: India attacks Pakistan and conquers a large part of its territory; India destroys a large part of Pakistan's land or air forces; India blockades Pakistan in an effort to strangle it economically; or India pushes Pakistan into a state of political destabilization or creates large-scale internal subversion in the country.[38]

It is a well-worn military axiom that no plan survives contact with the en-

35. For representative views, see Suba Chandran, "Limited War with Pakistan: Will It Secure India's Interests?" ACDIS Occasional Paper (Urbana-Champaign: Program in Arms Control, Disarmament, and International Security, University of Illinois, August 2004), p. 48; and K. Subrahmanyam, "Indo-Pak Nuclear Conflict Unlikely," *Times of India*, January 2, 2002. For a contrary view by a former Indian director-general of military operations, see Atul Aneja, "Limited War between India, Pak Can Lead to Nuclear Conflict," *Hindu*, March 26, 2002.
36. V.P. Malik, "Strategic Stability in South Asia," panel discussion, Center for Contemporary Conflict, Monterey, California, June 29–July 1, 2004. A Pakistani general officer concurs that limited war is possible. See Ashraf, "Doctrinal Reawakening of the Indian Armed Forces," p. 54.
37. Robert E. Osgood, *Limited War Revisited* (Boulder, Colo.: Westview, 1979), p. 3.
38. Paolo Cotta-Ramusino and Maurizio Martellini, "Nuclear Safety, Nuclear Stability, and Nuclear Strategy in Pakistan: A Concise Report of a Visit by Landau Network-Centro-Volta" (Como, Italy: Landau Network, January 2001), p. 5. For subsequent discussion of Pakistan's nuclear program, sanctioned by the Pakistani government, that attempted to create more ambiguity about the conditions under which Pakistan would employ nuclear weapons, see Mahmud Ali Durrani, "Pakistan's Strategic Thinking and the Role of Nuclear Weapons," Cooperative Monitoring Center Occasional Paper, No. 37 (Albuquerque, N.M.: Sandia National Laboratories, July 2004), pp. 1–54.

emy. Cold Start is an example of creative military problem solving in response to Pakistan's support for terrorism and stated rejection of a no-first-use nuclear doctrine. By moving away from the Sundarji doctrine, the Indian Army believes that it is developing the ability to respond to a Pakistani proxy war with conventional force, while remaining below the nuclear threshold. This development has significant implications for stability on the subcontinent, however. Analysts such as Ashley Tellis have argued that the cornerstone of the "ugly stability" that has persisted between India and Pakistan is a product of the incapacity of either side to gain its political objectives through conventional war.[39] Pakistan charges that India is deliberately creating a risky environment in South Asia by engaging in a conventional military buildup that reduces Pakistan's relative security.[40] Furthermore, there is every reason to expect that Pakistan will make its own innovations in response to Cold Start. As India enhances its ability to achieve a quick military decision against its neighbor in a future conflict, Pakistan will come under increasing pressure to rely on its nuclear arsenal for self-defense. An operational Cold Start capability could lead Pakistan to lower its nuclear red line, put its nuclear weapons on a higher state of readiness, develop tactical nuclear weapons, or undertake some equally destabilizing course of action.[41]

The fundamental concern about any limited war strategy in South Asia is that a conflict begun for limited aims escalates into a much bigger conflagration. Morton Halperin has identified two ways that a limited war can escalate into a larger conflict: deliberately and inadvertently.[42] A side that is losing a limited war could choose to escalate the conflict to avoid defeat. Alternatively,

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39. Tellis, *Stability in South Asia,* p. 5.
40. Indian efforts to enhance its conventional superiority are interpreted in Pakistan as evidence of a desire to "undo" the partition of British India and eliminate Pakistan as an entity. Shaun Gregory and Maria Sultan, "Towards Strategic Stability in South Asia," *Contemporary South Asia*, Vol. 14, No. 2 (June 2005), p. 136; and Stephen P. Cohen, "South Asia," in Richard J. Ellings and Aaron L. Friedberg, eds., *Strategic Asia, 2002–03: Asian Aftershocks* (Seattle, Wash.: National Bureau of Asian Research, 2002), p. 279.
41. It has been suggested that Pakistan's nuclear escalation ladder has only "one rung." Shireen M. Mazari, "Nature of Future Pakistan-India Wars," *Strategic Studies* (Islamabad), Vol. 22, No. 2 (Summer 2002), pp. 1–8. The Pakistan Army's preferred response to the use of Cold Start is an aggressive counterattack into Indian territory that bypasses the advancing IBGs. Islamabad is also likely to activate terrorist cells within India in response to a conventional attack. The author thanks Stephen Cohen and Daniel Twining, respectively, for clarifying these two points.
42. Morton H. Halperin, *Limited War in the Nuclear Age* (New York: John Wiley, 1963), p. 11. For a valuable discussion of the risks of inadvertent escalation in the context of a limited conflict between NATO and the Warsaw Pact that references several of the historical episodes discussed below, see Barry R. Posen, "Inadvertent Nuclear War? Escalation and NATO's Northern Flank," *International Security,* Vol. 7, No. 2 (Fall 1982), pp. 28–54.

the course of a conflict could be overtaken by events that could cause it to move beyond the control or intended scope of the policymakers who initiated it. As a result, waging limited war can pose a number of challenges to political leaders attempting to achieve their aims through the use of force. In particular, a limited war strategy poses four challenges for India: the challenge of setting political objectives, the challenge of Pakistani misperception, the challenge of agency, and the challenge of geography.

POLITICAL OBJECTIVES: SETTING CLEAR GOALS FOR LIMITED WAR

The first challenge for policymakers contemplating limited war is to craft a strategy and related objectives that are achievable by the use of military force yet sufficiently restrained to ensure that the conflict does not escalate to the nuclear threshold. Clear policy objectives are of utmost importance in limited wars because policymakers must overcome both internal and external pressures to expand the scope of a conflict. Wars have a way of taking on a life of their own: once lives have been lost, money has been spent, and territory has changed hands, leaders could face tremendous pressure to expand the scope or objectives of a conflict. In theory, clearly defined strategic objectives with a properly developed correlation between means and ends could be an effective way to prevent the escalation of a conflict. In practice, the selection of ways and means to conduct a limited campaign is challenging for a national security bureaucracy such as India's, which is characterized by a high degree of disconnection between civil and military authorities.[43] The principle of civilian supremacy is firmly entrenched in India. Yet in peacetime, the country's elected leadership is often disengaged from security matters and provides the military with only vague planning guidance.[44] Within India's defense community, civilian bureaucrats at the Ministry of Defense dominate decisionmaking, while the uniformed military is largely excluded from the security policymaking process. The impact of this disconnect between politicians and the military is apparent when evaluating Operation Parakram, which lacked clear objectives and terminated with inconclusive results. This raises questions as to the ability of India's civilian leaders to set the kind of concrete objectives and associated

43. A number of observers have identified significant flaws in India's defense management system. See, for example, Vijay Oberoi, "Air Power and Joint Operations: Doctrinal and Organisational Challenges," *USI Journal*, Vol. 133, No. 1 (January–March 2003), pp. 3–22; and Ayesha Ray, "Civil-Military Relations in India: Questions and Concerns," *ORF Issue Brief*, Vol. 1, No. 6 (September 2004), pp. 4–6.
44. India does not publish a national security strategy, and subsequently, the armed forces have little on which to base a national military strategy.

military tasks that would be necessary to engage in limited warfare between two nuclear powers.

At present, it is not necessarily clear where a Cold Start–style limited military operation would be directed: against jihadi training camps in Kashmir or their support bases in Punjab and Sindh? In pursuit of militants crossing the Line of Control? Against vulnerable parts of Pakistan as part of a response to a terrorist attack within India? There appears to be an assumption behind the Cold Start doctrine that punishment inflicted by limited conventional strikes can persuade Pakistan to halt its support for Kashmiri militants.[45] Yet whether this level of punishment can be inflicted without crossing Pakistan's nuclear threshold remains uncertain.

The available evidence indicates that the Indian Army developed Cold Start with minimal guidance from the country's political leadership. As Stephen Cohen notes, politicians dislike the move toward a limited war doctrine because it gives the military "more of a role in decision-making."[46] India's civilian leaders are unlikely to substantially engage with Cold Start until forced to by a future crisis. In that situation, integrating these disconnected military means with political ends to achieve limited aims in a nuclear environment would not be an easy task.

MISPERCEPTION: CONFRONTING THE FOG OF WAR

The second challenge to defining a strategy for limited war such as Cold Start is posed by Pakistan's perception of the military operations. Carl von Clausewitz cautioned that war is a reciprocal engagement: "In war, the will is directed at an animate object that reacts."[47] The enemy's capabilities, intentions, and perceptions must be accounted for in any war plan. Political-military objectives considered limited in New Delhi are unlikely to be viewed identically in Islamabad, nor are the incentives to prevent escalation the same in both capitals. This logic is recognized within certain circles of the Indian government. As an External Affairs Ministry official has noted, "The idea that

45. The concept of deterrence by punishment is explored in Glenn H. Snyder, *Deterrence and Defense: Toward a Theory of National Security* (Princeton, N.J.: Princeton University Press, 1961), pp. 9–16. The author thanks Šumit Ganguly for pointing this out. For a discussion of why punishment is unlikely to change Pakistani behavior, see Ganguly and Kraig, "The 2001–2002 Indo-Pakistani Crisis," pp. 316–317. Another scenario that the Indian Army has not explicitly discussed would be for IBGs to be sent into Pakistani territory in response to internal disorder in Pakistan, as happened in 1971.

46. Cohen, "South Asia," p. 293.

47. Carl von Clausewitz, *On War,* trans. Michael Howard and Peter Paret (Princeton, N.J.: Princeton University Press, 1984), p. 149.

Pakistan will cooperate in a conflict and comply with India's wishes to fight a limited war is ridiculous. It will be naturally in [Pakistan's] interest to keep any conflagration as unlimited as possible."[48]

Indian military planners may not have considered how threatening Cold Start offensive operations could appear to an opponent. The intent to pursue limited objectives may not be clearly perceived by the other side. Given the Pakistan Army's doctrine of "offensive defense," which seeks to respond to an Indian attack with aggressive counterattacks on Indian territory, Pakistan could react to Cold Start in a manner that Indian leaders view as "disproportionate" to the amount of force employed in pursuit of their own limited goals. This could prompt India to escalate the conflict, thereby heightening Pakistan's perception that Indian aims are not limited, and potentially leading to an escalation spiral between the two sides.

It is a common cognitive bias to assume that whereas one's own actions are sometimes the result of chance or error, an opponent's acts are always deliberate. George Quester recounts a classic example of how such misperception led to the escalation of violence during World War II. Both Germany and Great Britain had significantly overestimated the accuracy of each other's bomber capability. As a result, accidental bombing of population centers was interpreted as a deliberate attack, which justified attacking enemy cities in response.[49] South Asia is not immune to similar dynamics. Indeed, misperception in crisis escalation has had a significant impact in the region. In 1987 a massive exercise carried out by the Indian Army in Rajasthan, called "Brasstacks," precipitated a major mobilization by Pakistan, which believed it was about to be attacked. The Pakistani mobilization subsequently led Indian forces to assume a higher stage of alert, perpetuating a diplomatic crisis that was resolved only with U.S. and Soviet intervention.[50]

The fog of war can also lead to misperception of an opponent's intentions and actions. During wartime it can be extremely difficult to rationalize disconnected and sometimes contradictory pieces of information to assemble a coherent understanding of a conflict's progress. Decisionmakers are often forced to provide direction on the basis of incomplete information. Even with modern surveillance and communications systems, organizational and cognitive factors can cause a misinterpretation of ongoing combat operations. As Stephen

48. Quoted in Ganguly and Kraig, "The 2001–2002 Indo-Pakistani Crisis," p. 311.
49. George H. Quester, *Deterrence before Hiroshima: The Airpower Background to the Nuclear Age* (New Brunswick, N.J.: Transaction, 1986), pp. 115–122.
50. For a discussion of misperception and escalation in this episode, see Kanti P. Bajpai, P.R. Chari, Pervaiz Iqbal Cheema, Stephen Cohen, and Šumit Ganguly, *Brasstacks and Beyond: Perception and Management of Crisis in South Asia* (New Delhi: Manohar, 1995).

Biddle has observed, intelligence and information on the battlefield are frequently ambiguous, requiring interpretation, which is often shaped by the extant beliefs and attitudes of the interpreter.[51] The historical record does not offer much comfort in this regard; as in previous crises, the militaries of both countries have overreacted to a security situation that faulty intelligence led them to perceive was more threatening than it actually was.[52]

Cold Start heightens concerns about misperception because the doctrine explicitly seeks to confuse Pakistani forces and disrupt their decisionmaking cycle. Although in conventional war, disorienting the enemy's leadership is a virtue, in a limited war between nuclear powers, transparency and the clear signaling of intent are required to prevent escalation.

AGENCY: THE DOWNSIDE OF BATTLEFIELD INITIATIVE

A third challenge to waging a limited war arises from the principal-agent relationship between politicians and the military. Civilian political leaders may design a tightly integrated strategy with clearly defined objectives, but they must devolve responsibility to the military to execute their strategy. This is not to suggest that the Indian military is an unfaithful servant of the state, merely that the political leadership lacks total control over the implementation of a given strategy. Confusion, opportunity, and local initiative may prompt military officers to act in ways that exceed or even run contrary to the broader political goals established by the state's policymakers.

Military history is replete with examples of this phenomenon. For example, Richard Betts reports that, during the latter stages of the Vietnam War, Air Force Gen. John Lavelle ordered twenty unauthorized bombing raids into North Vietnam, which jeopardized ongoing peace negotiations.[53] In World War I, the disastrous British campaign to capture Baghdad was launched by the local commander, Lt. Gen. Sir John Nixon, without first consulting London.[54] Similar episodes have occurred more recently in South Asia. Bruce

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51. Biddle, *Military Power,* p. 64.
52. See Neil Joeck, "Maintaining Nuclear Stability in South Asia," Adelphi Paper, No. 312 (London: International Institute for Strategic Studies, September 1997), pp. 15–34.
53. Richard K. Betts, *Soldiers, Statesmen, and Cold War Crises* (Cambridge, Mass.: Harvard University Press, 1977), pp. 49–50. Lavelle was also accused of ordering his pilots to violate the standing rules of engagement by firing on targets in North Vietnam before being fired upon. Making this necessary, Lavell argued, was the increasing sophistication of the North Vietnamese radar system. Recently released archival materials suggest that the secretary of defense, the Joint Chiefs of Staff, and the White House were all aware of Lavell's "protective reaction" policy long before it became a national scandal. Bob Cuddy, "Son Hopes Revelations Will Bring Redemption," *Telegram-Tribune* (San Luis Obispo), March 2, 2007.
54. The British Army in India had landed troops at Abadan to control the oil fields there and subsequently occupied Basra. Nixon was the architect of the plan to capture as much of Mesopotamia

Riedel has reported that during the 1999 Kargil crisis, the Pakistani political leadership was unaware that the Pakistan Army had begun to activate contingency plans for a nuclear strike.[55] On the Indian side, during Operation Parakram, an aggressive corps commander ordered armor elements of the II Corps to advance into assault positions near the international border without prior approval.[56] The principal-agent dynamic that exists between the policymakers and the military illustrates how unintentional escalation could occur even in a restrained limited war setting—particularly if these "over-aggressive" actions are subject to misperception by the enemy.

GEOGRAPHY: LIMITED WAR IN CLOSE QUARTERS

The particular geography of South Asia poses the final challenge to implementation of a limited war doctrine.[57] That any conflict between India and Pakistan will occur on the home territory of one of the principal actors makes the situation qualitatively different from the proxy conflicts of the Cold War, which occurred primarily in relatively unimportant third countries.

The geography of South Asia shapes both countries' views on limited war. India is four times larger and seven times more populated than Pakistan. India possesses great territorial depth, which Pakistan lacks. Forming a long, slender rectangle, Pakistan is 1,000 miles long, but averages only 300 miles wide. With its length running parallel to India's northwest border, Pakistan is extremely vulnerable to flanking movements or a central assault that would spilt the country in two.[58] Furthermore, a number of important Pakistani cities as well as transport networks and lines of communication lie close to the international border, compounding Pakistan's lack of defensive depth. For example, in the 1965 war, Indian forces threatened Lahore within twenty-four hours of the start of the conflict.[59] Given Pakistan's lack of strategic depth, even small incursions employing the Cold Start doctrine's bite-and-hold strategy could pressure Pakistan to escalate the conflict. The effects of the security dilemma

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as possible. Briton Cooper Busch, *Britain, India, and the Arabs, 1914–1921* (Berkeley: University of California Press, 1971).

55. Bruce Riedel, "American Diplomacy and the 1999 Kargil Summit at Blair House," Policy Paper Series (Philadelphia: Center for the Advanced Study of India, University of Pennsylvania, May 2002).

56. S. Kalyanaraman, "Operation Parakram: An Indian Exercise in Coercive Diplomacy," *Strategic Analysis,* Vol. 26, No. 4 (October–December 2002), p. 485.

57. For an argument in favor of including geographic considerations in assessments of strategic stability, see Bernard Loo, "Geography and Strategic Stability," *Journal of Strategic Studies,* Vol. 26, No. 1 (March 2003), pp. 156–174.

58. John Arquilla, "Nuclear Weapons in South Asia: More May Be Manageable," *Comparative Strategy,* Vol. 16, No. 1 (January–March 1997), p. 16.

59. Desmond E. Hayde, *The Battle of Dograi and Batapore* (New Delhi: Natraj, 2005).

and the relative incentives to overreact to an opponent's actions are easily magnified in this relatively compact geographic space.[60]

Regardless of the training and discipline of the Indian Army, the four factors cited above (goal setting, misperception, agency, and geography) combine to make the notion of a limited war in South Asia a risky proposition. The claims of Indian strategists to know precisely where Pakistan's red lines are or how Islamabad would react in a future crisis are suspect, as history suggests that neither side understands the other as well as it thinks.[61] The danger of escalation is further compounded by the relatively immature state of the command and control and early warning systems of both India's and Pakistan's nuclear arsenals.[62] India's increasing military capabilities would reduce the relative costs of conflict with Pakistan and give its political leaders new options in future crises. This may increase the willingness of Indian leaders to use military force in future confrontations with its neighbor, which could have disastrous consequences for the region if the conflict could not be kept limited.[63] The following section provides an examination and assessment of the Indian Army's progress in developing its Cold Start capability.

Assessment of Indian Progress toward Cold Start

Monitoring and assessing another nation's efforts to develop new means of warfare in peacetime can be difficult. Unlike other branches of government or private industry, where new products and processes can generate immediate feedback, military organizations do not spend the majority of their time undertaking their core task: fighting the nation's wars. Opportunities to test and demonstrate new military capabilities in the crucible of war are typically rare. Nevertheless, it is possible to evaluate a particular military's attempts to conceive new war-fighting techniques. Thomas Mahnken has advanced a framework for studying foreign military innovation.[64] Recognizing that "innovation is a process that unfolds over years or decades," he identifies three distinct phases of the process: speculation, experimentation, and implementation.[65]

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60. The concept of the security dilemma is derived from John H. Herz, "Idealist Internationalism and the Security Dilemma," *World Politics,* Vol. 2, No. 2 (January 1950), pp. 157–180. See also Robert Jervis, *Perception and Misperception in International Politics* (Princeton, N.J.: Princeton University Press, 1976), pp. 67–76, 349–355.
61. Gill, "India and Pakistan," p. 266.
62. Khan, "Limited War under the Nuclear Umbrella and Its Implications for South Asia," p. 30.
63. Peters et al., *War and Escalation in South Asia,* p. 35.
64. Thomas G. Mahnken, "Uncovering Foreign Military Innovation," *Journal of Strategic Studies,* Vol. 22, No. 4 (December 1999), pp. 26–54.
65. Ibid., pp. 31, 48.

The first phase focuses on conceptual development and identification of new ways to solve existing military challenges.[66] Activity in this phase is largely confined to intellectual output such as studies, speeches, writings in professional journals, and even books that promote new methods of conducting military operations. Speculative concepts embraced by a military organization move to the experimentation phase when war games or field exercises are conducted to explore these new war-fighting concepts. In some cases, experimental units may be created to carry out these tests. War-fighting concepts that have been successful at the experimentation phase may move on to implementation. Here, militaries adopt new war-fighting practices and make the organizational changes necessary to implement them. Mahnken identifies several visible indicators that suggest new combat methods have been adopted. Among them are the establishment of new military formations, the dissemination of new military doctrine, the establishment of new service branches or career paths to support the new concept, and widespread training in the new war-fighting method.[67]

One can apply Mahnken's framework to judge the Indian Army's progress toward developing an operational Cold Start capability. Based on the available evidence, it appears that Cold Start remains within the experimental stage of development. Although the limited war strategy has moved beyond theoretical discussions in professional military journals, it has not yet produced the widespread organizational changes required for full implementation. This assessment is informed by a study of three areas: the demonstration of the operational capabilities required to execute the Cold Start doctrine, the implementation of the requisite organizational changes, and the development of the resources and infrastructure required to support the envisioned military operations.

DEMONSTRATION OF OPERATIONAL CAPABILITIES

War games and military exercises are simulations designed to train soldiers and test battlefield tactics. As simulations, they approximate the reality of battlefield conditions, but do not replicate them. Even the most advanced "free play" simulation (meaning a two-sided game in which either side can win) lacks the confusion, emotion, and uncertainty that Clausewitz says distinguishes "real war from war on paper."[68]

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66. For a full discussion of all three phases, see ibid., pp. 30–33.
67. Ibid., p. 33.
68. Clausewitz, *On War,* p. 119.

Nevertheless, the study of a unit's performance in war games and exercises can provide insight into its military capabilities. Although the ability to execute military tasks in a simulation or on the proving ground does not indicate the ability to execute such tasks in actual combat, the inability to do so in a structured environment virtually guarantees the inability to do so in wartime.

The military requirements to implement the Cold Start doctrine include the employment of highly mobile units capable of generating substantial organic firepower, sophisticated intelligence resources, and sufficient command and control capabilities to coordinate multiple combined-arms battle groups operating in conjunction with air support. Making these work together requires both highly trained staff officers as well as junior field commanders capable of taking initiative and responding to events as they unfold on the battlefield.

In assessments of India's ability to implement its Cold Start doctrine, military exercises can provide indications of capabilities in three areas. The first is a demonstrated capability to execute tasks directly related to Cold Start, such as offensive action by pivot corps, short mobilization offensives, and independent operations by multiple units. The second relevant capability is the conduct of joint-service warfare. In terms of Cold Start, this is primarily the ability of the Indian Army and Indian Air Force to integrate and synchronize their operations, though the air component of the Indian Navy is, to a lesser extent, also relevant in this area. Cold Start assumes that significant close air support will be provided to offensive units by the Indian Air Force, so joint operations are a key to implementing the doctrine. The third area of interest is evidence of network-centric warfare capability. Network-centric warfare theory hypothesizes that the networking of geographically dispersed forces via advanced communications tools can increase the sharing of information and enhance situational awareness. This networking amplifies the speed of decisionmaking and improves the synchronization among dispersed forces—both of which enable a networked force to disrupt and confuse its enemy's own decisionmaking cycle. The successful employment in war games of networked sensor systems (unmanned aerial vehicles or UAVs, reconnaissance satellites, and advanced radar) and sophisticated communications suites by combat units and their headquarters is evidence of potential network-centric warfare capability.

Since 2004 India has held five exercises of varying sizes that tested or demonstrated capabilities required by Cold Start. The remainder of this section briefly describes each exercise followed by a discussion of the insights gleaned

regarding the Indian military's ability to employ Cold Start in a simulated environment.

DIVYA ASTRA. The first war game to demonstrate aspects of the new Cold Start doctrine was the March 2004 exercise Divya Astra (Divine Weapon). The purpose of this exercise was to test the ability of the Indian Army's various combat arms to deliver integrated firepower in conjunction with the air force. Taking place at the Mahajan Firing Range in Rajastan, 70 kilometers from the international border, this ninety-minute tactical battle scenario featured army and air force elements undertaking operations to penetrate fixed enemy fortifications through a mechanized assault supported by artillery and ground attack aircraft.[69]

VAJRA SHAKTI. The second test of the Cold Start concepts was the May 2005 Vajra Shakti (Thunder Power) exercise, which took place on the plains of Jalandhar in Punjab, roughly 80 kilometers from the international border. This area was the scene of significant tank battles between India and Pakistan during their 1965 and 1973 wars. The ten-day exercise involved 25,000 Indian troops from the Panther Infantry Division and the Flaming Arrow Armored Brigade of the XI Corps (Vajra Corps), one of the army's pivot corps.[70] This exercise was the first demonstration of the ability of units from the previously defense-oriented pivot corps to undertake the kind of offensive operations that would occur at the outbreak of large-scale hostilities.

In the scenario, "Blue Land" (friendly) forces squared off against the adversary "Red Land" forces across the Sutlej River, which simulated the international border with Pakistan. The exercise presupposed that relations between the two nations had degenerated to the point where the Blue forces launched a preemptive attack followed by a rapid advance into Red territory. Nine days of simulated attacks and counterattacks by both sides resulted in Blue forces advancing 30 kilometers into enemy territory, setting the stage for a strike corps to launch a substantial follow-on offensive.[71] The Indian Air Force also took part in Vajra Shakti with the air forces of both Blue and Red undertaking 130 day and night sorties to degrade enemy mechanized forces as well as attack targets in depth.[72]

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69. "Indian Army Displays Firepower near Pakistan Border," Doordarshan National Television, March 2, 2004; and Vijay Mohan, "Army Flexes Its Firepower," *Tribune* (Chandigarh), March 2, 2004.
70. Rajat Pandit, "Army Set for War Exercise to Test New Doctrine," *Times of India,* April 29, 2005; and Vijay Mohan, "Army Tests New War Concepts," *Tribune* (Chandigarh), May 10, 2005.
71. Mohan, "Army Tests New War Concepts."
72. Ajit K. Dubey, "Gaming for War," *Force,* June 2005.

DESERT STRIKE. Six months after Vajra Shakti, the Indian military undertook a third test of both its new doctrinal concepts and its ability to conduct joint operations, in a fourteen-day exercise conducted in Rajasthan's Thar Desert that was code-named "Desert Strike." Employing 25,000 soldiers from the Bhopal-based XXI Strike Corps as well as fighter aircraft from the Indian Air Force's Jaisalmer air station, Desert Strike was the largest exercise conducted by the Indian military since the 1987 Brasstacks war game, which had brought India and Pakistan to the brink of war.[73]

The stated purpose of the exercise was to test the ability of a strike corps to conduct joint operations with combat squadrons from the Indian Air Force. In a nod to Cold Start, a principal aim was to examine the Indian military's ability to defeat an enemy by causing psychological collapse through the use of preemption, dislocation, and disruption.[74] In particular, units were tested on their ability to conduct fast-paced, operational-level maneuvers in a desert environment while employing electronic and information warfare assets. In focusing on these objectives, the Indian military consciously modeled its efforts on the U.S. success in Operation Desert Storm 1991 and the conventional portions of Operation Iraqi Freedom in 2003, which it describes as "key examples of successful military campaigns in which action was initiated by airpower and sustained by ground operations."[75]

Units participating in Desert Strike engaged in a number of maneuvers under battlefield conditions: army paratroopers practiced dropping behind enemy lines, and armored units conducted fast-moving assaults along multiple axes of advance, while the air force carried out surgical strikes in support of advancing ground forces.[76] The capstone element of Desert Strike was a joint ground/air assault, featuring dismounted infantry supported by armor, on an enemy strongpoint that was defended by a minefield.[77]

SANGHE SHAKTI. May 2006 saw the fourth and largest test of Cold Start doctrine when the corps-level exercise Sanghe Shakti (Joint Power) took place on the plains of Punjab, 100 kilometers from the international border. More than

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73. "Desert Strike to Unleash Network-Centric Warfare," *Pioneer* (Delhi), November 17, 2005; and "India Displays Its Military Might," *Pakistan Observer,* November 20, 2005.
74. "Exercise Desert Strike," *Force,* Vol. 3, No. 4 (December 2005).
75. "India Holds Major War Games at Pakistan's Uneasy Borders," Agence France-Presse, November 18, 2005.
76. "Army Demonstrates Vision of Fighting a Short and Intense War," *Daily Excelsior* (Jammu), November 20, 2005; and "India Showcases Military Might to Foreign Observers," Indo-Asian News Service, November 18, 2005.
77. Pravin Sawhney, "A Good Beginning," *Force,* December 2005; and "India Showcases Military Might to Foreign Observers."

40,000 soldiers from the 1st Armored Division, 14th RAPID Division, and 22nd Infantry Division of the Ambala-based II Strike Corps participated in week-long war games.[78] The testing of the II Strike Corps during Sanghe Shakti is significant because the corps contains 50 percent of the Indian Army's offensive power and is the formation that would be tasked with conducting an armored thrust through the Cholistan Desert to cut Pakistan in two in the advent of a general war on the subcontinent.[79]

Sanghe Shakti was a sequel to the May 2005 Vajra Shakti exercise. Vajra Shakti tested the ability of a notionally defensive pivot corps, the XI Corps, to conduct multiple limited-offensive thrusts across the international border into enemy territory on short notice. Sanghe Shakti tested the ability of a strike corps to quickly mobilize and then exploit openings in enemy defenses that had been created by the pivot corps' surprise attack.[80] Dropping the pretense of using "Red" and "Blue" to refer to the opposing sides in the scenario, Sanghe Shakti posited that a war had broken out between India and Pakistan and that II Corps had been tasked with invading and dividing Pakistan in half.[81]

The capstone of the exercise consisted of a blitzkrieg-like armored incursion into "enemy territory." With the exercise's emphasis on rapid penetration, flank security for the armored units was provided by attack helicopters, while enemy strong points were bypassed and cut off by advancing units. Close air support from the Indian Air Force's MiG-23s, MiG-21s, and Mirage-2000s provided mobile fire support that could keep pace with the advancing armored columns.[82]

ASHWAMEDH. The fifth major exercise designed to test the Cold Start doctrine, Ashwamedh, took place in Rajasthan's Thar Desert in April–May 2007.[83] Involving 25,000 soldiers from the I Strike Corps, as well as supporting infantry fighting vehicles, main battle tanks, heavy artillery, and helicopter gunships, Ashwamedh was described by the *Times of India* as a test of the country's new "pro-active war strategy."[84] The exercise was specifically de-

78. Rajat Pandit, "Massive Army Exercise in Punjab, Rajasthan," *Times of India,* May 3, 2006.
79. Ibid; and S.M. Hali, "Pakistan Specific Wargames," *Nation* (Islamabad), May 10, 2006.
80. "Cold Start, Quick Thrust," *Telegraph* (Calcutta), May 17, 2006.
81. Vivek Raghuvanshi, "Indian Army Winding Down Exercise Near Pakistani Border," *Defense News,* May 15, 2006.
82. Shiv Aroor, "Exercise Sanghe Shakti Eliminates Operation Parakram Flaws," *Indian Express* (Mumbai), May 20, 2006.
83. The literal translation of this exercise's name is "Horse Sacrifice." It refers to an ancient ritual that was conducted by Hindu kings to assert their superiority over neighboring kingdoms.
84. "Army's Wargames to Test Reflexes against Nuke, Bio Attacks"; and "New Concepts, Equipment to Be Validated in Army's Ashwamedh Exercise," Asian News International, April 27, 2007.

signed to assess both the army's ability to magnify its combat power through the networking advanced sensors with its weapons systems, as advocated by network-centric warfare theorists, as well as its capacity to provide logistical support to highly mobile units under realistic battlefield conditions.[85]

Dividing the I Corps into "Blue Land" and "Red Land" forces, the concluding scenario of Ashwamedh's monthlong series of drills featured a five-day battle that simulated an assault by Blue forces across the international border. Unlike Vajra Shakti, in which initial cross-border attacks were undertaken by a pivot corps, Ashwamedh featured offensive operations by elements of a strike corps. Launching a three-pronged attack across a canal system, Blue forces succeeded in breaching Red's defenses at one point. The rapid movement of follow-on forces allowed Blue to consolidate their bridgehead in the face of Red's counterattack. The infiltration of several hundred Blue paratroopers behind Red's lines facilitated Blue's breakout from the canal zone and rapid advance 30 kilometers into Red territory.[86] As in Sanghe Shakti, helicopter gunships provided cover for advancing armored units, while tactical air assets from the Indian Air Force provided close air support.

INSIGHTS FROM THE WAR GAMES

The Indian military's ability to implement the Cold Start doctrine, as demonstrated in these five exercises, can be assessed in three areas: the capacity to execute tasks related to Cold Start, the conduct of joint operations, and the employment of information technology to gain the advantages of network-centric warfare.

EXECUTION OF COLD START TASKS. In the five exercises considered here, the Indian military demonstrated a moderate amount of success in employing elements of Cold Start in a simulated environment. During the second exercise, Vajra Shakti, a notionally defensive pivot corps initiated offensive operations and advanced 30 kilometers into enemy territory. Sanghe Shakti, the fourth exercise, showed that a strike corps could deploy from its base areas to the conflict zone rapidly enough to exploit the openings in enemy defenses created by the pivot corps' attack. Public assessments of the exercise by the Indian high command praised it as a highly successful simulation that had "validated" India's new limited war doctrine.[87] Particularly exciting to Cold Start

85. "New Concepts, Equipment to Be Validated in Army's Ashwamedh Exercise"; and "Indian Army to Use Satellite Imagery during War Games," Indo-Asian News Service, April 27, 2007.
86. "Indian Army Tests Network-Centric Warfare Skills," Indo-Asian News Service, May 2, 2007.
87. "Vice Army Chief Shares Changes in Military Doctrine, Equipment, Thinking," *Force,* June 2006.

enthusiasts was the indication that the time frame for the mobilization of a strike corps had been shortened considerably. One estimate by the Indian Army indicates that the II Corps in Sanghe Shakti had managed to shave off "days if not weeks" from the mobilization time that was required in Operation Parakram.[88]

Furthermore, these capabilities were exercised under a variety of battlefield conditions. All five scenarios assumed that Pakistan had used nuclear, biological, or chemical weapons against Indian forces, which tested the ability of the army and air force to operate in contaminated environments. In Vajra Shakti, Sanghe Shakti, and Ashwamedh, the majority of the "fighting" took place at night, which tested the night-fighting abilities of the troops involved and provided experience in employing night-vision equipment and thermal imagers under realistic conditions. Vajra Shakti and Desert Strike were conducted in relatively open desert terrain. In contrast, Divya Astra, Ashwamedh, and Sanghe Shakti included operations in conditions that would be faced by Indian forces in an actual assault across the international border. In Divya Astra, combat engineers bridged a 60-meter-wide canal within thirty minutes using truck-mounted bridges capable of supporting tanks and armored vehicles. A similar cross-canal assault against a defensive line was a feature of Ashwamedh. Sanghe Shakti included operations in built-up terrain, forcing advancing units to navigate inhabited areas and practice crossing waterways and canals.[89]

Indian forces performed their tasks impressively on the proving ground, but this does not indicate that such a capability exists across the army and air force. In the first four exercises, participating units needed several days of rehearsals to practice a range of maneuvers and battle drills required by Cold Start, while in Ashwamedh the units rehearsed at the brigade and battalion level for nearly a month. Additional practice was required even by units from the offensive-oriented, and presumably elite, strike corps. The continual need to rehearse doctrinal concepts and practice methods for offensive and defensive operations ahead of participation in these exercises strongly suggests that more time will be required before the army and the air force fully internalize the Cold Start doctrine.

JOINT OPERATIONS. The Indian military has achieved considerably less success in the conduct of joint operations. In the tightly scripted exercise Divya

88. Aroor, "Exercise Sanghe Shakti Eliminates Operation Parakram Flaws."
89. "Army, IAF to Conduct Joint Exercise," *Tribune* (Chandigarh), May 17, 2006; and Mohan, "Army Flexes Its Firepower."

Astra, army and air force units operated sequentially, failing to integrate their efforts or demonstrate a high degree of joint warfare capability. A significant improvement was seen in Vajra Shakti, where integrated planning of the operations by army and air force commanders took place. Coordination between the services was much improved from the 1999 Kargil operation, the last time joint army/air force operations were attempted.[90] Successful coordination in planning operations, however, has yet to translate into the synergies required at the operational and tactical levels. Analysis of joint army/air force operations at the operational and tactical levels during Sanghe Shakti indicated persistent interoperability deficiencies that belie previous claims by the military that "there is seamless integration [between the army and air force] at all levels."[91] Despite multiple rehearsals, the two services consistently failed to integrate their actions in the five war games considered here. At present, it appears that more time and further exercises are required at smaller unit levels to achieve the kind of joint operational ability that the Cold Start doctrine requires. Joint operations have been a traditional difficulty for the Indian military, and as is discussed in the section on organizational issues below, they are likely to continue to be a challenge.

NETWORK-CENTRIC WARFARE. Of these three areas, the Indian military has demonstrated the most capability in the use of advanced information technology and communications systems on the battlefield to enable network-centric operations. During these exercises, real-time situational awareness was provided by satellite imagery as well as UAVs that tracked the enemy's positions and movements. As a result, the time required for commanders to assess the situation on the battlefield and make corresponding tactical decisions has been reduced considerably from previous conflicts where "current" battlefield intelligence was hours or even days old.

Advanced technology procured from Israel and Russia has further contributed to Indian reconnaissance, intelligence, surveillance, and target acquisition capabilities.[92] The integration of a range of sensors and surveillance devices via video and data links in a sensor-to-shooter network allowed UAVs to de-

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90. Subhash Kapila, "Indian Army Validates Its Cold Start War Doctrine," No. 1408 (Noida, India: South Asia Analysis Group, June 7, 2005), http://www.saag.org/%5Cpapers15%5Cpaper1408.html.

91. Aroor, "Exercise Sanghe Shakti Eliminates Operation Parakram Flaws." For Lieutenant General H.S. Panag's claims that "all [Indian military] operations are 'joint' from the word go, both in planning, selection of objectives, and execution at the strategic, operational, and tactical levels," see "Exercise Desert Strike."

92. See, for example, Vijay Mohan, "Army's Tactical Network Goes Hi-Tech," *Tribune* (Chandigarh), May 12, 2005.

tect targets that were subsequently destroyed by precision artillery or air strikes firing from beyond visual range.[93] Commenting on the performance of the recently acquired weapons and sensor systems, then-Chief of the Army Staff Gen. N.C. Vij said that their introduction had led to a fiftyfold increase in the army's ability to detect and neutralize enemy forces.[94]

The Indian military's success in integrating advanced sensor systems into its nascent network-centric warfare capability highlights a significant shortcoming, however—limited communications bandwidth. During Desert Strike, unit commanders spent hundreds of man-hours on satellite video conferences between various formation headquarters. According to one analyst, the exercise suggests that a large-scale conflict in South Asia could require 3.3 gigahertz of bandwidth for military use alone.[95] This is the equivalent of the bandwidth provided by three commercial telecommunications satellites. As UAVs become more prevalent across the military, and the armed forces become ever more information-centric, the demand for bandwidth will continue to grow. The army has taken steps to address the issue, such as the deployment of the Mercury Thunder communications network, which employs optical fibers, microwave radios, and satellites to transport large amounts of bandwidth in support of military operations.[96] Nevertheless, in the near term, the network-centric systems will put a significant strain on the Indian military's communications network.

ORGANIZATIONAL ISSUES

One of the first indications that India was taking steps toward implementing Cold Start was a restructuring of the forces on the Pakistani border. To reduce the burden on the Indian Army's Western Command, which had responsibility for the area of the international border from Rajasthan to Jammu, on April 8, 2005, a new South Western Command was initiated with its headquarters at Jaipur. Carved out of the operational area formerly covered by the Western Command, the new South Western Command covers key areas in Punjab and Rajasthan. Western Command is now tasked with focusing on the border region between Pathankot and Jammu.[97]

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93. For examples, see "Exercise Desert Strike"; and Sawhney, "A Good Beginning."
94. Vijay Mohan, "Big Increase in Infantry Firepower: General Vij," *Tribune* (Chandigarh), March 2, 2004.
95. Prasun K. Sengupta, "The Final Frontier," *Force,* February 2006.
96. Girja Shankar Kaura, "New Network for Indian Army," *Tribune* (Chandigarh), September 13, 2006.
97. "India's Cold Start Doctrine: DGMO to Brief Senior Commanders Today," *Pakistan Times,* April 29, 2005, http://pakistantimes.net/2005/04/29/top2.htm.

Creating an additional command not only relieves responsibility for a large stretch of territory from the existing headquarters units, but it also streamlines command and control of the forces along the western border. If Cold Start is employed, the demands on headquarter staffs would be significant. The creation of a new command enables better battlespace management of the increased number of units that would have to be forward deployed in the border region. South Western Command has had a pivot corps and a strike corps assigned to it (X Pivot Corps and I Corps); it is not clear from published reports, however, if the strike elements assigned to the new command have taken up positions in the border areas.[98]

For the Indian Army to achieve the surprise and rapid mobilization envisioned in Cold Start, its offensive forces must be based in close proximity to the international border. Deployment of offensive capabilities either within pivot corps or in the border area, rather than deep in India's heartland where the strike corps are currently positioned, would indicate India's intention to implement Cold Start. There is no public evidence to date that the integrated battle groups have been formed or deployed alongside the pivot corps. In the Cold Start exercises discussed previously, offensive units drilled as strike corps rather than as IBGs, suggesting that these large formations have not yet been disaggregated to form battle groups. Arguing in favor of Cold Start in July 2006, Gen. Sundararajan Padmanabhan, former chief of army staff, wrote that pivot corps "should be enabled to take up 'cold start' offensives by grouping them with mechanized forces, airborne/heliborne forces as the case may be," which seems to indicate that this has not yet occurred.[99] That offensive elements from the strike corps assigned to South Western Command, as discussed above, do not appear to have taken up forward positions is further evidence that the Indian Army has not yet taken the step of positioning its offensive assets within striking range of the border. Although this conclusion is largely based on the absence of evidence, given the degree of repositioning of offensive units required by Cold Start, it is difficult to believe that such a task could be accomplished without attracting significant attention.

Cold Start's full implementation is challenged by both interservice rivalries and civil-military tension in defense decisionmaking. Cold Start is primarily a creation of the Indian Army, which has been the dominant military service

98. "Muscle for New Command: Strike Force Put in Place," *Telegraph* (Calcutta), August 17, 2005.
99. Sundararajan Padmanabhan, "The Indian Army in 2020," *Security Research Review,* Vol. 2, No. 2 (July 2006), http://www.bharat-rakshak.com/SRR/index.php?option?com_content&task?view &id?22&Itemid?30.

since independence. India's air force, and to a lesser extent its navy, have sought to escape the army's shadow, and are unlikely to willingly embrace a new war-fighting doctrine that places them in a subordinate combat role. This is particularly true of the air force, as Cold Start employs airpower according to the army's own vision of joint warfare, where elements of all three services are under the control of a unified (presumably army) commander. As Y.I. Patel notes, this plan runs counter to the Indian Air Force's own concept of joint operations, which involves the services fighting wars separately, but according to a coordinated plan.[100] Furthermore, the air force believes that attaching aircraft to specific ground units in a defined geographic space, as the integrated battle group concept requires, is a fundamental misuse of airpower that fails to leverage the air force's numerical superiority over its Pakistani counterparts.[101] This issue is unlikely to be resolved quickly, as the air force continues to focus its efforts on air-to-air combat and strategic bombing while downplaying the importance of close air support as a core mission.[102] An operational Cold Start capability would therefore require the air force to support the doctrine at a level at which it has heretofore been unwilling to do.

Since independence, the political leadership of India has attempted to exercise close control over military operations. This has mixed implications for Cold Start. If this close involvement by civilian leaders provides the clear political objectives required to prevent a limited war from escalating, it is possible that Cold Start would be more likely to be employed. The independent military operations envisioned by Cold Start, however, are not necessarily conducive to the degree of control India's political leadership has exercised in the past. Under the new doctrine, rapid political decisionmaking and effective crisis management will have to become the norm. Unless India's political classes can either provide timely command and control to rapidly unfolding military operations or increase their comfort with devolving authority to junior officers in the field who take independent initiative, Cold Start will face significant political barriers to employment.

The challenges of both interservice and civil-military coordination could be significantly ameliorated by the creation of the position of chief of the Defense Staff. In 1947, soon after achieving independence, the Indian government abol-

100. Patel, "Dig Vijay to Divya Astra."
101. Ahmed, "The Calculus of 'Cold Start.'"
102. Oberoi, "Air Power and Joint Operations"; A.Y. Tipnis, "Indian Air Force, 2020," *Security Research Review,* Vol. 1, No. 2 (January 2005), http://www.bharat-rakshak.com/SRR/Volume12/tipnis.html; and P.K. Vasudeva, "Integrated War Doctrine Required," *Tribune* (Chandigarh), January 18, 2005.

ished the post of commander in chief of the Indian military, a post that had traditionally been held by the head of the army, and empowered the leaders of the three services (army, navy, and air force) to lead their own organizations as equals. In the absence of joint leadership that would force them to integrate their wartime strategies and plans, fierce interservice rivalries developed. Simultaneously, overall defense policymaking has suffered without a professional head of the armed forces who could act as the principal military adviser to the government. In 2001 the Indian government took a half-step toward jointness by creating the Integrated Defense Staff. This body is charged with the management of defense issues across the Indian military, particularly long-term planning. In theory, it would be headed by the chief of the Defense Staff, who would also serve as the principal military adviser to India's political leadership. A combination of bureaucratic infighting, political disagreements, and concern about concentrating so much military authority in a single office, however, has prevented a chief of the Defense Staff from ever being appointed. The Integrated Defense Staff is instead headed by an officer who would be the vice chief of Defense Staff, should a chief ever be appointed. In this capacity, rather than being their leader, the present head of the Integrated Defense Staff is actually subordinate to the chiefs of the Indian Army, Navy, and Air Force, and therefore has little ability to force the services to adopt a joint approach to war fighting. The appointment of a chief of Defense Staff would be an important organizational signal that India was getting serious about its joint war-fighting capabilities and therefore enhance its ability to implement Cold Start. Furthermore, appointing a single general officer to serve as military adviser to India's senior leadership, similar to the role played by the chairman of the Joint Chiefs of Staff in the United States, could ameliorate some of the civil-military tensions inherent in Cold Start and lead to a better alignment of political ends and military means in India's defense planning.[103]

RESOURCES AND INFRASTRUCTURE ISSUES

The forward deployment of integrated battle groups and other offensive elements capable of undertaking Cold Start operations requires the construction of new support infrastructure to house not only the units themselves, but also the logistical "tail" that supports them. Stationing division-sized forces in the

103. Some analysts have suggested that effective military integration may be unachievable in the absence of a chief of Defense Staff. A. Vinod Kumar, "Will the Joint Doctrine Result in Synergy on the Ground?" IDSA Strategic Comment (New Delhi: Institute for Defence Studies and Analysis, June 8, 2006), http://www.idsa.in/publications/stratcomments/VinodKumar080606.htm.

border region will require the expansion of existing facilities and the construction of new ones. Forward locations close enough to the international border would be located along a line stretching from Barmer-Jaisalmer-Bikaner-Suratgarh. It is likely that the IBGs would be colocated with existing units from the pivot corps in their area of operations. Key strategic locations in this regard include the cantonment at Bathinda, Punjab (the largest cantonment in India) and the 24th RAPID base at Bikaner.

At this point, there is no indication in open source materials that these required facilities are being developed. Although hiding some new construction within existing facilities might be possible, given how closely the Pakistanis and Indians are watching each other, it is reasonably safe to assume that the construction of facilities to house nine divisions' worth of armor, vehicles, and soldiers along the border would attract attention. By contrast, Pakistan's significantly more modest construction of new bunkers and observation towers on its side of the border adjacent to Barmer, Jaisalmer, and Bikaner in December 2005 attracted Indian attention and press coverage.[104]

Similarly, Cold Start would require the extensive prepositioning of ammunition, fuel, and spare parts to allow for rapid and continuous offensives. While India has been repairing and upgrading its ammunition depots in the wake of a series of fires at strategically located facilities in Bikaner and Suratgarh, there is a lack of evidence that these facilities, as well as others in forward locations such as the field ammunition depot at Lalgarh, have been expanded to house the necessary stocks of war materials.

The Indian Army faces significant shortages of key equipment to implement Cold Start. The integrated battle groups will require organic self-propelled artillery to have the mobility and firepower necessary to accomplish their mission. Yet, by one estimate, the army possesses only 10 percent of the self-propelled guns it needs.[105] The army's tank corps suffers from a low operational readiness rate, as much of its equipment is at the end of its service life. Although several hundred T-90 tanks recently acquired from Russia possess significant battlefield capabilities, they are at best a "silver bullet" force. Finally, there are serious questions as to whether the army possesses the mobility and logistical capability to implement Cold Start. It is estimated that only 35 percent of the army is equipped to move about India, and an even smaller portion possesses the mobility to mount cross-border operations.[106] Limited

104. See, for example, "Pak Army Building Bunkers," *Tribune* (Chandigarh), December 22, 2005.
105. Gill, "India and Pakistan," p. 244.
106. Ibid.; and A.Z. Hilali, "India's Strategic Thinking and Its National Security Policy," *Asian Survey,* Vol. 41, No. 5 (September–October 2001), p. 745.

supplies of spare parts, primitive logistical networks, and inadequate maintenance facilities will also hinder offensive operations.[107] The army is attempting to gain the necessary funds to address these issues as part of its modernization program; India's defense budget is limited, however, and both the air force and the navy are pressing their own competing claims.[108]

Even more deficient than the Indian Army's material shortfall is its lack of skilled officers capable of executing Cold Start operations. A Cold Start–style maneuver doctrine requires high-quality junior officers who possess the initiative and flexibility to react to changing circumstances on the battlefield without explicit instructions from their superiors. This poses a significant challenge for the army. Not only is there a shortage of nearly 13,000 officers, but those currently serving are not necessarily well suited to implement the new doctrine. Existing military education emphasizes rote learning and the careful implementation of "schoolhouse solutions," rather than free thinking. Furthermore, the army has traditionally favored carefully preplanned military operations against fixed positions that seek to attrit the enemy's strength through tactical engagements. A conservative institutional culture that is resistant to change and where subordinate units are tightly controlled by higher command does not foster the initiative and creativity demanded by maneuver warfare.[109] It requires a long period of time to cultivate junior leaders who can take risks and adapt to changing circumstances rather than mechanically execute a scripted battle plan, and the army has just begun that process.

STILL IN THE EXPERIMENTAL PHASE

An examination of the Indian Army's progress toward implementing Cold Start shows that the limited war doctrine remains in the experimental phase. Simulated exercises demonstrate significant progress in networking various units, but much more work is required to achieve proficiency in the execution of Cold Start and the joint operations required by the doctrine. Organizationally, the creation of the South Western Command represents a step forward, but there is no evidence of offensive units being forward deployed as the doctrine requires. Interservice and civil-military tensions remain significant barriers to the doctrine's acceptance. Finally, the execution of Cold

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107. Ashok K. Mehta, "War or Peace?" *Rediff.com,* January, 18, 2002, http://in.rediff.com/news/2002/jan/18ashok.htm.
108. Gill, "India and Pakistan," pp. 247–248.
109. V.K. Kapoor, "Indian Army—A Perspective on Future Challenges, Force Development, and Doctrine," *USI Journal,* Vol. 134, No. 3 (July–September 2004), pp. 355–375; Stephen Peter Rosen, *Societies and Military Power: India and Its Armies* (Ithaca, N.Y.: Cornell University Press), p. 233; and Tellis, *Stability in South Asia,* p. 24.

Start will require further improvements in the quality of the army's matériel and the caliber of its officers. All of this paints a picture of a military organization struggling with the implications of a new war-fighting strategy.

Conclusion

The Indian Army has developed a new limited war doctrine for responding to the specific challenges posed by Pakistan's proxy war strategy. While this Cold Start doctrine represents a significant advance in India's conventional capabilities, it also risks provoking or escalating a crisis on the subcontinent that could breach the nuclear threshold. The persistent disengagement of India's political leadership from security issues is a cause for concern, for they may turn to a limited war strategy during the next crisis without having evaluated the potential consequences.

At present, Cold Start remains more of a concept than a reality. Recent military exercises and associated organizational changes indicate that even though the Indian Army has made progress toward developing an operational Cold Start capability, much work remains. Nevertheless, this is a development that should continue to be studied. Relative conventional parity has been a cornerstone of the ugly stability that exists on the subcontinent. Not only does enhanced war-fighting ability threaten that stability, but as the Indian Army progresses toward a Cold Start capability, the political pressure to employ such a strategy in a time of crisis only increases.