

ASIA IN THE “SECOND NUCLEAR AGE”



by Gaurav Kampani and Bharath Gopaldaswamy

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This work is generously supported by the MacArthur Foundation.

ISBN: 978-1-61977-382-0

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November 2017

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FOREWORD

ASHLEY J. TELLIS

It is often presumed that some kind of nuclear weapon use is inevitable in the twenty-first century. The volatile relationships between many Asian states and the steady expansion of nuclear capabilities in the continent make such expectations plausible, and they acquire special resonance in South Asia because of the triangular security competition between China, India and Pakistan. In this report, Bharath Gopaldaswamy and Gaurav Kampani offer insightful analysis that assesses the credibility of many prevailing fears—which they often find wanting.

Based on the findings of workshops conducted in Beijing, New Delhi and Islamabad, on conversations held with Indian, Pakistani, and Chinese academics, policymakers, and analysts, and a comprehensive review of the empirical evidence, Gopaldaswamy and Kampani remain “more optimistic than the nuclear ‘sky is falling’ arguments often aired in the mass media, and policy conferences in general.” At the crux of their shared hope is the fact that China, India, and Pakistan, despite being enmeshed in a complex rivalry, “are stakeholders in the existing international order, and are committed to an open economic order and multilateral institutionalism.” Moreover, they are embedded in a global order that is vastly different from either the pre-World War I era or the “first nuclear age” that was manifested during the Cold War.

Despite general optimistic conclusions, however, they do flag some important reasons for concern. The authors anticipate that the greatest threat to stability in the region “comes not from the development of large, sophisticated, and diversified nuclear arsenals, but from the continued stability of the institutions guarding them.” They also highlight the consequences of “aggressive nationalism” in China and India, and the potential for the “the first three decades of the post-Cold War era” to become merely “a temporary hiatus in their onward nuclear journey,” which could lead to “truly horrendous” consequences that would prove true the “worst-case assumptions of the nuclear pessimists.”

In highlighting these specific risks, which stem from different dimensions of the complex Asian nuclear equation, Gopaldaswamy and Kampani carefully discern the instabilities not merely at the inter-state level but also at the intra-state and civil-society levels, dimensions that are often ignored in many contemporary analyses of the region. The insights contained in this report make it a valuable addition to our understanding of the competitive nuclearization currently occurring in China, India and Pakistan and for that reason should be required reading for both scholars and policymakers alike.

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Introduction

It is now a truism among foreign and defense policy practitioners that the post-Cold War nuclear buildup in the Indo-Pacific region constitutes the dawn of the “second nuclear age.”¹ From the 1990s onward, China’s decision to stir out of its strategic languor and modernize its nuclear arsenal, along with the resolve of India and Pakistan to deploy operational nuclear forces, and, more recently, North Korea’s sprint to develop reliable long-range nuclear capabilities that can credibly threaten the continental United States, has led many to aver that the second nuclear age will rival the worst aspects of the first.

During the first nuclear age, baroque nuclear arms buildups, technical one-upmanship, forward-deployed nuclear forces, and trigger-alert operational postures characterized the competition between the superpowers and their regional allies. The nuclear rivals embraced nuclear war-fighting doctrines, which internalized the notion that nuclear weapons were usable instruments in the pursuit of political ends, and that nuclear wars were winnable.

There is a sense of *déjà vu* among nuclear pessimists that nuclear developments in China, India, and Pakistan could produce similar outcomes. When North Korea’s nuclear advances are factored in, the prognoses become even direr. More specifically, the second nuclear age consists of two separate systems of nuclear rivalry, with potentially dangerous spillover effects. The first rivalry is centered on India, Pakistan, and China, with a geographic footprint that overlays the larger Indo-Pacific region. The second rivalry encompasses the Northeast Pacific, overlaying the Korean peninsula, Japan, and the United States. North Korean developments, and a potential US overreaction to them, threaten China’s historic nuclear minimalism and its own interests as an emerging global power. Similarly, US suggestions of global retreat, and the retraction of extended deterrence guarantees to its allies in Northeast Asia, could push those allies to acquire independent nuclear arsenals and intensify the second nuclear age.

Until very recently, the threat of a nuclear war was thought most likely in South Asia, where India and Pakistan are involved in a festering low-intensity conflict (LIC) fostered by deep conflicts about identity and territory. Specific dangers include Pakistan’s threats to deploy tactical nuclear weapons in a conventional war with India. Likewise, India’s investments in ballistic-missile defenses (BMD) and multiple-reentry vehicle (MRV) technology could, in theory, afford future

decision-makers in New Delhi the means to execute splendid first-strike (a counterforce attack intended to disable the opponent’s nuclear capacity before it is used) options against Pakistan. Prognoses of the nuclear rivalry between India and China are generally less threatening. But, when the latter rivalry is considered in the context of ongoing boundary disputes between New Delhi and Beijing, their self-identification as great powers accounting for nearly 50 percent of global gross domestic product (GDP) by mid-century, their participation in regional balance-of-power-systems, and potential operational brushes between sea-based nuclear forces forward deployed in the Indian Ocean, those concerns invariably overshadow any optimism.

In the background of the unfolding gloom of the second nuclear age, the Atlantic Council’s South Asia Center conducted three workshops in India, Pakistan, and China in the fall of 2016, with the objective of drawing academics, policy practitioners, and analysts in each country to discuss the unfolding nuclear dynamics in the region. All three workshops had a common theme: Assessing Nuclear Futures in Asia. Under this umbrella theme, workshop participants tackled three specific subjects: the general nature of the strategic competition in Indo-Pacific region; the philosophical approaches shaping nuclear developments in China, India, and Pakistan; and the hardware and operational characteristics of their nuclear forces.

The first workshop was conducted in September 2016 at the Center for International Strategic Studies in Islamabad. This was followed by a second workshop in September at the Center for Policy Research in New Delhi. The third, and final, workshop was held in November 2016 at the Carnegie-Tsinghua Center in Beijing. Each workshop involved structured sessions with formal presentations and follow-on roundtable sessions. Notes from each session were transcribed, as everything discussed by the participants during the workshops was on the record.

This report presents the findings of the three workshops, in separate sections on China, India, and Pakistan. The findings combine material from formal presentations, participant discussions, follow-on informal conversations, and external open-source literature to fill some critical gaps.

What stands out in these findings is that regional participants generally reject the nuclear pessimism in Western capitals. The nuclear “sky is falling” argument, they maintain, is simply not supported by the evidence, at least when evidence is embedded in its proper context.

¹ Gaurav Kampani, *China India Nuclear Rivalry in the Second Nuclear Age* (Oslo: IFS Insights, 2014), <https://forsvaret.no/ifs/Kampani-2014-ChinaIndia-nuclear-rivalry-in-the-second-nuclear-age->.



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Key Conclusions

- While the first nuclear age was riven by deep ideological conflicts between two contrarian political systems that viewed the victory of the other as an existential threat, the nuclear rivalry between China, India, and Pakistan is nothing like that. All three states accept the legitimacy of the international system, to the extent that they share goals of market capitalism, state sovereignty, and multilateral institutionalism. Undoubtedly, the three states have different domestic political systems: authoritarian capitalist (China), liberal democracy (India), and praetorian democracy (Pakistan). Yet, none of these nuclear powers views the domestic political system of another as jeopardizing its own existence.
- At least two among the three nuclear powers—China and India—have vast strategic depth, excellent geographical defenses, and strong conventional forces. Neither fears a conventional threat to its existence. Leaderships in both countries have a shared belief that nuclear weapons are political weapons whose sole purpose is to deter nuclear use by others.
- They also share a common institutional legacy of civilian-dominated nuclear decision-making structures, in which the military is only one partner, and a relatively junior one, among a host of others. All three factors—the structural, the normative, and the institutional—dampen both countries’ drives toward trigger-ready, destabilizing, operational nuclear postures that lean toward splendid first-strike options.
- However, this reassurance does not extend to Pakistan, which—due to the lack of geographic depth and weaker conventional forces against India—has embraced a first-use nuclear doctrine. Pakistan’s hybrid praetorian system also allows its military near autonomy in nuclear decision-making. This combination of structural and institutional factors has led Pakistan to elect a rapidly expanding nuclear force that, within a decade, could rival the British, French, and Chinese arsenals in size, though not in sophistication. Evidence also suggests that Pakistan has developed tactical nuclear weapons, although it does not appear to have operationalized tactical nuclear warfare.
- In the nuclear dynamic in the Indo-Pacific region, India and Pakistan are novice developers of

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nuclear arsenals; the weapons in their inventory are first-generation fission weapons. Likewise, their delivery systems are the first in the cycle of acquisitions. Their hardware acquisitions generate outside concern because of the scope of their ambitions. Both nations plan to deploy a triad capability. Nonetheless, this ambitious goal and the selection of technologies underline the central lesson of the nuclear revolution, which is force survival (to enable an assured second-strike capability).

- Force survival through secure second-strike capabilities is also China’s goal. It is the only nuclear power among the three that is actually modernizing, i.e., replacing aging delivery systems with newer and better designs. Thus far, the evidence suggests that Chinese and Indian explorations of multiple-reentry vehicle technologies are aimed at reinforcing deterrence through the fielding of more robust second-strike capabilities. This conclusion is also supported by the fact that neither India nor China has, nor is developing, the ancillary intelligence, surveillance, and reconnaissance (ISR) systems necessary to execute splendid first-strike attacks. Another technology of concern is missile defense. India’s goals vis-à-vis missile defense are still unclear, and its technical successes with the program are even less evident. Chinese goals are similarly unclear, and appear to be exploratory means for defeating adversarial attempts to stymie its deterrent capability.
- On a more positive note, neither India nor Pakistan is conducting nuclear tests to develop or improve designs for nuclear warheads. The same holds for China. However, Pakistan is rapidly accumulating fissile material, which could increase to four hundred and fifty kilograms of plutonium, sufficient for ninety weapons, and more than 2,500 kilograms of highly enriched uranium (HEU), sufficient for one hundred simple fission warheads by 2020.² India is accumulating approximately 16.6 kilograms of fissile material annually, sufficient for a force of approximately 150-200 warheads, though all fissile material is probably not converted into nuclear warheads.³ China, however, is no longer producing fissile material. It is only modestly increasing the size

of its arsenal, from 264 to 314 warheads.⁴ The size of the Chinese, Indian, and Pakistani arsenals will remain a function of the calculations of damage ratios that each believes essential to achieve deterrence. Yet, if current trends remain stable, the size of their arsenals should remain comparable to the French and British nuclear arsenals. The arsenals will be large, but will by no means approach the gargantuan size of the US or Russian nuclear arsenals.

- Like other regional nuclear powers during the first nuclear age, China, India, and Pakistan might also decide to forego one or more vulnerable legs of their nuclear triad. At present, however, there are no indicators of this happening.
- The nuclear rivalry in South Asia remains ominous, because Pakistan wages LIC against India via nonstate actors, while the latter has devised limited conventional-war options to punish the Pakistani military on Pakistani soil. India has also recently hinted that it could abandon nuclear no first use (NFU) in favor of splendid first-strike options. Simultaneously, however, India is backing away from its purported limited-conventional-war doctrine against Pakistan, on the premise that the LIC does not represent an existential threat to Indian security, and that there are other sophisticated methods for dealing with Pakistan’s aggressions that don’t involve pressing nuclear buttons. The decline in India’s appetite for limited conventional war against Pakistan, if institutionalized over time, would represent a game changer and significantly reduce the risk of nuclear war in the region.
- The big difference between the first and second nuclear ages is the domestic stability of the nuclear-weapon powers. For the greater part of the first nuclear age, states that wielded nuclear arsenals were stable and boasted strong governing institutions. In Asia—while China and India represent this continuity of strong state institutions, as well as checks and balances on the military—Pakistan remains internally unstable, and increasingly unable to rein in praetorianism over national security and nuclear policy.

2 Zia Mian and A.H. Nayyar, “Playing the Nuclear Game: Pakistan and the Fissile Material Cutoff Treaty,” *Arms Control Today*, April 1, 2010, https://www.armscontrol.org/act/2010_04/Mian.

3 Zia Mian and Alexander Glaser, *Global Fissile Material Report 2015* (Princeton, NJ: International Panel on Fissile Materials, 2015), <http://fissilematerials.org/library/ipfm15.pdf>.

4 Zachary Keck, “The Big China Nuclear Threat No One is Talking About,” *National Interest*, June 2, 2017, <http://nationalinterest.org/blog/the-buzz/the-big-china-nuclear-threat-no-one-talking-about-20983>.

The China-India Nuclear Dyad On the Geopolitical Rivalry in the Indo-Pacific Region

The China-India rivalry has long been considered a civil rivalry. “Despite the 1962 border war, in the subsequent decades both China and India have successfully avoided any further armed conflict. Occasional border intrusions, stand offs, posturing and minor skirmishes notwithstanding, for over five decades the two sides have successfully managed an otherwise uneasy relationship, buttressed by a string of confidence building measures and negotiated agreements and understandings to avoid armed clashes and resolve the border dispute peacefully.”⁵

Scholars such as Susan Shirk have characterized the China-India rivalry as “one-sided,” because of the power asymmetries at play.⁶ China clearly enjoys more economic and military power than does India, which makes India perceive threats from China more acutely.⁷

A sense of rivalry still pervades both sides of the China-India relationship, amounting to what China foreign-policy expert Dr. John Garver has described as a classic “security dilemma.”⁸ As one of the authors described in a 2014 analysis, “This dilemma is rooted in structural geopolitical rationales as much as China and India’s self-identification as emerging geopolitical rivals in the Asia-Pacific. Indeed, as China and India become poised to emerge as the two largest economic powers in the world displacing even the United States sometime by the middle of this century, the triangular relationship between these three states could become the most important one in the near future.”⁹

China and India have three sources of unease and rivalry: control of Tibet; the security of sea lanes straddling the Indian Ocean region, through which the most Chinese trade and energy supplies pass; and India’s participation in US plans to potentially check Chinese power in Asia and the western Pacific.¹⁰

In China’s view, none of these potential flashpoints poses an existential threat to its security. They could interfere with China’s smooth debut as Asia’s hegemon, but, at their worst, such threats would not

derail China’s consolidation of power in the region. For these and other reasons, Chinese scholars of international relations and strategic analysts also display a tendency to dismiss nuclear weapons from the China-India geopolitical equation.

Nuclear Observations from Beijing

The argument most often heard in Beijing is that modernization of China’s arsenal constitutes a check on US attempts to alter the nuclear defense-offense dialectic. Chinese analysts and scholars maintain that China’s nuclear modernization is disconnected from other great-power rivalries in the Indo-Pacific region. The modest advances in China’s nuclear hardware and operational capabilities are justified as means to ensure survival and assured destruction in light of US nuclear primacy.

However, Chinese analysts and academics are simultaneously sanguine about the nuclear dynamic in the Indo-Pacific region, and dismissive of Indian anxieties. They construe Indian concerns as strawmen that India has constructed with the explicit goal of justifying a nuclear buildup, which they argue is primarily driven by India’s prestige and great-power aspirations. China, they maintain, has never wielded nuclear threats against India. Neither can China acknowledge India’s nuclear status, or enter into a nuclear dialogue with it, since India is not a legally recognized nuclear-weapons state under the Nuclear Nonproliferation Treaty (NPT). When goaded about the nuclear power asymmetries that clearly favor China—and Indian anxieties concerning them—the view in Beijing is that India ought to accept this power imbalance, just as China has accepted the nuclear imbalance in its rivalry with the United States.

In private and public conversations about the unfolding nuclear dynamic in the Indo-Pacific region, Chinese analysts and observers often express the view that nuclear weapons constitute largely symbolic means of power. Or, to paraphrase William Shakespeare’s colorful language, mostly “sound and fury,” signifying little.

As noted earlier, power asymmetries clearly favor China over India. China has developed three generations of nuclear warheads—fission, thermonuclear and enhanced radiation. It has also tested tactical nuclear weapons, and had a

5 Kampani, *China India Nuclear Rivalry in the Second Nuclear Age*, p. 6

6 Susan Shirk, “One-Sided Rivalry: China’s Perceptions and Policies toward India,” in Francine Frankel and Harry Harding, eds., *The India China Relationship: What the US Needs to Know* (Princeton, NJ: Woodrow Wilson Center Press, 2004), <https://www.wilsoncenter.org/book/the-india-china-relationship-what-the-united-states-needs-to-know>.

7 text

8 John W. Garver, *The Security Dilemma in Sino-Indian Relations* (Abingdon, UK: India Review, 2002), p. 1-3.

9 Kampani, *China India Nuclear Rivalry in the Second Nuclear Age*, p. 7.

10 Ibid.



Photo credit: David James Paquin/Wikimedia.

decade-long lead over India in the development, deployment, and operations of ballistic missiles. It also enjoys a substantive lead in the development of a sea-based ship, submarine, ballistic, nuclear (SSBN) force.¹¹

These technical and operational asymmetries notwithstanding, Chinese analysts privately point to several convergences between Chinese and Indian thinking on nuclear weaponry. They claim these factors dampen any rivalry, today and in the future.

Structurally, both China and India have vast geographical depth, and considerable advantages in men and material against all rivals in local theaters. Neither faces a security dilemma of sufficient magnitude to justify the leveraging of nuclear weapons as its primary means of defense.

Furthermore, there are convergences in strategic culture. For example, Chinese leaders, first Mao Zedong and later Deng Xiaoping, imposed a political logic on nuclear weapons. Indian prime ministers—first the Nehru-Gandhi family, then its successors—have done the same. Political leaderships in both countries have embraced the notion that nuclear weapons, because of their scale of destruction, are unusable in war, which makes them political weapons. Leaders in both countries have, therefore,

accepted the need to avoid the destabilizing nuclear jockeying, which the superpowers embraced with a vengeance during the Cold War. “Leaderships in both countries also believe that a small nuclear arsenal and the prospect of assured retaliation is very likely sufficient to vacate nuclear threats from a stronger adversary...Above all, they have regarded nuclear weapons as symbols of prestige, means to close the capability and technological gaps with other great powers in the international system.”¹²

Chinese observers also underline another convergence in the China-India nuclear dyad: its technological determinism. In both countries, technocratic elites led arsenal development. In China, weapon design and deployment were attempts to close the gap with other nuclear powers. In India, this meant a preference for developing technology demonstrators instead of operational systems. “Although technological symbolism is giving way to operational imperatives, the political leaderships in both countries have remained sympathetic to the technocratic view of the scientists.”¹³

Because both countries’ scientific-technological communities gave direction to nuclear-weapon programs and delivery capabilities—and because their civilian leaders sought to impose their top-down political view of nuclear weapons—the

¹¹ Ibid., p. 11.

¹² Ibid., pp. 11-12.

¹³ Ibid., p. 12.

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military played a marginal role, until recently, in planning the use of nuclear weapons. Until the late 1980s, China's Second Artillery Corps (SAC), the agency tasked with the custody and use of nuclear weapons, lacked institutional capacities to develop a serious operational capability. As a result, China possessed a truly minimal capability well into the mid-1990s. Chinese analysts emphasize this fact and point to similarities in India, where the military was excluded from nuclear operational planning until the late 1990s.¹⁴

Nonetheless, Chinese scholars quietly admit that Chinese perceptions of nuclear operations have begun to change. There is now a greater recognition that hardware and institutional-organizational lacunae create dangerous vulnerabilities for the Chinese arsenal, which must be addressed. Among other factors, the “passing away of idiosyncratic strongmen, the growing professionalization of the Peoples Liberation Army, especially the SAC, the greater availability of funds, and the maturing of technological programs launched in the 1980s and 1990s have added to the push for better operational capabilities.”¹⁵ But these, scholars aver, are not tantamount to a push in China to massively expand the size of its arsenal or embrace baroque nuclear war-fighting approaches.

The Emerging Chinese Nuclear Force

Chinese analysts are generally circumspect and dissembling when answering questions about the future shape of China's nuclear force, especially its endpoint. This, in part, may have to do with the absence of surety. But, it is also likely a consequence of political sensitivities in discussing delicate national security issues with foreign interlocutors. However, the following key points can be discerned about the hardware and operational and doctrinal changes shaping the Chinese nuclear force.

Hardware

Hardware developments primarily have to do with improving the survivability of the Chinese nuclear force, to address its vulnerability to interdiction by US and Russian advances in precision and situational awareness. In the case of land-based missiles, this entails the shift from liquid-engine to a mobile solid-fuel rocket force involving an array of short-, medium-, intermediate-, and intercontinental-range

ballistic missiles. It is acknowledged that China is likely experimenting with MRV technologies for deployment on the long-range DF-31 ballistic missile and its variants. The key point about this development, however, is that MRV technologies are Chinese attempts to defeat US ballistic-missile defenses in the present and future, and do not presage a stab at splendid first-strike options.

Consistent with their non-acknowledgment of India's nuclear status, interlocutors are hesitant to acknowledge that deployments of the medium-range DF-21 ballistic missiles, whose different versions carry conventional and nuclear warheads, provoke anxiety in New Delhi. Likewise, there is no acknowledgment that China's development of the 1,500-kilometer-range DH-10—a nuclear-capable, land-attack cruise missile—is viewed with alarm in India, especially due to concerns that Beijing may transfer the system to Pakistan.

It is almost universally acknowledged in Beijing that the most serious advance in the Chinese nuclear arsenal in the last decade is the fielding of China's first true sea-based deterrent, in the form of the Type 094 class of SSBNs. Although this technological breakthrough is lauded, Chinese interlocutors elude discussions about the operational parameters of this sea-based force. Nor do they discuss whether future Chinese SSBN patrols will include the Indian Ocean, or whether China will transform the selective forays of its hunter-killer nuclear submarines in the Indian Ocean into routine stalking as India operationalizes its SSBN fleet, in this decade and beyond.

On operational issues, Chinese nuclear academics and analysts reiterate most of the well-known platitudes about Chinese nuclear strategy: NFU, retaliation only, and retaliatory nuclear strikes against counter-value targets. They are not easily drawn into the well-documented debate within the Chinese military over operational nuclear strategy, particularly whether China ought to dispense with its historic adherence to NFU.¹⁶

The Western understanding of China's operational nuclear strategy is that it consists of two complementary concepts: “close defense” and “key-point counterstrikes.”¹⁷ Close defense concerns force protection and survivability, using mobility and concealment. Key-point counterstrikes concern China's retaliatory policy, which combines counterforce and counter-value strikes, with the

14 Ibid., p. 11.

15 Ibid., p. 12.

16 Ibid., p. 15.

17 M. Taylor Fravel and Evan S. Medeiros, “China's Search for Assured Retaliation: The Evolution of Chinese Nuclear Strategy and Force Structure,” *International Security* vol. 35, no. 2, 2010, pp. 76-77.

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Chinese military’s goal to shock a nuclear adversary into capitulation, or at least de-escalation.¹⁸

Since the late 1980s, a debate has raged within the Chinese military about whether China should continue with Mao’s traditional minimum deterrence posture or adopt a more ambitious, limited deterrence posture. The former would threaten the lowest level of damage necessary to prevent attack, using with the smallest possible number of nuclear weapons. A limited-deterrence posture would entail limited war-fighting capability, to inflict costly damage on the adversary at every stage and deny it a victory. “It demands larger, more diverse and sophisticated nuclear forces with multiplication of delivery systems and warheads, a robust command and control, civilian defense, and the ability of the military to conduct sustained and repeated nuclear attacks.”¹⁹

These postures differ from the maximalist postures pursued by the United States and the former Soviet Union during the Cold War. A maximalist posture entails capabilities that permit the execution of a disarming first strike aimed at counterforce targets and sustained war fighting, which Chinese analysts reject because of its cost, technical complexity, and the hegemonic principles it signifies.²⁰ They also favor limited postures over nuclear minimalism.

“The debate on a limited posture has also become enmeshed with another, on whether China should abandon its historic adherence to NFU or alternatively dilute it by qualifying it. The rationale once again is that NFU leaves China vulnerable.”²¹ Alongside these debates are also attempts at what Alastair Iain Johnston, Harvard University professor of China in World Affairs, dubs the “Sinification of nuclear strategy.”²² Following the ancient Chinese military strategist Sun Tzu’s maxim that the most efficient victory is the one that results from a war never fought, Chinese military professionals often favor the coercive elements of nuclear strategy, either politically or in military operations.²³ Thus, there is ambiguity about when and if China proposes to launch nuclear forces if attacked, when it is fighting on its (or disputed) territory, or when it receives intelligence about an imminent nuclear attack.²⁴

“Western experts generally agree, however, that there is a vast gap between these doctrinal debates

and China’s ability to execute more ambitious nuclear operations. Optimists argue that Chinese warheads and delivery systems are not increasing to numbers that would signify the transition to a limited deterrent posture. China at best is improving the mobility, range, reliability, and survivability of its nuclear forces by building a new generation of delivery systems. This fits in with a minimal deterrence posture and Chinese analysts generally concur with this judgment.”²⁵

The India-China and India-Pakistan Nuclear Dyads

On the Geopolitical Rivalry Specific to South Asia and the Indo-Pacific Region

After sitting on the nuclear fence for nearly two decades, it is evident that India is firm on building a potent and operational nuclear arsenal. In New Delhi, the nuclear hesitancy of the past has given way to assertive and confident strategic reasoning. Gone are expressions of normative or strategic culture of restraint in conversations with interlocutors. Instead, the new vocabulary is emphatic about a narrow and hard realism that is inextricably bound up with strategic interests, defense, and deterrence. However, India’s thinking about nuclear forces, by and large, remains minimalist.

The consensus that cuts a wide swathe through New Delhi’s strategic-affairs think tanks is that India is a great power, and well on the path to actualizing its true potential. Unlike China, which has already risen to the position of the world’s second-largest economy, India’s rise will probably stretch into the middle of the twenty-first century. Nonetheless, Indian strategic thinkers and analysts exude confidence in the linear continuity of this trend, and in its eventual outcome.

In this geostrategic context, Indian nuclear interlocutors maintain, a nuclear arsenal will serve as the means to deter regional nuclear threats, and to buttress India’s position as a great power in the Indo-Pacific region. In terms of sheer population size, geography, and potential economic growth, they identify India as China’s peer in the region. They also view India as a potential leader in a regional and extra-regional concert of democracies—including Japan, Australia, and the United States—which

18 Kampani, *China India Nuclear Rivalry in the Second Nuclear Age*, p. 16.

19 Ibid., p. 16.

20 Ibid., p. 16.

21 Ibid., p. 13.

22 Alastair Iain Johnston, *Cultural Realism: Strategic Culture and Grand Strategy* (Princeton, NJ: Princeton University Press; 1995).

23 Kampani. *China India Nuclear Rivalry in the Second Age*, p. 17.

24 Ibid., p. 17.

25 Ibid.

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could emerge as a balancing coalition to rein in the excesses of Chinese geopolitical ambitions.

The original reason why India decided to weaponize its nuclear capabilities in the 1980s was Pakistan's advances toward weaponization. This was also the case with the creeping advances in India's operational nuclear capabilities until 1998, when it stepped out of the nuclear closet and formally claimed nuclear status. Since then, the justifications for the scale and scope of India's nuclear ambitions have evolved.

With sufficient nuclear capabilities to deal with Pakistan, and the emerging consensus that Pakistan is in secular decline, India's strategic attention has turned to China. No doubt, India and Pakistan remain locked in a brutal, and seemingly intractable, regional rivalry. Pakistan remains the source of a LIC against India, which Islamabad prosecutes through nonstate actors. The LIC saps the resources of the Indian state, and partially hinders it from projecting surplus power abroad. The LIC also fuels anxieties that a larger conventional war in the region could turn nuclear. However, Indian national security elites now privately acknowledge that the LIC does not

pose an existential threat to India. In New Delhi, there is reduced interest in punishing Pakistan through overt, conventional means. Indian strategic elites are now more appreciative of covert military actions, legal pressure, and political-diplomatic pressure as more effective methods for taming Pakistan's transgressions.

China is now India's primary source of strategic envy. Indian geopolitical thinkers resent China's attempts to lock India into a local regional rivalry with Pakistan through strategic nuclear assistance to the latter, and, more generally, political, economic, and conventional military support. They also view China's non-settlement of its border disputes with India, the increase in border skirmishes and military standoffs in the Himalayas, and attempts by China to establish a naval presence in the Indian Ocean as other attempts to limit India's influence and power.

Nonetheless, India does not believe that China poses a compelling threat to its security. Nuclear weapons remain in the background. Their dark shadow influences the psychology of power between the two countries. Nonetheless, Indian strategic elites are emphatic that economic success

Photo credit: Naval Historical Center, Washington, DC/Wikimedia.



and the consolidation of a commonly imagined and shared national identity will make or break India’s great-power ambitions in the twenty-first century.

Nuclear Observations from New Delhi

In private and public remarks, nuclear observers in New Delhi emphasize the surprise factor in India’s arsenal development. The notion of surprise refers to India’s disabusing of conventional external assumptions about its nuclear ambitions. Until about a decade ago, leading Western observers insisted that India’s nuclear ambitions were a result of domestic, and not strategic, rationales. These observers also averred (many still do) that India’s culture of strategic restraint, and competing nuclear and missile baronies that cared for organizational prestige above all else, meant that India would settle for symbolic, rather than operational, nuclear status.²⁶ In the words of Dhruva Jaishankar, “The Indian establishment can be faulted for not always clearly articulating its approach or countering speculation. In part, this is a product of its deliberate ambiguity.”²⁷

Indian interlocutors point out that nuclear developments in the last two decades have radically upended these expectations. Politically, India has forced the world to accept the geostrategic rationales for its nuclear choices. Finally, the argument—pushed by many—that India’s problematic civil-military institutions would become a constraining factor in the operationalization of its nuclear forces is being disproved by India’s determined moves to draw its military into operational nuclear planning.

Indian planners and strategic thinkers have updated their nuclear philosophy to consider the new structure of the Indian nuclear force. But, they insist that its drivers remain the same as before: the arsenal serves as the means of deterring potential nuclear threats from Pakistan and China. Also emphasized is India’s goal to ultimately develop an invulnerable, and lethal, second-strike capability to achieve deterrence. The other point reiterated in New Delhi is that, whereas India’s initial operational focus was Pakistan—against which a conventional war is considered most likely—strategic attention in nuclear force planning is increasingly focused on China, against which India possesses a very limited retaliatory capability. Senior and retired government officials, however, shy away from specifying damage-expectancy targets for either Pakistan or China.

The philosophy of the nuclear force internalizes the lessons of the nuclear revolution, which is that the primary use of nuclear weapons is political: to deter, rather than fight, wars. The scale of destruction from these weapons distorts the linkage between force and political ends. Indian resistance to the conventionalization of nuclear weapons on the battlefield is also driven by practical assessments. For example, officials who have formerly served at the highest levels in government argue that the organizational and technical infrastructure needed for nuclear war fighting is currently beyond India’s economic and technical capacity. To this point, they add a layer of Gandhian and Nehruvian principles, which portrays as an obscenity the notion of nuclear weapons as instruments of war.

As in China, India’s adherence to a retaliatory posture is explained through structural, cultural, and civil-military institutions. The first draws from neorealism, and explains India’s choice of posture as stemming from its vast geographical depth vis-à-vis Pakistan, its conventional force strength, and the defensive protection offered by the Himalayas against China. The strategic-culture argument attributes restraint embodied in Indian leaders’ political view of nuclear weapons and is linked to the third—a civilian aversion to the military’s operational emphasis on weapons and war. This third point, Indian interlocutors maintain, is the slippery slope toward more complex nuclear-war-fighting doctrines and operations. When coupled with India’s problematic civil-military institutions, the outcome is nuclear moderation.

When questioned about two developments that raise serious questions about radical changes in the philosophy governing Indian nuclearization, both official and non-official nuclear analysts downplay them. The first concerns the steady dilution in India’s NFU doctrine and the dropping of hints that, under certain circumstances, and in the Pakistan theater more specifically, India might abandon NFU in favor of a disarming counterforce strike. The second relates to Indian forays into BMD and MIRV that could, in theory, render splendid first-strike options in the future.

Indian observers admit that, when these developments are viewed without context and in truncated bits and pieces, they can appear radical. But, when embedded within the broader context of Indian grand strategy—and the technical state of its military research-and-development programs—the threats are immediately deflated.

26 George Perkovich and James M. Action, eds., *Abolishing Nuclear Weapons: A Debate* (Washington, DC: Carnegie Endowment for International Peace, 2009), http://carnegieendowment.org/files/abolishing_nuclear_weapons_debate.pdf.

27 Dhruva Jaishankar, “Decoding India’s Nuclear Status,” *Wire*, March 4, 2017, <https://thewire.in/120800/decoding-india-nuclear-status/>.

The Emerging Indian Nuclear Force

In both formal seminars and private conversations, it becomes apparent that, in the past two decades, the Indian arsenal has had three iterations: minimal, credible minimal, and simply credible deterrence. From a prototypical nuclear force consisting of small, air-delivered nuclear weapons, the arsenal is evolving into the complex architecture of a triad-based system. However, Indian observers make the pointed observation that the planned force is ambitious only in scope, but not in scale.

Hardware

India is believed to possess 120-130 warheads, and is expanding its arsenal based on the country's stock of fissile material, fissile-material production rates, production infrastructure, and rough estimates of the amount of fissile material required in simple fission weapons.²⁸ Such estimates are insufficient to determine the types of weapons India may possess in its inventory.

Serious doubts remain as to whether Indian scientists can field reliable boosted-fission and thermonuclear weapons. Even Indian nuclear observers, both scientific and military, are unable to clarify these doubts, and much controversy remains about the nature of the weapons that India is capable of fielding. Nonetheless, fewer doubts are expressed about the relative success of India's simpler fission weapons, and even fewer about the growing sophistication of its delivery systems.

India has developed and deployed land-based, short- and medium-range ballistic missiles, and is in the process of testing intermediate-range ballistic-missile systems. The medium- and intermediate-range missiles are mobile and deploy solid rocket motors, factors that greatly enhance survivability. Neither defense journalists nor military and civilian analysts in India can reliably confirm the veracity of rumors about the development of an intercontinental-range ballistic-missile prototype. But, the majority view in New Delhi is that, if such a system is under development, it will only be tested for demonstration and prestige reasons.

Similarly, military analysts differ on the future of the nuclear force's air leg. Former Indian Air Force officers maintain that air-delivered nuclear weapons constitute the most reliable leg of the nuclear force. Others argue that, absent the development of long-range, land-attack, nuclear-capable cruise missiles, the future of the arsenal's air leg is doubtful.

The strategic lynchpin of the Indian arsenal is not its size, but its survivability. By the latter reckoning, Indian interlocutors argue, the sea leg—based on a projected fleet of three to five SSBNs—is the most ambitious part of the arsenal's development. However, there is no clarity on when the SSBN force will become operational, or about the actual number of warheads or the ranges of onboard missile systems. Foreign observers, using open sources and the elite-interview method, can make reasoned inferences that the SSBN force will remain a token force in its initial iteration. It will allow India limited targeting options against Pakistan, though not against China. Nonetheless, the indicators are that India is seeking an SSBN force capable of targeting China. It remains unclear whether Indian planners will seek the development of systems that can be deployed in the relative safety of home waters close to Indian shores or, ultimately, in the western Pacific.

Doctrine and Operations

Over the last fourteen years, India has steadily diluted its commitment to an unambiguous NFU policy. In 2003, for example, an Indian government document listed an adversary's use of chemical or biological weapons as a triggering condition for the potential first use of nuclear weapons. Since then, a drip of private statements by government ministers (including defense ministers) and senior military leaders (including those formerly in leadership positions in India's nuclear command authority), suggest a growing discomfort with NFU. However, this discomfort has not reached the point of jeopardizing the principle.

The issue of whether India has privately abandoned NFU, or will do so soon, is an unknown for even better-informed observers in New Delhi. However, former national security officials, including those who have served at the highest levels, indicate that NFU has survived at least three internal governmental reviews and is here to stay. But, there is no resolution to the suggestion that under certain circumstances—such as when there is apparent surety about an impending nuclear attack—India might decide to use nuclear weapons first. It is also suggested that even token/symbolic nuclear attacks by Pakistan could trigger a massive disarming strike from India.

When viewed in isolation, this accumulation of evidence is alarming. However, senior Indian national security officials also indicate that India is rethinking its limited-conventional-war strategy against Pakistan. The latter strategy was devised as a means for punishing the Pakistani military for

28 Hans M. Kristensen and Robert S. Norris, “Indian Nuclear Forces, 2017,” *Bulletin of the Atomic Scientists* vol. 73, no. 4, 2017, <http://www.tandfonline.com/doi/full/10.1080/00963402.2017.1337998>.



Photo credit: DOD Defense Visual Information Center/Wikimedia.

waging asymmetric war against India. Pakistan, the weaker conventional power, has threatened to go nuclear to ward off an Indian conventional attack. This action-reaction dynamic is regarded by many observers as the “greatest source of nuclear instability in the region.”²⁹ However, should the new Indian thinking on abandoning conventional-war approaches to dealing with Pakistan solidify, it would close the likeliest pathway for a nuclear war in South Asia. In the India-China dyad, on the other hand, ample conventional capabilities, coupled with solid geographical defenses, keep the lid on nuclear first-use threats.

At the operational level, former officers of the Strategic Forces Command (SFC)—the military agency tasked with the custody functions of the nuclear force—identify technical reliability and force reconstitution as the agency’s greatest challenges. Technical reliability remains a concern because of India’s very limited number of nuclear tests and the

public controversy surrounding the success of those tests, particularly its purported boosted-fission and thermonuclear weapon designs. These doubts, Indian analysts claim, cannot be addressed in the absence of further testing. In the case of delivery systems, however, the SFC is gradually forcing the issue of a greater number of field tests for missiles under more realistic operational conditions.

Force reconstitution is also considered a challenge, because the bulk of the Indian arsenal is maintained in a de-mated form during normal peacetime conditions. However, senior Indian military leaders suggest that new procedures allow the co-location of nuclear warheads with aircraft. In the case of ballistic missiles, warheads will very likely be mated to the missiles during emergency flushing-out routines. It is also hinted that a small number of missiles may be kept permanently mated with warheads, to deal with a bolt-from-the-blue scenario. Most Indian experts, however,

²⁹ Kampani, *China India Nuclear Rivalry in the Second Nuclear Age*, p. 26.

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maintain that current institutional arrangements of keeping nuclear warheads separated from ballistic missiles will end once India’s SSBN force becomes operational. The SSBN force will require the institution of positive controls. But, it is unclear if the institutional procedures incorporated in the sea leg of the arsenal will also migrate to the land-based, air-based and missile legs of the triad.

Finally, Indian observers express concerns about the ability of the Indian military to maintain a smooth tempo of nuclear operations during war. These concerns stem from organizational-coordination challenges across a range of civilian and military agencies, as well as the physical challenges of ensuring smooth passage for the nuclear force, in light of India’s relatively weak transport and communications infrastructure.

The nuclear force, according to most concluding arguments in New Delhi, will remain a force in progress for many years to come.

The Pakistan-India Dyad On the Geopolitical Rivalry in South Asia

The Pakistan-India rivalry has been dubbed the “hundred-year rivalry,” and few in Islamabad’s think tanks venture to deny it. What these scholars often do deny, however, is Pakistan’s role in abetting it, or in opening the region to overt nuclear competition. For the latter phenomenon, they lay the blame solely at India’s door. Unlike those of China and India—states that self-identify as great powers, and view their arsenals as part of a broader nuclear dynamic on a global scale and in the Indo-Pacific region—Pakistan’s nuclear rationales focus exclusively on India. If not for India’s ill-considered 1998 decision to conduct nuclear tests and claim overt nuclear status, the argument in Islamabad goes, Pakistan would have remained content with covert nuclear capabilities, a shadow of its current state.

Foreign-policy and strategic-affairs analysts across think tanks in Islamabad view their country’s increasing isolation in the international system with foreboding and defiance. They tout Pakistan’s nuclear arsenal as the means with which Pakistan can withstand international pressures, as well as the instrument that deters the international community from completely isolating their country. To their mind, Pakistan’s nuclear and strategic approaches are defensive, and are primarily aimed at ensuring their country’s sovereignty through resisting India’s attempt to establish hegemony in South Asia.

In both public and private presentations, Pakistani interlocutors emphasize three sources of Pakistani insecurity: Pakistan’s lack of strategic depth, a geographic condition that leaves it vulnerable to

an Indian conventional attack and invasion; India’s rapidly growing economic and conventional military advantages, which are creating a fast-developing, and probably permanent, power imbalance in South Asia; and India’s determination to seek hegemony in South Asia, and a great-power role in the Indo-Pacific region more generally, factors that will constrain Pakistan’s strategic independence.

The growth of Pakistan’s nuclear arsenal, now believed to be the fastest-expanding in the world, is justified as a legitimate and defensive means to deter war with India or, in the event of war, to bring it to an early close. In emphasizing Pakistan’s legitimate requirements for nuclear weapons, few in Islamabad are willing to admit that the Pakistani Army’s prosecution of an LIC via nonstate proxies is the source of conventional-war threats emanating from New Delhi. The LIC, they maintain, emanates from conditions in Indian and Pakistani civil society, which the Pakistani Army and its intelligence agencies neither direct nor control. Furthermore, they blame India’s intransigence in addressing the Kashmir dispute with Pakistan, and its human-rights abuses against Kashmiri Muslims, as the tinder that fuels the LIC and threatens to escalate into a wider conventional war in the region.

Therefore, Pakistani nuclear analysts emphasize that Pakistan’s structural and strategic conundrums force it to treat nuclear weapons in a manner different from China and India. Because of its specific vulnerabilities, Pakistan is unable to simply downgrade nuclear weapons to political weapons. Rather, it is learning to treat them as instruments designed to both deter and fight wars, after the example of the Western alliance in Europe during the Cold War.

Nuclear Observations from Islamabad

Pakistan differentiates its nuclear-weapons program from India’s by its purely strategic nature. Unlike India, where prestige factors and scientific-bureaucratic rivalries are intrinsically bound up with strategic justifications for acquiring nuclear weapons, the message from Pakistan is singular: Pakistan’s nuclear-weapons program is a rational military response, executed under the unified direction of the Pakistan Army. But for the existential threat India poses to Pakistan, the latter would have no need for a nuclear arsenal.

In Pakistan’s nuclear mythology, its weapons program originated in the aftermath of the traumatic 1971 Bangladesh War, in which India played a central role in breaking the country in two. Nuclear weapons, according to Pakistani strategic analysts, have kept peace in the region since then.

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More significantly, on three occasions (1986, 1991, and 2002), Pakistani weapons have deterred India from launching a conventional war against Pakistan.

When discussing the scale and scope of Pakistan’s nuclear buildup, its fast expansion, and its proposed triad architecture, strategic justifications slip just enough for analysts to admit to other supporting rationales. Those include Pakistan’s identity as India’s co-equal in South Asia, and its determination not only to protect its sovereignty, but also to deny India hegemony in the region. In this sense, nuclear weapons symbolically close the demographic, economic, and conventional power gaps between Pakistan and India, just as they masked the former Soviet Union’s vulnerabilities during the Cold War.

Very quickly, however, Pakistani interlocutors catalogue India’s destabilizing actions to justify Pakistan’s arsenal choices. Denying that India’s strategic choices are driven by the demands of assured retaliation, the majority view in Islamabad is that New Delhi primarily seeks nuclear dominance over Pakistan. Analysts argue that India’s technical explorations of ballistic-missile defenses and multiple-warhead technology are evidence that New Delhi intends to develop splendid first-strike capabilities. They also regard the steady dilution in India’s NFU commitments over the last decade as further evidence of India’s dangerous nuclear ambitions.

Therefore, nuclear analysts in Pakistan maintain that their country has no choice but to develop the widest range of technologies and force architectures capable of assured retaliation. This means expanding the scope of the arsenal beyond its air and land legs to include a sea leg. It also includes options for MRVs and long-range, land-attack cruise missiles deployed on submarines. India’s supposed explorations of splendid first-strike options are also the rationale used to justify the rapidly expanding size of Pakistan’s arsenal, which could soon rival in number those of other powers, including the United Kingdom, France, and China. Many military and senior Foreign Service officials in Islamabad aver that Pakistan requires those numbers, as it must think not just in terms of first and second strikes, but also third strikes, to disabuse India from launching disarming nuclear attacks.

An even greater article of faith across strategic elites in Islamabad is that Pakistan’s conventional weakness and lack of geographical depth necessitate the retention of nuclear first-use options in a conventional war. This does not, of course, mean that Pakistan proposes to use nuclear weapons lightly. Its military would prefer to fight conventionally until such time as Pakistan’s internal lines of communications and major urban centers

are threatened, or its army confronts the prospect of a catastrophic defeat on the battlefield.

Pakistan’s decision to develop tactical nuclear weapons has drawn the greatest ire, by far, from proliferation and nuclear analysts worldwide. Most concerns have to do with the safety and security of forward-deployed nuclear weapons, and the belief not only that tactical nuclear warfare is immensely difficult to prosecute, but that any attempt on Pakistan’s attempt to do so would escalate into an uncontrollable nuclear war with India. When confronted with these misgivings, Pakistani interlocutors suggest that their military’s development of tactical nuclear weapons should not be treated as synonymous with operationalizing tactical nuclear warfare—at least not yet. Further, the absence of an operational decision on tactical nuclear weapons renders moot questions of safety and security of forward-deployed weapons.

On the narrower subject of the dangers of tactical nuclear deployments, the conversation invariably evolves into a broader discussion on the safety and security of Pakistan’s nuclear arsenal. Over the last three decades, the Pakistani “deep state’s” collaboration with jihadi nonstate actors in Afghanistan and India in pursuit of geopolitical ends has had terrible blowback effects on Pakistan itself: the rise of Islamic fundamentalism in Pakistan, mass-casualty terror attacks on soft civil-society and military targets, and insurgent attacks on military bases that possibly house nuclear weapons, with insider collaboration. Most analysts who study Pakistan suspect the problem is far worse than is publicly known.

Pakistani interlocutors, however, vociferously deny that Pakistan may be failing, or that jihadi groups could gain control of its arsenal. They cite a long list of safety measures, human and technical, that Pakistan has instituted in the last decade to strengthen the security of its nuclear complex. Bases may have been attacked, they admit, but no weapon has come close to falling into the hands of nonstate actors. Even should such an eventuality come to pass, the argument goes, setting off nuclear weapons is no easy task; it would be beyond the skills of untrained and poorly educated nonstate actors. Finally, Pakistani analysts rest their case by citing US nuclear optimists, including Kenneth Waltz, who argued that a nuclear state that undertook the stupendous task of acquiring nuclear weapons could also be counted on to protect its crown jewels.

The Emerging Pakistani Nuclear Force

Just as in India, Pakistani interlocutors point to the surprise their country’s nuclear arsenal evokes abroad. The surprise in Pakistan’s case, however, has more to do with its success in keeping up with, and even transcending, the operational capacity of its larger neighbor. This is an obvious point of pride and satisfaction in Pakistan. That aside, Pakistan appears to be following the classic path of deterrence, with warhead numbers sufficient to meet damage-expectancy targets under conditions of assured retaliation. As in India, the focus of Pakistan’s military now boils down to a reliable supply of fissile material, diversified and invulnerable delivery architectures, technologies designed to defeat missile defenses, smooth operations, and robust command and control.

Hardware

There is a consensus that Pakistan has overcome the hurdle of large fissile-material supplies. According to reliable open-source assessments, Pakistan’s enriched-uranium stock holdings are estimated at 3,080 kilograms, with an estimated expansion rate of forty tons annually from 2009.³⁰ With four research reactors now operational at Khushab, Pakistan is also accumulating seventy kilograms of weapons-grade plutonium annually, with an estimated stock of 170 kilograms.³¹ In theory, this means that Pakistan could possibly build a total of approximately 220-250 warheads by 2025, a figure that comes close to rivaling the size of the French and British arsenals, and possibly exceeds China’s.³² Although Pakistani strategists deny that Pakistan proposes to build so vast an arsenal, they defend its fissile-material production and accumulation choices as necessitated by complex damage-estimation (DE) calculations under multiple nuclear-strike scenarios.

The same justifications are offered for Pakistan’s nuclear force architecture and choice of delivery-system technologies. The architecture of the force, which traditionally focused on land-based ballistic missiles and aircraft, has expanded to include a sea leg. To external critiques that the sea leg is the product of intramilitary organizational competition gone awry, the counter in Islamabad is that a sea-based capability is a necessary means to offer an invulnerable retaliatory force. In the future, military

analysts emphasize, Pakistan will focus on deploying solid-motor, mobile, medium- and intermediate-range ballistic missile on land—possibly incorporating multiple-warhead technologies designed to defeat any Indian ballistic-missile system. There is less clarity on the future prospects of the arsenal’s air leg. However, interlocutors point to Pakistan’s development of land-attack cruise missiles as possible means to arm aircraft, as well as submarines and surface craft on sea.

Doctrine and Operations

Unlike China and India, Pakistan is committed to an asymmetric nuclear strategy of first use. Since the late 1990s, some details have emerged about the Pakistani military’s internal thinking on what this might entail. The well-known red lines include: an Indian invasion and a major defeat for the Pakistani army on the battlefield, Indian threats to major Pakistani urban centers, the severing of Pakistan’s major internal lines of communication during an invasion, or any attempts by India to internally destabilize Pakistan.

These red lines are predictably vague, sufficient to keep the enemy guessing while leaving enough room for the Pakistani military to walk back from a crisis of resolve and credibility. That apart, there is some confusion and debate about the nature of any Pakistani nuclear response. Analysts hint that Pakistan may initially demonstrate its nuclear resolve via token strikes against invading and isolated Indian units on Pakistani territory. Thereafter, attacks may escalate to Indian bridgeheads on the border, and area military targets critical to the invasion. Further still, attacks could encompass Indian cities, and portions of the nuclear force itself.

But, when probed further, operational details are lacking. For example, Pakistani interlocutors have no convincing explanations for their military’s presumptions about India’s graduated escalatory behavior. Why, for instance, do they believe that India would necessarily follow Pakistan’s token demonstration shots with mimicry? How would Pakistan react to a massive Indian nuclear attack to any token nuclear attack by the Pakistani military? How would Pakistan retain escalatory dominance during the course of a nuclear conflict? How could Pakistan be confident of attacking Indian nuclear forces in the course of escalation, without the

30 David Albright, *Pakistan’s Inventory of Weapon Grade Uranium and Weapon Grade Plutonium Dedicated to Nuclear Weapons* (Washington, D.C.: Institute for Science and International Security, 2015), http://isis-online.org/uploads/isis-reports/documents/Pakistan_WGU_and_WGpu_inventory_Oct_16_2015_final_1.pdf.

31 David Albright and Serena Kelleher-Vergantini, *Pakistan’s Fourth Reactor at Khushab Now Appears Operational* (Washington, D.C.: Institute for Science and International Security, 2015), <http://isis-online.org/isis-reports/detail/pakistans-fourth-reactor-at-khushab-now-appears-operational/12>.

32 Rishi Iyengar “Pakistan will be World’s Fifth Largest Nuclear Power by 2025,” *Time*, October 21, 2015, <http://time.com/4082776/pakistan-report-nuclear-weapons-fifth-largest-2025/>.

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requisite ISR capabilities? How might Pakistan resolve the use-them-or-lose-them dilemma for forward-deployed tactical nuclear weapons, subject to accidental or deliberate conventional attacks by an adversary?

More significantly, there is little clarification on the nature of Pakistan’s emerging tactical nuclear-warfare capabilities, beyond references to the Nasr short-range ballistic missiles, proposed nuclear-artillery systems, and low-yield weapons. Few in Pakistan are publicly willing to explain how Pakistan proposes to operationalize tactical nuclear warfare, in light of the collateral damage from such weapons and the command, control, and logistical challenges they pose. Nor is evidence shown to back up the Pakistani military’s claims that its tactical battlefield capabilities are more than paper exercises and staff planning. In public, for the most part, interlocutors deflect such probes with the simple answer that Pakistan’s tactical nuclear weapons are still a “force-in-being,” the definition for which is “strategically active but operationally dormant.”³³

Conclusion

This report’s conclusions concerning the second nuclear age in the Indo-Pacific region—based on the workshops conducted in New Delhi, Islamabad, and Beijing, formal and informal conversations with academics, policymakers, and strategic analysts in China, India, and Pakistan, and a review of the evidence—are more optimistic than the nuclear “sky is falling” arguments often aired in the mass media, and policy conferences in general.

If the nuclear developments in the region are viewed as absolutes, the size of the arsenals—as well as the scope of their technologies—lead to highly unsettling conclusions. By the middle of this century, three nuclear powers will field arsenals, each possibly the size of France’s or the UK’s, and well in excess of Israel’s. Each will also possess a diversified nuclear arsenal in terms of delivery systems, but not in warhead types, with the exception of China. From a nonproliferation perspective, this is a highly negative development.

This absoluteness, however, is mitigated by the political, structural, cultural-institutional, and technical subtexts in which the arsenals are embedded.

Politically, the regional competitors do not find themselves in security dilemmas in which the existence of their political systems is at stake, as

did the competitors during the Cold War. China, India, and Pakistan are stakeholders in the existing international order, and are committed to an open economic order and multilateral institutionalism. Further, unlike the pre-World War I era, no competitor in the second nuclear age is part of rigid alliance systems engaged in repeated crises driven by notions of absolute gains.

In the China-India nuclear dyad, the sources of conflict are unsettled boundary disputes, naval rivalry in the Indian Ocean, and more general Chinese goals to deny India peer-power status by boxing it in South Asia with Pakistan. But, this does not rise to the level of either the Anglo-German, Franco-German, or Russo-German rivalries in Europe prior to World War I. Neither do Beijing or New Delhi see themselves as engaged in a Manichaean rivalry of the sort that bedeviled the great powers between the two world wars, and the superpowers after them. Both China and India regard economic growth as the criteria for national success, and political stability as the means to great-power status. More significantly, each views robust conventional means—and not nuclear arsenals—as the means to addressing great-power aspirations.

The India-Pakistan dyad elicits greater concern. The hundred-year struggle between the two countries is ideological and strategic. It is deeply embedded in each state’s national identity, which makes it difficult to resolve. But, here again, two critical mitigating factors provide hope. First, Pakistan has not expanded the scope and intensity of its LIC against India. A status quo has descended on the conflict, as the “ugly stability” between the two rivals has not gotten uglier.³⁴ Within Pakistan, there is now greater questioning of the LIC’s blowback effects on Pakistan’s domestic peace. Pakistan’s defense and foreign-policy approaches also show fractures along institutional fault lines, with its deep state (military and intelligence agencies) taking the hard line and mainstream political parties professing a more moderate line.

India, on the other hand, is veering around to the consensus that the LIC does not constitute an existential threat to its security. Among India’s national security elites, there is further acknowledgment of the institutional divisions within Pakistan and the belief that India ought to pursue multiple foreign policies to deal with Pakistan’s civil and military establishments. Successive Indian governments also appear to have quietly concluded that escalation to a conventional counterattack against Pakistan could end up in self-defeat.

33 Ashley J. Tellis, Abraham M. Denmark, and Travis Tanner, eds., *Strategic 2013-2014: Asia in the Second Nuclear Age* (Auckland: National Bureau of Asian Research, 2013), <http://nbr.org/publications/issue.aspx?id=294>.

34 Ashley J. Tellis, *Stability in South Asia* (Arlington, VA: RAND, 1997), https://www.rand.org/content/dam/rand/pubs/documented_briefings/2005/DB185.pdf.

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There are other sophisticated options available to India, including covert attacks using special forces, diplomatically isolating Pakistan, and legal sanctions through the United Nations. This new Indian approach is also driven by the conviction that Pakistan is in secular decline, and that, above all else, state failure in Pakistan would constitute the greatest threat to Indian security. This suggests that tensions between Pakistan and India have likely plateaued.

The political rivalry between the three nuclear states is also a function of geography and structure. India and China—given their geographic depth and mountainous defenses, demographic size, and large modern conventional forces—do not perceive the other as a grave threat to national security. The case is different in the India-Pakistan dyad, where structural factors clearly favor India. However, the relatively static nature of the LIC and India’s quiet decision to walk back from threatening Pakistan with an escalatory conventional war mean that the risk of a war in South Asia is probably at its lowest levels since the late 1980s. Overall, this is a positive development.

China and India also share a common strategic culture of treating nuclear weapons as political weapons, as instruments of deterrence rather than of war fighting. This shared culture is generally attributed to two factors. One is that structural advantages of geographical depth and defenses lessen the propensity of either state to turn to nuclear weapons as its primary means of security. The other is that structure is inevitably intertwined with cultural beliefs held by Chinese and Indian leaders of the political, rather than military, utility of nuclear weapons.

Further, civilians in both states retain the upper hand in their institutional relationship with the military. This means that nuclear operational postures and doctrine stem from political beliefs and rationales, and not from military operational pressures, which often produce unstable forward-deployed and hair-trigger postures. To be sure, Pakistan’s case is different. Pakistan’s military has transmogrified into a praetorian guard that has captured the Pakistani state, and has subverted the state’s strategic interests to its narrower institutional interests. Nonetheless, there is no evidence yet that Pakistan is preparing to exceed the numerical limits of the French and British arsenals. More reassuringly, there is also no evidence that Pakistan is embracing high-alert and on-the-ready deployment postures.

Technologically, China, India, and Pakistan are all striving to achieve assured-destruction capabilities, the gold standard for nuclear stability. Three technical developments, however, are causes for concern. These include Chinese exploration of

MRV and BMD technologies, India’s exploration of the same, and Pakistan’s development of tactical nuclear weapons. MRV and BMD are destabilizing in principle, as they could pave the way for splendid first-strike options in the future. In the Chinese and Indian cases, however, BMD programs appear exploratory. Both states’ MRV programs also appear to be motivated by a desire for developing technical means to defeat missile defenses and achieve better counterstrike options. In addition, China and India lack real-time ISR capabilities, which are the key to successful first strikes. More significant, with all three states investing in mobile solid-fuel missiles designed for rapid launch, the propensity for first-strike options is further reduced. Pakistan’s tactical nuclear-weapons program is dangerous for safety and security reasons, and also because it is the surest route to escalating conventional war to the nuclear level. However, Pakistan does not appear to have operationalized its tactical nuclear-warfare plans yet.

The greatest threat in the region comes not from the development of large, sophisticated, and diversified nuclear arsenals, but from the continued stability of the institutions guarding them. In this regard, the future stability of Pakistan remains a wildcard. In the last four decades, the Pakistani deep state’s pursuit of LICs in Afghanistan and India, via the vehicles of radical jihadi nonstate actors, has produced terrible blowback effects on Pakistan itself. Both the Pakistani state and civil society have become the targets of brutal terror attacks. Some of the attacks have occurred, with insider help, on sensitive military bases where nuclear weapons are likely stored. The possibility that Pakistan’s nuclear weapons could be stolen—or that schisms in Pakistan’s military might cause nuclear command-and-control failures—is not as fantastic as it once seemed.

Finally, other trends extraneous to the nuclear dynamic between China, India, and Pakistan could have vast and unanticipated negative repercussions. A war in Northeast Asia, or a US overreaction to North Korea’s nuclear developments, could prod China to end its historic nuclear minimalism. Likewise, the imminence of nuclear-modernization programs among states from the first nuclear age, and the possible resumption of nuclear testing, could also loosen the political and technical restraints on nuclear programs in the Indo-Pacific region. Should China and India become consumed by aggressive nationalism, and should states from the first nuclear age simply regard the first three decades of the post-Cold War era as a temporary hiatus in their onward nuclear journey, the spillover effects on the second nuclear age will be truly horrendous, and the worst-case assumptions of the nuclear pessimists may come true.

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