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Defence Primer

KAPUR, S. PAUL. "Possible Indian Nuclear Options in 2030." Defence Primer (2017): 82.
<http://hdl.handle.net/10945/66235>

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Possible Indian nuclear options in 2030

- S. PAUL KAPUR



Indian Army's Agni II missile on parade

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Fifteen years from now, in 2030, what changes will India have made to its nuclear doctrine and posture? Fifteen years is a long period of time, and it is difficult to know what India's strategic landscape will look like at the end of it. Nonetheless, it is possible to make some reasonable assumptions about India's future strategic environment and to explore possible implications for Indian nuclear policy.

Today, China and Pakistan are the main sources of India's strategic challenges. Pakistan continues to support a proxy war against India, using Islamist militants to attack targets

in Indian Kashmir and India mainland. In doing so, it hopes to attrite Indian resources and remake territorial boundaries, wresting Jammu and Kashmir from Indian control. China has been enjoying rapid economic growth, and assembling a military that is increasingly able to assert coercive pressure against states in the Indian Ocean/Asia Pacific region. Enduring Sino-Indian border disputes make these problems even more worrisome for India. Both sets of problems are longstanding; they have been at the forefront of Indian security concerns for well over the past 15 years, and it seems safe to assume that they will remain there in 2030.

Even as they have endured, these challenges have also changed in important ways, and they will continue to do so. India will have to adjust to the new realities that they pose. Below, I discuss these changes and possible Indian nuclear responses. I argue that, given Pakistan's move to full-spectrum deterrence, including battlefield nuclear weapons; and China's combination of increasing military power, authoritarian preferences, and coercive behaviour, India in 2030 may wish to consider changes to its nuclear posture, including the development of more flexible nuclear capabilities to ensure that it has options across a broader spectrum of the escalation ladder; and reconsideration of its commitment to no-nuclear-first use. It will also have to consider the tradeoffs involved in pursuing a robust sea-based deterrent and missile defences. In both cases, despite the attractions of robust capabilities, strong arguments exist in favour of more limited approaches, and they will be deserving of serious consideration. The purpose of this discussion is not to offer policy prescriptions. Rather, I suggest possible directions in which Indian nuclear posture could move in coming years, and explore some of the costs and benefits of various approaches, as India seeks to generate security for itself in an increasingly challenging strategic environment.

Pakistan

The main challenge on the Pakistan front will be its move towards full-spectrum nuclear deterrence, which includes, most importantly, battlefield nuclear weapons. The Pakistanis have found that nuclear weapons provide an excellent complement to their longstanding strategy of using Islamist militants to challenge India's control of Kashmir, enabling them to behave more boldly than they otherwise could, knowing that any Indian retaliation would necessarily be limited. This approach, however, is premised on Pakistan's threat to use nuclear weapons first in the event of a large-scale Indian conventional attack. And this threat may lack credibility. For, by using nuclear weapons first and inviting an Indian nuclear response, the Pakistanis are threatening to turn

danger into catastrophe. Would the Pakistan really do this? If their nuclear weapons are successfully to deter an Indian conventional attack, the Indians will have to believe that the answer is yes. The need to ensure credibility of this threat has become especially acute as Indian economic growth has outpaced Pakistan's, India has undertaken major conventional military improvements, and the United States and India have become close strategic partners.[2]

In order to address this problem, Pakistani is devising a tactical nuclear capability. It will employ short-range, low-yield weapons integrated with troops close to the Indo-Pakistan border, with launch authority probably pre-delegated to officers in the field at some point during a crisis. This promises to make Pakistani first-use threats more credible in two ways. First, battlefield nuclear weapons are relatively small and will be employed against military targets; they will not require Pakistan to launch large-scale attacks against Indian cities. The choice to escalate a conventional conflict to the nuclear level may thus be less momentous, and therefore easier for Pakistan to make, than it was before. Second, during a crisis, the decision to employ battlefield weapons may not be fully in the hands of Pakistani national leaders. Rather, the decision may be delegated to a field commander embroiled in a conventional fight, who could prove more willingness to choose escalation than senior leadership making decisions in relative calm, far from the front lines.[3] Of course, even as they potentially enhance credibility, such measures also create significant concerns regarding physical custody of the weapons as well as the integrity of command and control.[4]

Pakistan's battlefield nuclear capability is still emerging. Pakistan first test-fired its short-range Nasr missile only in 2011. Although Nasr appears to have entered service after further testing in 2012 and 2013, it is not certain if Pakistan has been able to miniaturise warheads sufficiently to use with the missile.[5] Fifteen years from now, however, Pakistan's battlefield nuclear capacity is likely to be far more sophisticated. This may pose a problem for Indian nuclear doctrine, which threatens only large-scale strikes, designed to inflict overwhelming costs on the enemy.[6] This could leave India with no means of responding proportionately to limited nuclear use. Thus, India may find itself in much the same quandary as US was under the massive-retaliation doctrine during the 1950s, lacking a credible way of responding to, and potentially deterring, low-level provocations.[7]

India could adopt an approach to this problem similar to US efforts to address it during the Cold War—building flexibility into its potential nuclear responses. Specifically, India can make clear that it reserves the right to respond to nuclear attack proportionately, from low levels to the highest rungs of the escalation ladder. Doing so may require India

to acquire smaller weapons and shorter range delivery platforms.[8] But India should be able to do so without the custody and command-and-control problems generally associated with forward deployment and pre-delegation of launch authority. The reason is that India would not need to use these smaller nuclear weapons first to deter a Pakistani conventional attack. Rather, it would use the weapons only in response to low-level nuclear use by Pakistan. Thus, in Pakistan's case, India may be able to create flexible options that enhance deterrence without falling prey to some of tactical nuclear weapons' more pernicious effects.

China

Although China has long been a subject of Indian concern, its ability to exert coercive leverage over India and the region is increasing. At root, China's coercive power comes from its economy. Rapid economic growth, averaging just under 10 percent per year since 1978, has facilitated major Chinese conventional military improvements, particularly in the areas of cruise and ballistic missiles; command and control; intelligence, surveillance, and reconnaissance; and cyber networking, all of which will enhance China's conventional precision-strike capabilities.[9] It has also enabled China to modernise its nuclear force, including continued growth of its warhead arsenal; development of road-mobile missiles armed with multiple independently targeted reentry vehicles (MIRVs); and buildup of its sea-based deterrent.[10]

It is difficult to know how the Chinese economy will perform in the coming decade and a half since it has slowed significantly in recent years, declining from just over 14 percent in 2007 to approximately 6.9 percent in 2015.[11] India has enjoyed impressive performance since undertaking market reforms in the early 1990s, and has averaged growth just below 7.5 percent per year over the past decade. Nonetheless, India's economy will remain far smaller than China's in the coming decades, with India's GDP reaching approximately \$6.6 trillion by 2030 and China's topping \$22 trillion. Japan, the only other Asian country predicted to rank in the top 10 world economies, is expected to produce about \$6.4 trillion in 2030.[12] Thus Chinese power is likely to continue to grow relative to India and the larger Asian region in the years ahead. How will China conduct itself?

The answer to this question is not entirely clear. China appears to be moving in an increasingly authoritarian direction, with President Xi Jinping recently receiving the title of "core leader," which will enable to him to exert even stronger control over the country in the years ahead.[13] Such domestic political arrangements do not, of course, translate directly to particular foreign policy behaviour. They do, however, suggest that Chinese preferences may be more coercive than deliberative. This concern is

compounded by numerous examples of aggressive Chinese strategic behaviour, including territorial reclamation projects, refusal to submit territorial disputes to international arbitration, establishment of an air defence identification zone in the East China Sea, and repeated and protracted incursions across the Line of Actual Control separating India from Chinese-controlled territory.[14] In addition, China has been strengthening its relationship with Pakistan, helping it to develop the Gwadar Port in Baluchistan as part of the \$46 billion China-Pakistan Economic Corridor, which will link China's Xinjiang Province with Pakistan and the Arabian Sea.[15]

These developments will ensure a robust nuclear-weapons capability, which will become especially important to India in the years ahead. Nuclear weapons will provide assurance that even if China amasses a significant preponderance of power at the conventional level, it will be limited in its ability to coerce or otherwise harm India. This can help India not only to defend itself against outright military aggression, but also to resist pressure to conform to Chinese economic, legal, and territorial preferences.[16] Will India's current nuclear doctrine be helpful in its efforts to withstand Chinese conventional military pressure and achieve these goals? India has pledged not to employ nuclear weapons first against an adversary; it will do so only in response to a nuclear or chemical/biological weapons attack on its homeland or forces deployed abroad.[17] Such a no-first-use (NFU) policy is well suited to a conventionally stronger party that can deter, and if necessary defeat, its adversary without resort to nuclear weapons. It may, however, be less well suited to a conventionally weaker party that might need nuclear weapons to blunt a stronger opponent's conventional attack.[18] If a weaker state credibly promised not to use nuclear weapons first, it could undermine its ability to deter conventional aggression by its stronger adversary; the adversary could engage and defeat the weaker state at the conventional level, believing that it was unlikely to face nuclear retaliation. If the weaker state's nuclear capacity is to deter conventional aggression, there must be a real risk that it will use nuclear weapons first in a conflict. India is in a strong conventional position relative to Pakistan, and thus an NFU posture makes sense in this context. India is in a weak conventional position, relative to China, however. India may therefore wish to revisit its current posture, perhaps adopting a more ambiguous declaratory policy that, while not embracing first use, would sow more doubt in the mind of a potential adversary than its current, clear NFU stance. Calls to rethink no-first-use already animate debates within Indian strategic circles.[19] They are likely to become even more common as Chinese capabilities grow in the coming years.

In its efforts to deter China, India may also seek more flexible nuclear options, including choices at the lower levels of the escalation ladder. India faces potential challenges from China on two fronts: along its northern borders in Aksai Chin, Sikkim and Arunachal Pradesh where longstanding territorial disputes continue to fester; and in the maritime domain as China extends its reach from the Western Pacific to the Indian Ocean and into the Middle East and Africa. One approach to managing this two-front problem could be for India to attempt to freeze the status quo in one area and focus attention on the other. Nuclear weapons might assist the Indians in doing this, protecting the northern borders where the strategic environment is relatively static, and seeking simply to maintain current boundaries. This could help to enable India to devote resources to the maritime domain, which is more dynamic, and will require a diverse mix of military capabilities to meet emergent challenges. Smaller, battlefield-type weapons could be preferable for the northern-border mission, enabling India to block mountain passes and repulse attackers without using disproportionate force—though forward deployment and the associated pre-delegation issues would create custody and command-and-control concerns similar to those mentioned regarding Pakistan.^[20] Indian leaders would need carefully to weigh these risks against nuclear weapons' defensive benefits when considering this type of approach to the border problem.

Sea-based nuclear weapons will be another potentially attractive option for India as it attempts to generate deterrence against China. With the recent induction into the Indian Navy of the nuclear-powered ballistic missile submarine INS Arihant, and the testing of the K-4 sea-launched ballistic missile, India has taken significant steps towards developing a sea-based deterrent capability.^[21] Nonetheless, the programme remains at a relatively early stage, and it is not yet clear how far it will develop, or how much India will come to rely on the sea-based leg of its nuclear capability.

On its face, a sea-based deterrent has much to recommend it. Hidden beneath the oceans from first-strike dangers that threaten ground and air-launched nuclear weapons, it can significantly enhance the survivability of a state's retaliatory force.^[22] A sea-based deterrent can also have downsides, however. Sea-based weapons are technically complicated, expensive, and pose significant command-and-control challenges. Their ability to launch nuclear strikes from close abroad, with little warning time, also can be destabilising.^[23] A cheaper, less complicated, and potentially less destabilising approach could be to expand India's arsenal of land-based missiles, enhancing survivability through sheer number of weapons. India's submarine force could then focus on tasks such as intelligence, surveillance, reconnaissance; blockades; and SLOC

interdiction. Despite a sea-based deterrent's obvious attractions, India will need to carefully consider these tradeoffs as it decides how far to pursue the development of sea-based nuclear capabilities.

Finally, in the years ahead, India may seek to defend itself from nuclear attack by expanding its missile defence capabilities. India already has undertaken significant efforts in this direction, including development of indigenous area-defence capabilities, and the acquisition of ready-made systems from countries such as Russia and Israel. The temptation to seek to develop a more robust shield will be strong. Missile defences are intuitively appealing, and policymakers naturally wish to do everything possible to shield their countries against nuclear attack. It is politically difficult to explain to constituents why they would potentially forego any protective capabilities that such systems could afford them. And missile defence might provide some real protection against small nuclear attacks resulting from accidents or unauthorised use.^[24]

Nonetheless, it is worth keeping in mind problems that pursuit of a robust missile defence capability could entail. First, technology is complicated and expensive to develop. Second, adversaries can adjust to missile defence with relative ease; it is technically far simpler to overwhelm a missile defence system with additional warheads or decoys than it is to make the system marginally more effective.^[25] Finally, missile defence could be destabilising. A state possessing robust missile defence could launch a counterforce attack on an adversary, and use its BMD to absorb the remainder of the adversary's second-strike capability. This possibility can encourage arms racing, and nuclear-first use in a crisis. Pursuit of a robust missile defence capability thus could undermine India's strategic position rather than improve it, consuming scarce resources and increasing competition with states such as China. As a compromise, India could consider maintaining a modest missile defence capability, designed to absorb small strikes resulting from accidental or unauthorised launch, rather than seeking to develop a robust missile defence capable of real damage limitation in the event of a large-scale nuclear exchange.^[26] This could enable India to capitalise on the strengths of missile defence while avoiding the cost and stability problems that it can entail.

Despite the difficulties inherent in any attempt to predict the future, it is safe to assume that, as they develop nuclear policy over the next 15 years, Indian leaders will have to grapple with the issues raised in this paper. In discussing these issues, I have not sought to make policy prescriptions. My purpose, rather, has been to suggest some directions in which Indian leaders might decide to go, and explore tradeoffs that they may have to consider, given some of the basic principles of nuclear deterrence, as well as the unique characteristics of India's strategic environment. Whatever Indian leaders ultimately

decide, the serious consideration of alternatives such as these may stimulate debate that can, in the end, help lead towards better nuclear policy decisions.

This article was originally published in *Defence Primer*

[1] The opinions expressed in the paper are the author's and do not necessarily reflect those of the Department of Defense.

[2] S. Paul Kapur, *Jihad as Grand Strategy: Islamist Militancy, National Security, and the Pakistani State* (New York: Oxford University Press, 2016), pp. 123-124.

[3] Rajesh Basrur, "South Asia: Tactical Nuclear Weapons and Strategic Risk," S. Rajaratnam School Of International Studies, RSIS Commentaries No. 65/2011, April 27, 2011; and Kapur, *Jihad as Grand Strategy*, pp. 124-125.

[4] Shashank Joshi, "Pakistan's Tactical Nuclear Nightmare: Déjà vu?," *Washington Quarterly*, Vol. 36, No. 3 (Summer 2013), pp. 165-166.

[5] Zachary Keck, "Pakistan Wants 'Battlefield' Nukes to Use Against Indian Troops," *National Interest*, February 6, 2015.

[6] Shashank Joshi, "India's Nuclear Anxieties: The Debate Over Doctrine," *Arms Control Today* (May 2015).

[7] For a discussion of these problems, and the US move toward greater doctrinal flexibility, see Lawrence Freedman, *The Evolution of Nuclear Strategy*, (New York: Palgrave Macmillan, 2003), pp. 271-272.

[8] In principle, India might not need smaller weapons to enhance flexibility. Instead, it could use existing weapons in a limited way. For example, it could detonate weapons in its current arsenal on the battlefield, rather than on Pakistani cities, to demonstrate resolve and respond to Pakistani battlefield use. The problem with such limited nuclear options is geography. India and Pakistan border one another, and using a large weapon on the battlefield could subject India to significant radioactive fallout. Smaller weapons could enable India to respond to low-level Pakistani nuclear use while lowering the likelihood of damage to its forces or homeland.

[9] World Bank, "China Overview," available at <http://www.worldbank.org/en/country/china/overview>; and Michael S. Chase and Arthur Chan, *China's Evolving Approach to 'Integrated Strategic Deterrence*, (Santa Monica: RAND, 2016), p. 25.

- [10] Anthony H. Cordesman with Joseph Kendall and Steven Colley, "China's Nuclear Forces and Weapons of Mass Destruction," Center for Strategic and International Studies, pp. 9, 25.
- [11] The World Bank, "China Data," available at <http://data.worldbank.org/country/china>
- [12] World Bank, "India GDP Growth," available at <http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=IN>; Malcolm Scott and Cedric Sam, "China and the United States: Tale of Two Giant Economies," Bloomberg, May 12, 2016; and Jeanna Smialek, "These Will Be the World's Largest Economies in 2030," Bloomberg, April 10, 2015.
- [13] Chris Buckley, "China's Communist Party Declares Xi Jinping 'Core' Leader," New York Times, October 27, 2016.
- [14] S. Paul Kapur, "India, China, and the United States: A Triangular Security Relationship," in Thomas Fingar, ed., *The New Great Game: China and South and Central Asia in the Era of Reform* (Stanford: Stanford University Press, 2016), p. 56; Terri Moon Cronk, "PACOM Chief: China's Land Reclamation Has Broad Consequences," DoD News, Defense Media Activity, July 24, 2015; Max Fisher, "The South China Sea: Explaining the Dispute," New York Times, July 14, 2016; Edward Wong, "China Says It Could Set Up Air Defense Zone in South China Sea," New York Times, May 31, 2015; and Rajat Pandit, "600 Border Violations by China Along LAC Since 2010," Times of India, April 23, 2013.
- [15] "Pakistani PM Welcomes First Large Chinese Shipment to Gwadar Port," Reuters, November 13, 2016.
- [16] Kapur, "India, China, and the United States," in Fingar, ed., *The New Great Game*, pp. 56-57.
- [17] Scott D. Sagan, "The Evolution of Pakistani and Indian Nuclear Doctrine," in Scott D. Sagan, ed., *Inside Nuclear South Asia* (Stanford: Stanford University Press, 2009), pp. 245-251.
- [18] Keir A. Lieber and Daryl G. Press, "Conventional War and Escalation," working paper available at https://www.princeton.edu/politics/about/file-repository/public/Lieber_Press_Article_Esc_030114.pdf
- [19] Rajesh Rajagopalan, "India's Nuclear Doctrine Debate," Carnegie Endowment for International Peace, June 30, 2016; and Joshi, "India's Nuclear Anxieties."
- [20] Forward deployment and some degree of pre-delegation would be likely here because India would be threatening to use nuclear weapons first, in response to a conventional attack. This differs from the Pakistan case, in which India would presumably use small nuclear weapons only in response to Pakistani first use.

- [21] “First Indigenous Nuclear Submarine INS Arihant Secretly Inducted Into Service,” Hindustan Times, October 18, 2016; and Hemant Kumar Rout, “Maiden Test of K-4 Missile from Arihant Submarine,” New Indian Express, April 9, 2016.
- [22] Manu Pubby, “India in Process of Inducting a Range of Systems to Defend the Skies,” Economic Times, October 14, 2016.
- [23] Diana Weuger, “India’s Nuclear-Armed Submarines: Deterrence or Danger?” Washington Quarterly, Vol. 39, No. 3 (Fall 2016), pp. 77-90.
- [24] Balraj Nagal, “India and Ballistic Missile Defense: Furthering a Defensive Deterrent,” Carnegie Endowment for International Peace, June 30, 2016, pp. 3-4.
- [25] Charles L. Glaser and Steve Fetter, “National Missile Defense and the Future of U.S. Nuclear Weapons Policy,” International Security, Vol. 26, No. 1 (Summer 2001), pp. 50-52; and Leonid Nersisyan, “America vs. Russia: Will Missile Defense Help in a Global Nuclear War?” National Interest, October 20, 2016.
- [26] For an in-depth discussion of these points, see Gangly and Kapur, *India, Pakistan, and the Bomb*, pp. 87-91.