



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**THE DRIVERS OF INDIA'S
NUCLEAR WEAPONS PROGRAM**

by

Thomas S. Park

June 2014

Thesis Co-Advisors:

Michael A. Glosny
S. Paul Kapur

Approved for public release; distribution is unlimited

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE June 2014	3. REPORT TYPE AND DATES COVERED Master's Thesis	
4. TITLE AND SUBTITLE THE DRIVERS OF INDIA'S NUCLEAR WEAPONS PROGRAM			5. FUNDING NUMBERS	
6. AUTHOR(S) Thomas Park				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government. IRB protocol number ____N/A____.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited			12b. DISTRIBUTION CODE A	
13. ABSTRACT (maximum 200 words) Since it openly became a nuclear state in 1998, India has dramatically expanded the quantity and quality of its nuclear arsenal. This thesis examines the factors currently driving India's nuclear weapons program. It explores India's threat perceptions of China, its threat perceptions of Pakistan, its desire to achieve great power status, and domestic organizations relevant to its strategic program. After comparing each factor, the thesis concludes that India's threat perception of China is the strongest driver. Due to the capability gaps in both conventional and nuclear forces that exist between the two states, India is committed to creating a strong strategic arsenal as its only means of credibly deterring China from possible conflict. The second strongest factor is its desire for great power status. India is still not accepted by every nuclear power as a peer, and by improving its capabilities, India hopes to gain greater recognition. Domestic elements are the third strongest factor since they have waned in influence as organizational changes have emphasized security concerns. Finally, India's weakest driver is its security fear of Pakistan; its nuclear arsenal has reached the point where its leaders are confident they can deal with Pakistan in a strategic sense.				
14. SUBJECT TERMS India, nuclear weapons, South Asian nuclear stability, India and China relations, India and Pakistan relations, desire for great power status, proliferation, ICBM, INS Arihant, Agni, BJP, Department of Atomic Energy, Defence Research and Development Organisation			15. NUMBER OF PAGES 137	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU	

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

THE DRIVERS OF INDIA'S NUCLEAR WEAPONS PROGRAM

Thomas Park
Lieutenant, United States Navy
B.A., Amherst College, 2008

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(FAR EAST, SOUTHEAST ASIA, THE PACIFIC)**

from the

**NAVAL POSTGRADUATE SCHOOL
June 2014**

Author: Thomas Park

Approved by: Michael A. Glosny
Thesis Co-Advisor

S. Paul Kapur
Thesis Co-Advisor

Mohammed Hafez
Chair, Department of National Security Affairs

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

Since it openly became a nuclear state in 1998, India has dramatically expanded the quantity and quality of its nuclear arsenal. This thesis examines the factors currently driving India's nuclear weapons program. It explores India's threat perceptions of China, its threat perceptions of Pakistan, its desire to achieve great power status, and domestic organizations relevant to its strategic program.

After comparing each factor, the thesis concludes that India's threat perception of China is the strongest driver. Due to the capability gaps in both conventional and nuclear forces that exist between the two states, India is committed to creating a strong strategic arsenal as its only means of credibly deterring China from possible conflict. The second strongest factor is its desire for great power status. India is still not accepted by every nuclear power as a peer, and by improving its capabilities, India hopes to gain greater recognition. Domestic elements are the third strongest factor since they have waned in influence as organizational changes have emphasized security concerns. Finally, India's weakest driver is its security fear of Pakistan; its nuclear arsenal has reached the point where its leaders are confident they can deal with Pakistan in a strategic sense.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	MAJOR RESEARCH QUESTION AND FINDINGS	1
B.	IMPORTANCE.....	2
C.	HYPOTHESES	3
D.	LITERATURE REVIEW	5
E.	METHODOLOGY	10
F.	THESIS OVERVIEW AND BACKGROUND	11
II.	CHINA AS A SECURITY THREAT.....	17
A.	INTRODUCTION.....	17
B.	CHINA AS A THREAT?	18
C.	ELITE STATEMENTS.....	26
D.	PROGRAM CAPABILITIES.....	28
E.	CONCLUSION	32
III.	PAKISTAN AS A SECURITY THREAT	35
A.	INTRODUCTION.....	35
B.	PAKISTAN A THREAT?	36
C.	REACTIONS TO PAKISTAN: COLD START	43
D.	ELITE STATEMENTS.....	45
E.	CAPABILITIES.....	47
F.	CONCLUSION	50
IV.	THE DESIRE FOR GREAT POWER STATUS.....	53
A.	INTRODUCTION.....	53
B.	RESPONSIBLE BUT RISING NUCLEAR POWER.....	54
C.	ELITE STATEMENTS.....	59
D.	CAPABILITIES.....	62
E.	WHY PRESTIGE IS LESS IMPORTANT THAN SECURITY.....	63
F.	CONCLUSION	67
V.	DOMESTIC FACTORS.....	69
A.	INTRODUCTION.....	69
B.	POLITICAL PARTIES.....	70
C.	DEPARTMENT OF ATOMIC ENERGY.....	74
D.	DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION	78
E.	CONCLUSION	84
VI.	CONCLUSION	87
A.	COMPARING THE FACTORS	87
B.	IMPLICATIONS FOR SOUTH ASIAN NUCLEAR STABILITY	91
C.	IMPLICATIONS FOR THE UNITED STATES.....	95
D.	RECOMMENDATIONS FOR THE UNITED STATES.....	98
	LIST OF REFERENCES.....	101
	INITIAL DISTRIBUTION LIST	121

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF FIGURES

Figure 1.	SU-30MKI loaded with Brahmos cruise missile	15
Figure 2.	AGNI I, AGNI III, and AGNI V ranges compared to China.....	30
Figure 3.	AGNI II range compared to Pakistan	49
Figure 4.	DAE budget compared to other scientific agencies.....	76
Figure 5.	DRDO portion of defence budget	82

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

AEC	Atomic Energy Commission
APC	armored personnel carrier
BJP	Bharatiya Janata Party
BMD	ballistic missile defense
C-in-C SFC	Commander in Chief for Strategic Forces Command
CBM	confidence building measure
CDS/Chairman COSC	Combined Defence Services/Chairman of Chief of Staff's Committee
CTBT	Comprehensive Test Ban Treaty
DAE	Department of Atomic Energy
DRDO	Defence Research and Development Organisation
FMCT	Fissile Material Cutoff Treaty
IAEA	International Atomic Energy Agency
IBG	integrated battle group
ICBM	intercontinental ballistic missile
IDSa	Institute for Defence Studies and Analysis
IFV	infantry fighting vehicle
INC	Indian National Congress
IPCS	Institute of Peace and Conflict Studies
IRBM	intermediate range ballistic missile
JeM	Jaish-e Mohammed
LeT	Lashkar-e Taiba
LOC	line of control
MIRV	multiple independently targetable re-entry vehicle
MRBM	medium range ballistic missile
NCA	Nuclear Command Authority
NFU	no first use
NPT	Nuclear Non-Proliferation Treaty
NSA	National Security Advisor
NSG	Nuclear Suppliers Group

ORF	Observer Research Foundation
PAD	Prithvi Air Defense
PM	Prime Minister
PML-N	Pakistan Muslim League-Nawaz
PPP	Pakistan People's Party
QRS	qualitative requirements
RSS	Rashtriya Swayamsevak Sangh
SFC	Strategic Forces Command
SLBM	submarine launched ballistic missile
SLOC	sea line of communications
SRBM	short range ballistic missile
SSBN	ballistic missile nuclear submarine
TNW	tactical nuclear weapon
TTP	Tehrik-e Taliban Pakistan
U.S.	United States
UN	United Nations
WMD	weapon of mass destruction

ACKNOWLEDGMENTS

This thesis was only possible due to the advice and guidance of my two advisors, Professor Michael A. Glosny and S. Paul Kapur. Thank you gentlemen for all the information you provided, as well as answering my constant inquiries. I would also like to thank Professor Robert Weiner for helping me get my proposal approved, Professor Wade Huntley and Professor Alice Miller for helping me bounce some ideas around, and the rest of the faculty at the Department of National Security Affairs for all their lessons that have been essential for my academic growth. Also, I would like to thank Nancy Sharrock for her help in editing and formatting.

I would also like to thank both of my parents and my younger brother for providing confidence and encouragement when I needed it most. This massive project was only possible through their unwavering support. I would also like to thank my close friends, both at the Naval Postgraduate School and outside it, whose sense of humor, perspective, and ability to force me to take a break proved essential in keeping me grounded and focused.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

A. MAJOR RESEARCH QUESTION AND FINDINGS

This thesis examines what factor or factors are driving India's nuclear weapons program. Ever since India became an openly nuclear power in 1998, it has engaged in a robust program of both modernizing and increasing the size of its strategic arsenal.¹ It is now well on its way to achieving both an operational intercontinental ballistic missile (ICBM) and an operational ballistic missile submarine (SSBN), a feat that few nuclear powers have achieved. Debates over the program's cost and its implications for international relations continue in both India and outside the country.² By examining these debates, as well as other evidence, this thesis attempts to explain both the goals and the trajectory of India's nuclear weapons program. Most of the current research outside India has been preoccupied with why it became an openly nuclear state; the scope of this paper focuses on events that occurred after 1998.

What this thesis has found is that the strongest factor in explaining India's current trend of nuclear modernization and expansion is its security fear over China. Indian leaders may not see a conflict with China as likely, but nevertheless, they fear the capability gap with their northern neighbor in both conventional and nuclear fields. In the viewpoint of these leaders, the best strategy to counteract such gaps is to build up a robust strategic arsenal that can provide a credible deterrent. The second-strongest factor is India's desire for great power status, which has pushed it to engage in more technologically demanding delivery platforms to highlight its national pride and to increase its credibility as a true nuclear power. Although both security fears over China and the desire for great power status are the most potent factors, the China factor is stronger than the status factor due to recent organizational changes, which have emphasized military and security concerns. Domestic factors, such as political parties and

¹ Hans M. Kristensen and Robert S. Norris, "Indian Nuclear Forces, 2012," *Bulletin of Atomic Scientists* 68, no. 96 (2012): 100, DOI: 10.1177/0096340212451431.

² Mohan Malik, *China and India: Great Power Rivals* (Boulder, CO: Lynne Rienner Publishers, 2011), 60; Waheguru Pal, Singh Sidhu, and Jing-Dong Yuan, *China and India: Cooperation or Conflict?* (Boulder, CO: Lynne Rienner Publishers, 2003), 145.

scientific agencies, are the third strongest factor, and have also weakened in potency due to the same organizational changes that have weakened the status factor. Finally, security fears over Pakistan, although prevalent in Indian society, are currently the weakest driver for India's current nuclear weapons program since Indian leaders are confident that they now have the capabilities needed to deal with Pakistan in a strategic sense.

B. IMPORTANCE

India's nuclear weapons program could potentially have serious implications for international relations and global proliferation. Despite being a relatively new nuclear power, it is bordered by two other nuclear states with which it shares a long history of conflict. One such state, Pakistan, will undoubtedly monitor the strategic situation with India and react accordingly. Due to the huge conventional disparity between the two nations, Pakistan sees its own nuclear program as an essential element for national survival, and has also engaged in its own modernization and arsenal-building plan.³ As India continues to build up its nuclear weapons program, a security spiral may ensue in which both nations take action to counter the other. This spiral could easily result in an arms race that would have grave implications for global proliferation and strategic stability in South Asia. Many of the factors that once caused President Clinton to declare South Asia as "the most dangerous place in the world"⁴ have not been resolved.

The reaction of India's other nuclear neighbor, China, will also have implications for Asian stability. Unlike Pakistan, China is not preoccupied with India's strategic arsenal, and is far more concerned with the nuclear capability of the United States (U.S.).⁵ Yet, its interest in Indian nuclear capability was certainly sparked after the 1998 tests.⁶ Furthermore, the tests themselves caused a ripple in Sino-Indian relations. India

³ Hans M. Kristensen and Robert S. Norris, "Pakistan's Nuclear Forces, 2011," *Bulletin of Atomic Scientists* 67, no. 91 (2011): 91–97, DOI: 10.1177/0096340211413360.

⁴ Dexter Filkins, "India, Pakistan Inch Toward War as Clinton Visits," *Los Angeles Times*, March 19, 2000, <http://articles.latimes.com/2000/mar/19/news/mn-10448>.

⁵ Yang Yi, "The View from China," in *The China-India Nuclear Crossroads*, ed. Lora Saalman (Washington, DC: Carnegie-Tsinghua Center for Global Policy, 2012), 21–22.

⁶ Ming Zhang, *China's Changing Nuclear Posture: Reactions to the South Asian Nuclear Tests* (Washington, DC: Carnegie Endowment for International Peace, 1999), 15.

initially justified its nuclear explosions to the United States by describing China as a threat it needed to counter. This justification immediately garnered swift condemnation from Chinese authorities.⁷ Both nations later smoothed over this event as they each adopted a more cooperative approach. Nevertheless, several issues continue to hinder the relationship and India's nuclear program may become one such stumbling block. Whether this program results in another security spiral with China depends on what factors continue to drive it.

India's nuclear weapons program could also affect relations with the United States. Immediately after the 1998 tests, the Clinton administration applied sanctions to both India and Pakistan.⁸ Afterwards, relations improved markedly, with the global superpower even signing a historic deal to open the way for civil nuclear assistance towards India in 2008.⁹ Yet, the deal itself had many critics within the United States, who have been primarily concerned with Indian nuclear proliferation since the agreement may free up the South Asian country's domestic uranium reserves.¹⁰ A more comprehensive understanding of Indian motivations behind its nuclear weapons program may help U.S.-Indian relations by better addressing proliferation concerns. Furthermore, this understanding may also help the United States in identifying factors that push other nations into creating or expanding their own nuclear weapons program, and thus, discourage global proliferation in a far more effective manner.

C. HYPOTHESES

Four hypotheses are examined to see which factors are the most influential for India's nuclear weapons program. These hypotheses are security fears over China, security fears over Pakistan, the desire for great power status, and the power of domestic organizations. This analytical breakdown stems from a theoretical model by Scott Sagan,

⁷ Zhang, *China's Changing Nuclear Posture: Reactions to the South Asian Nuclear Tests*, 26.

⁸ George Perkovich, *India's Nuclear Bomb: The Impact on Global Proliferation* (Berkeley, CA: University of California Press, 1999), 436.

⁹ Jayshree Bajoria and Esther Pan, "The US-India Nuclear Deal," Council on Foreign Relations, last modified November 5, 2010, <http://www.cfr.org/india/us-india-nuclear-deal/p9663>.

¹⁰ Ibid.

who proposed three separate explanations for why a state would seek a nuclear weapon: security, norms, and domestic factors.¹¹ Many scholars have used each of these models to explain why India became an open nuclear power in 1998, and these same models provide both a useful frame of reference and a starting point to explain what has driven India's nuclear program beyond its declaration.

The security model is one used by many Indian politicians to justify their program, as well as related technological advances. This model itself can be broken down into two possible hypotheses. In one hypothesis, India's concern over China is the most important factor for modernizing its arsenal. Although the possibility of an outright war with China remains low, "mutual unease"¹² continues to define the relationship between both nations. China won a decisive victory in its last conflict with India, and it maintains a significant advantage in both conventional and nuclear forces. India may view a credible and modern nuclear arsenal as an essential element to deter China from coercing India with force, especially on an outstanding issue, such as the ongoing border dispute.

Another security-related hypothesis is India's fear over Pakistan, a nation that has engaged in its own nuclear buildup. India maintains a large conventional advantage over its western neighbor, but the nuclear forces of both countries are roughly equal in size.¹³ India may seek continued modernization and improvements so as not to fall behind Pakistan's own efforts. Furthermore, unlike India, Pakistan has refused to adopt a no-first use doctrine, viewing the threat of a first strike as an essential element to its national survival.¹⁴

The third hypothesis is based off Sagan's norms model, in which a state seeks nuclear weapons because they provide "an important normative symbol of a state's

¹¹ Scott Sagan, "Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb," *International Security* 21, no. 3 (Winter 1996–1997): 55.

¹² Lora Saalman, "Conclusion: Comparing the Comparable," in *The China-India Nuclear Crossroads*, ed. Lora Saalman (Washington, DC: Carnegie-Tsinghua Center for Global Policy, 2012), 172.

¹³ Hans M. Kristensen and Robert S. Norris, "Global Nuclear Weapons Inventories, 1945–2013," *Bulletin of the Atomic Scientists* 69, no. 75 (2013): 76, DOI: 1177/0096340213501363.

¹⁴ Global Security Newswire, "Pakistani Army Chief Said to Oppose 'No First Use' Nuke Rule," Nuclear Threat Initiative, May 9, 2011, <http://www.nti.org/gsn/article/pakistani-army-chief-said-to-oppose-no-first-use-nuke-rule/>.

modernity and identity.”¹⁵ From the norms model, it can be seen how India’s nuclear program may be motivated by its desire to establish its identity as a great power and gain international prestige. More than just a tool for deterrence, India wants a modern nuclear arsenal to prove that it can match the achievements of other nations. By mastering ballistic missiles and other nuclear-related technology, India could prove to other states that it is a serious power, which deserves greater recognition.

The fourth hypothesis stems from Sagan’s domestic factors model. India’s program may be driven by internal elements, such as political elites who may try to use India’s nuclear program to garner popular support and to divert attention away from other issues within the nation. Another internal element could be India’s scientific defense bureaucracy, who may push the nuclear program forward to achieve both funding and technological milestones that can prove their expertise rivals that found in other advanced nations.

D. LITERATURE REVIEW

Both scholarly and political arguments have used each of the four hypotheses to explain the motivations behind India’s nuclear weapons program. Within India, many academics argue that security concerns over China are the primary drivers of India’s program. Since China maintains a large advantage both militarily and economically, it is the only nation that India must deter with a strong nuclear arsenal. A few analysts have argued that Pakistan is the primary security consideration, although more have argued that Indian fears are focused on escalation and proliferation, and as such, are the primary drivers of foreign policy as opposed to India’s own weapons program. Scholars outside India, especially from China, eschew both security models and usually argue that India’s desire for great power status best explains both the 1998 nuclear tests and actions taken since then. Finally, many others have argued that certain domestic organizations, such as the scientific research agencies, are the primary drivers of India’s nuclear weapons program since its inception.

¹⁵ Sagan, “Why Do States Build Nuclear Weapons?” 55.

For many analysts, India's main motivation is the strategic threat it sees in China. Both Henry D. Sokolski¹⁶ and R. N. Ganesh¹⁷ in *The Next Arms Race* argue that India views China as the main driver of its strategic program. This view is also echoed in India. P. R. Chari, a visiting professor at the Institute of Peace and Conflict Studies, states emphatically that "India's military nuclear programme has uncompromisingly been directed against China and, [only] incidentally, against Pakistan."¹⁸ Retired Rear Admiral Raja Menon states, "the Indian arsenal exists because the Chinese arsenal exists."¹⁹ For all these scholars, a consistent message comes across that since China poses the strongest threat, India's nuclear program must react to, and thus, be driven by, China's own strategic arsenal.

Other scholars argue that China is not necessarily a threat now, but due to its capabilities, India must focus its efforts on countering China's future intentions. In *India's Emerging Nuclear Posture*, although Ashley Tellis argues that India's current arsenal remains sufficient since China does not value any disputes enough to risk a nuclear exchange,²⁰ he does concede that India may feel pressured to upgrade and enhance its arsenal if China "dramatically expanded its strategic nuclear capabilities" or if "Sino-Indian competition intensified over time."²¹ This fear of how China's future intentions may change towards India is echoed by a report from the Lowy Institute. In it, the report describes how "India may see China... as a more rational actor than Pakistan," but nonetheless, worries about "the more open-ended threat that China might become

¹⁶ Henry D. Sokolski, "Overview," in *The Next Arms Race*, ed. Henry D. Sokolski (Carlisle, PA: Strategic Studies Institute, 2012), 21.

¹⁷ R. N. Ganesh, "Nuclear Missile-Related Risks in South Asia," in *The Next Arms Race*, ed. Henry D. Sokolski (Carlisle, PA: Strategic Studies Institute, 2012), 305.

¹⁸ P. R. Chari, "India, Pakistan and the Nuclear Race: The Strategic Entanglement," in *India, Pakistan and the Nuclear Race*, ed. Ruhee Neog, *Institute of Peace and Conflict Studies* (July 2013): 3, http://www.ipcs.org/pdf_file/issue/SR142-Debate1307-NSP-NuclearRace.pdf.

¹⁹ Menon Raja, *A Nuclear Strategy for India* (New Delhi: Sage Publications, 2000), 182.

²⁰ Ashley Tellis, *India's Emerging Nuclear Posture* (Santa Monica, CA: RAND Corporation, 2001), 712.

²¹ *Ibid.*, 717.

were bilateral competition to turn to rivalry.”²² Although these scholars argue that India does not view China as a current threat, they admit that future nuclear doctrine will be driven by whatever actions China takes due to its capacity to grow and become a much more threatening adversary than Pakistan.

Not every analyst agrees that India’s northern neighbor is the primary driver of its nuclear doctrine. Several scholars in Pakistan argue that their nation is the primary target. Salma Malik, a professor at Quaid-i-Azam University in Islamabad, states, “the bulk of India’s strategic arsenal, its force posturing, military doctrines, and procurement trends are primarily Pakistan-centric.”²³ Yet, these views seem limited to Pakistan only. Certainly, a lot of literature in India and Western circles is available on Pakistan’s nuclear program, but the main topics center on the fear of escalation from conflict or misunderstandings. In particular, Pakistan’s pursuit of tactical nuclear weapons, such as the Nasr tactical ballistic missile,²⁴ has sparked discussions over whether the threshold for nuclear use has been lowered, increasing the possibility of a nuclear war. Furthermore, several scholars have argued that India does not see Pakistan as a strategic threat at all. In his response to critics of his editorial in the *New York Times*, Michael Krepon argues that India’s strategic community “underestimates the Pakistani military establishment’s willingness to pay for, and the Pakistani defense production establishment’s ability to deliver, a widely diversified and growing set of nuclear capabilities.”²⁵ Ashley Tellis notes that even a modest nuclear arsenal should deter Pakistan since “its geophysical limitations make it highly vulnerable even to relatively low levels of retaliation.”²⁶ No matter what actions Pakistan takes, it will be unable to

²² Fiona Cunningham and Rory Medcalf, *The Dangers of Denial: Nuclear Weapons in China-India Relations* (Australia Square, NSW: Lowy Institute for International Policy, 2011), 5.

²³ Salma Malik, “India, Pakistan and the Nuclear Race: Strengthening the Risk Reduction Measures,” in *India, Pakistan and the Nuclear Race*, ed. Ruhee Neog, Institute of Peace and Conflict Studies, 2013, 12, http://www.ipcs.org/pdf_file/issue/SR142-Debate1307-NSP-NuclearRace.pdf.

²⁴ Gurmeet Kanwal, “India, Pakistan and the Tactical Weapons: Implications of Hatf-9,” Institute of Peace and Conflict Studies, <http://www.ipcs.org/article/nuclear/ipcs-debate-india-pakistan-and-tactical-nuclear-weapons-implications-of-4169.html>.

²⁵ Michael Krepon, “India, Pakistan and the Nuclear Race: Evaluating the Response,” in *India, Pakistan and the Nuclear Race*, ed. Ruhee Neog, Institute of Peace and Conflict Studies, July 2013, 14, http://www.ipcs.org/pdf_file/issue/SR142-Debate1307-NSP-NuclearRace.pdf.

²⁶ Tellis, *India’s Emerging Nuclear Posture*, 696.

change this weakness, and thus, will always be seen as vulnerable to an Indian counterattack. Unlike discussions centered on China, no conversation has been held on how to close a capability gap with Pakistan or fears over future intentions. Instead, the focus remains on how to better defuse current tensions so that hostilities do not reach the point of nuclear use.

Other analysts have portrayed India's desire for great power status as the main source of its nuclear weapons program. According to Ming Zhang, China views India's pursuit of nuclear weapons as motivated solely by its desire "to achieve great power status."²⁷ John Garver argues that India "seems to have been concerned primarily with enhancing its international status and only secondarily with countering possible Chinese nuclear coercion."²⁸ Although Zhang and Garver's statements are specific to why India acquired the bomb in the first place, other commentators have pointed to national pride to explain India's continued advancements in nuclear-related fields, most notably the recent successful launch of the Agni V missile. At the Institute of Chinese Studies, one commentator "viewed [the launch] in the context of India's bid for permanent membership of the [UN] Security Council."²⁹ Furthermore, several Indian news articles have used the launch of the Agni V as an opportunity to compare India to the permanent members of the United Nations (UN) Security Council by noting that the member states are the only other powers besides India to have ICBMs.³⁰

Interestingly, much like its security concerns, some see India's desire for international status as China-centric. According to a report by the Lowy Institute, China continuously resists any bilateral nuclear discussions since India is not a recognized nuclear weapons state under the terms of the Nuclear Non-Proliferation Treaty. It is this "reluctance to thus acknowledge India as a nuclear peer," that particularly "rankles the

²⁷ Zhang, *Reactions to the South Asian Nuclear Tests*, 27.

²⁸ John Garver, *Protracted Contest: Sino-Indian Rivalry in the Twentieth Century* (Seattle, WA: University of Washington Press, 2001), 315.

²⁹ Institute of Chinese Studies, "Chinese Reactions to India's Agni-V Firing," May 2012, <http://www.icsin.org/ICS/ICSAnalysispdf/4.pdf>.

³⁰ *India Today*, "China, Europe within India's Striking Range as Agni-V Tested Successfully for Second Time," September 15, 2013, <http://indiatoday.intoday.in/story/india-test-fires-agni-v-china-europe-within-indias-striking-range/1/309908.html>.

Indian strategic community.”³¹ If India’s desire for international prestige is focused on Chinese perceptions, then it may engage in China-specific weapons not because of fears over security, but to send a message that India is a capable nation that deserves recognition. The Indian media reinforces this theme of China-specific signaling. When reporting on technological or military achievements, many Indian news articles slip in a reference to their northern neighbor, often outright stating that certain weapons were designed to counter China.³²

In scholarly debates about possible factors that led political elites to push for nuclear testing, desire for popular support has not come up as a strong motivator. Although the Bharatiya Janata Party (BJP) experienced an upswing in popularity after the 1998 tests,³³ most scholars have argued that the party was motivated by both a desire for greater security and a dream for transforming India into a great power.³⁴ Post 1998, most discussions regarding India’s nuclear program have not covered how popular support may be a possible motivator. Another domestic factor that receives far more attention is the scientific bureaucracy. Thomas Graham argues that, after 1998, India’s “nuclear and defense scientists, who want to prove against most evidence to date that they are world class,” have become the primary drivers of the nuclear program.³⁵ This opinion certainly has its detractors. While acknowledging that Indian scientific bodies, such as the Department of Atomic Energy (DAE) are “proactive politically,”³⁶ Ashok Kapur paints a

³¹ Cunningham and Medcalf, *The Dangers of Denial*, 5.

³² *Times of India*, “Agni V Successfully Test-fired,” September 16, 2013, http://articles.timesofindia.indiatimes.com/2013-09-16/india/42112678_1_inter-continental-ballistic-missile-wheeler-island-agni-v; Aditya Bhat, “Top 10 Achievements and Developments of Indian Military in 2013,” International Business Times, December 31, 2013, http://www.ibtimes.co.in/articles/532404/20131231/top-10-achievements-developments-indian-military-2013.htm.

³³ British Broadcasting Corporation, “Indians Swing behind Tests,” May 13, 1998, http://news.bbc.co.uk/2/hi/special_report/1998/05/98/india_nuclear_testing/92972.stm.

³⁴ Jacques E. C. Hymans, “Why Do States Acquire Nuclear Weapons? Comparing the Cases of India and France,” in *Nuclear India in the Twenty-First Century*, ed. D. R. SarDesai and Raju G. C. Thomas (New York: Palgrave Macmillan, 2002), 151.

³⁵ Thomas W. Graham, “Nuclear Weapons Stability or Anarchy in the 21st Century: China, India, and Pakistan,” in *The Next Arms Race*, ed. Henry D. Sokolski (Carlisle, PA: Strategic Studies Institute, 2012), 279.

³⁶ Ashok Kapur, *Pokhran and Beyond: India’s Nuclear Behavior* (Oxford: Oxford University Press, 2001), 242.

different picture of India's nuclear and defense scientists as being quite divided on how far their country should go in terms of nuclear testing.³⁷ More than any desire for technical achievements, these scientists are also motivated by their own political convictions, which are just as diverse as the general public's.

Nearly all these works have focused on a single factor as the main explanation for driving India's nuclear weapons program. Furthermore, these works have often conflated factors that have driven India to declare itself as an open nuclear power in 1998 with factors that continue to drive the program today. This thesis takes a comprehensive approach by investigating multiple hypotheses and comparing the evidence for each. Also, it draws a needed distinction between factors relevant today vice factors relevant before the first nuclear weapons tests.

E. METHODOLOGY

This thesis utilizes several approaches to weigh the relative strengths and weaknesses of each hypothesis: China as a security threat, Pakistan as a security threat, the desire for great power status, and domestic factors within India. For three of these hypotheses, the same bodies of evidence are considered, namely elite statements and the capabilities of India's nuclear weapons program itself. Each hypothesis also examines data more specific for its investigation. For instance, to explore the China security hypothesis better, Indian threat perceptions of China and recent Indian interactions with that country are weighed. The same examination is carried out for Indian threat perceptions of Pakistan.

Statements from Indian elites, such as politicians and think tank leaders, can also help illuminate Indian threat perceptions for both China and Pakistan. Furthermore, some statements may also shed a light on Indian decisions that impact its strategic arsenal. For instance, if Indian leaders advocate building a robust nuclear arsenal as opposed to a bigger conventional army to deter a stronger state, then these statements likely strengthen the hypothesis that China, as a security threat, is the main driver of India's nuclear weapons program.

³⁷ Kapur, *Pokhran and Beyond: India's Nuclear Behavior*, 232.

The same elite statements, however, could also reinforce the international prestige hypothesis. If a consistent message does exist that links national pride to nuclear-related achievements, then that may be a sign that India's desire for great power status is a primary driver. To examine the international prestige hypothesis further, India's foreign policy since 1998 is scrutinized. Several analysts have linked India's advancements in its nuclear program with its desire for a permanent seat on the UN Security Council,³⁸ but much of this analysis remains speculative with no concrete evidence. A closer examination of India's actual bid for gaining a permanent seat may reveal the answer.

Another approach investigates the capabilities of India's nuclear weapons program itself. By comparing technical achievements with those of its competitors, it can then be seen if specific concerns have driven India's strategic program. For example, if Pakistan unveiled a new tactical nuclear weapon (TNW), did India respond with renewed interest in its own tactical weapons or short-range ballistic missiles (SRBMs)? If it continued to focus its efforts on long-range ICBMs, that action, combined with concurrent statements by political elites, would indicate India does not consider Pakistan as a driver for its nuclear program.

Domestic factors can be broken down into appealing to popular demand or bending to pressure from scientific research agencies. By analyzing the actions of India's political parties, it can be seen whether or not party platforms continue to push the nuclear weapons program. Another domestic factor that must be examined is the influence of the scientific research agencies, especially the Defence Research and Development Organisation (DRDO) and the DAE. If one or both organizations have seen a history of recent budget increases, that could indicate the extent of the agency's influence and prestige.

F. THESIS OVERVIEW AND BACKGROUND

This thesis has determined that the strongest factor driving India's current nuclear weapons program is its security fear from China, while the second strongest factor is India's desire for great power status. These two factors are the primary drivers behind

³⁸ Institute of Chinese Studies, "Chinese Reactions to India's Agni-V Firing."

India's strategic arsenal. Furthermore, domestic organizations are the third strongest factor while India's security fear from Pakistan is the weakest one. To reach this determination, the thesis devotes a chapter to each possible hypothesis broken down as follows: China as a security threat, Pakistan as a security threat, the desire for great power status, and domestic elements. Each chapter examines how strongly a particular factor affects India's nuclear weapons program. Then, a conclusion wraps up by comparing the relative strengths of each driver and ranking its influence accordingly. The conclusion also examines what its findings mean for both the future of South Asian strategic stability, as well as implications for the United States. Before investigating the hypotheses, a brief overview of the program describes the growth of India's nuclear weapons program that the thesis is trying to explain.

India conducted its first atomic explosion on May 18, 1974, but it was not until it conducted a second round of explosions on May 11, 1998, that it became an openly nuclear state.³⁹ Since that event, India has taken significant steps in creating a nuclear doctrine, as well as viable platforms for transforming India's nuclear warheads into a true strategic arsenal. In 1999, the Indian government released a draft version of its doctrine in which India stated its commitment to a "credible minimum nuclear deterrence."⁴⁰ Consistent with the idea of minimum deterrence, India also outlined its no first use (NFU) policy. India would not threaten non-nuclear powers and it would only conduct a nuclear strike if attacked by a nuclear weapon. The doctrine also stated India's commitment in achieving a nuclear triad consisting of aircraft, land-based missiles, and sea-based assets.

This doctrine was solidified in 2003, with the biggest change being a revision of NFU to include chemical and biological attacks as warranting nuclear retaliation. Furthermore, this retaliation would occur if such attacks occurred against Indian troops outside Indian soil, which many analysts have taken to mean Indian troops conducting

³⁹ Perkovich, *India's Nuclear Bomb: The Impact on Global Proliferation*, 1–2.

⁴⁰ Arms Control Association, "India's Draft Nuclear Doctrine," last updated August 17, 1999, http://www.armscontrol.org/act/1999_07-08/ffja99.

future operations in Pakistan.⁴¹ The doctrine also outlined a command and control program to operationalize India's nuclear weapons better. The Nuclear Command Authority (NCA) would maintain overall control of nuclear weapons, and it would be divided into "a Political Council headed by the prime minister and Executive Council presided over by the national security advisor."⁴² Although overall civilian authority is firmly established, military involvement was also outlined with the creation of the tri-service Strategic Forces Command (SFC), which would function as the operational arm of the NCA. The desire for a functional nuclear triad continues to shape Indian nuclear forces. For instance, "in June 2012 the Indian Prime Minister, Manmohan Singh, convened a meeting of India's Nuclear Command Authority, which reportedly stressed the need for the 'faster consolidation' of India's nuclear deterrence posture based on an operational triad of nuclear forces."⁴³

In 2002, India had a stockpile of approximately 30–35 warheads.⁴⁴ Within a decade, it has seen a vast improvement in the quantity of its arsenal. India is now estimated to have produced 80–100 warheads, yet it also has increased its ability to create more. It has a plutonium production facility near Mumbai and is planning to construct a second reactor near Visakhapatnam.⁴⁵ Furthermore, India is also building a prototype fast-breeder reactor near Kalpakkam.⁴⁶ Fast-breeder reactors use nuclear fission to turn regular uranium into plutonium, a far more suitable fuel for nuclear weapons.

Warheads by themselves are useless without a delivery platform, and on this end, India has also made great strides in increasing the number and sophistication of its platforms. It possess the fourth largest air force in world, but only five aircraft are capable of conducting a nuclear strike role—the Su-30MKI, the Mig-29, the Mig-27

⁴¹ Harsh V. Pant, "India's Nuclear Doctrine and Command Structure: Implications for India and the World," *Comparative Strategy* 24, no. 3 (2005): 282, DOI: 10.1080/01495930500197965.

⁴² *Ibid.*, 280.

⁴³ Stockholm International Peace Research Institute, "World Nuclear Forces," SIPRI Yearbook 2013, June 2013, <http://www.sipri.org/yearbook/2013/06>.

⁴⁴ Robert S. Norris et al., "India's Nuclear Forces, 2002," *Bulletin of the Atomic Scientists* 58, no. 70 (2002): 70, DOI: 10.2968/058002020.

⁴⁵ Kristensen and Norris, "Indian Nuclear Forces, 2012," 97.

⁴⁶ *Ibid.*

Flogger, the Mirage 2000H/TH, and the Jaguar.⁴⁷ Unlike China or Russia, India does not have any dedicated bombers, and the range of its aircraft would be severely limited without air-to-air refueling or drop tanks. The Su-30MKI is undoubtedly India's most capable platform, but all its nuclear-capable aircraft have recently undergone a massive upgrade campaign to include improvements in avionics and survivability.⁴⁸ India also has modified some of its aircraft, such as the Su-30MKI, into carrying the BrahMos cruise missile (see Figure 1), which may be nuclear-capable, and thus, extends the strike range of its air-delivered platforms even further.⁴⁹ With these modifications, India has drastically improved the viability of its strike aircraft as nuclear deterrents.

⁴⁷ Ajey Lele and Parveen Bhardwaj, "India's Nuclear Triad: A Net Assessment," IDSA Occasional Paper No. 31, *Institute for Defence Studies and Analysis*, published April 2013, 41.

⁴⁸ Press Information Bureau, Government of India, "Modernisation of Fighter Planes SU-30," August 18, 2010, <http://pib.nic.in/newsite/erelease.aspx?relid=64953>; RIA Novosti, "Russia Tests Upgraded MiG Fighter Jet for India," April 2, 2011, http://en.ria.ru/military_news/20110204/162455171.html; Dawn, "India Approves \$2.4 Billion French Mirage Jet Upgrade," July 14, 2011, <http://www.dawn.com/news/643939/india-approves-2-4-billion-french-mirage-jet-upgrade>; Rajat Pandit, "India Plans to impart Power Punch to Jaguar Fighters," *The Economic Times*, October 17, 2012, http://articles.economictimes.indiatimes.com/2012-10-17/news/34525680_1_jaguar-strike-fighters-stealth-fifth-generation-fighter-aircraft-rafale-fighters.

⁴⁹ Rakesh Krishnan Simha, "How the Su-30 MKI Is Changing the IAF's Combat Strategy," Russia and India Report, *Indrus*, January 5, 2014, http://indrus.in/blogs/2014/01/05/how_the_su-30_mki_is_changing_the_iafs_combat_strategy_32099.html.



Figure 1. SU-30MKI loaded with Brahmos cruise missile⁵⁰

India has seen the most improvement in the quality of its ballistic missiles. In 2002, India only had one type of operational ballistic missile, the short-range Prithvi I with a 150 km range.⁵¹ Now, India has multiple short-range, medium-range, and intermediate-range ballistic missiles as part of its operational force. Besides the Prithvi I, India also possesses the Agni I, with a range of 700 km, and the medium range Agni II, with a range of 2,000 km.⁵² India's longest-range operational missile is the Agni III, with a range greater than 3,000 km, which allows it to cover large parts of China.⁵³ Furthermore, India has successfully test launched an ICBM with the Agni V. Although the test launch covered 5,000 km, which is less than the internationally recognized standard for an ICBM, most analysts nevertheless categorize this missile as India's first

⁵⁰ BrahMos Aerospace, "Air Launch Weapon System," 2012, <http://www.brahmos.com/content.php?id=19>.

⁵¹ Norris et al., "India's Nuclear Forces, 2002," 71.

⁵² Kristensen and Norris, "Indian Nuclear Forces, 2012," 98.

⁵³ Ibid.

ICBM.⁵⁴ In the future, India may possess a more potent capability with the Agni VI missile, which may include multiple independently targetable re-entry vehicle (MIRV) warheads in its design.⁵⁵

The most survivable leg of a nuclear triad is a ballistic submarine, and on this front, India has also made much progress. Construction on the INS *Arihant*, India's indigenous nuclear submarine, began in 1997,⁵⁶ but the onboard nuclear reactor finally went critical in 2013,⁵⁷ which marked a major milestone for this vessel in reaching operational status. Once underway, the submarine will likely be armed with 12 Sagarika K-15 missiles, although it has also been reported that India is developing a longer-ranged missile for the INS *Arihant* known as the K-4, with an estimated range of more than 3,000 km.⁵⁸ Besides a submarine, India also has a surface naval platform that utilizes a ballistic missile known as the Dhanush, which may be nuclear capable. Once the INS *Arihant* reaches operational status, India will have a true nuclear triad and will join an exclusive club of nations that only consists of the United States, Russia, and China.

⁵⁴ Ibid., 98–99.

⁵⁵ Ajai Shukla, "Advanced Agni-6 Missile with Multiple Warheads Likely by 2017," *The Business Standard*, May 8, 2013, http://www.business-standard.com/article/economy-policy/advanced-agni-6-missile-with-multiple-warheads-likely-by-2017-113050800034_1.html.

⁵⁶ Norris et al., "India's Nuclear Forces, 2002," 72.

⁵⁷ Jyoti Malhotra, "How India's Pride INS Arihant Was Built," *The Business Standard*, August 12, 2013, http://www.business-standard.com/article/specials/how-india-s-pride-ins-arihant-was-built-113081100745_1.html.

⁵⁸ Lele and Bhardwaj, "India's Nuclear Triad: A Net Assessment," 55; Kristensen and Norris, "Indian Nuclear Forces, 2012," 99.

II. CHINA AS A SECURITY THREAT

A. INTRODUCTION

When India conducted its controversial nuclear tests in 1998, Prime Minister Vajpayee justified the action in a letter to President Clinton by referencing “an overt nuclear weapon state... which has committed armed aggression against India in 1962 [China].”⁵⁹ Before the tests, Defense Minister Fernandes made similar comments by classifying China as India’s strongest potential threat.⁶⁰ Since 1998, no Indian leader has made a similarly provocative statement and both nations have engaged positively with one another. Nevertheless, China remains one of the strongest drivers of India’s nuclear weapons program. Since the Sino-Indian security dynamic is one of discrepancy, with China maintaining a sizeable advantage in both nuclear capability and conventional strength, Indian officials believe in the need for a strong strategic arsenal. Furthermore, this disparity has increased since 1998. Even moderate Indians who do not see China as a current threat want to see both the nuclear and conventional gaps narrowed before geopolitical change turns their northern neighbor into an adversary. At the very least, officials who want to justify an expansive strategic build-up can easily point to China as a valid reason.

Ample evidence indicates that India has structured much of its nuclear program with China in mind. First, India has legitimate reasons to fear China’s growing power. Despite increased engagement from both countries, mutual distrust remains and the same territorial issues that drove the two states to war in 1962 have not been resolved. Perceived security gaps between the two nations are very real, as China has embarked on a much more comprehensive modernization program than India. Statements by political elites also indicate India’s desire to strengthen its strategic arsenal. Although the rhetoric

⁵⁹ A. B. Vajpayee, “Nuclear Anxiety; Indian’s Letter to Clinton on the Nuclear Testing,” *New York Times*, May 13, 1998, <http://www.nytimes.com/1998/05/13/world/nuclear-anxiety-indian-s-letter-to-clinton-on-the-nuclear-testing.html>.

⁶⁰ John F. Burns, “India’s New Defense Chief Sees Chinese Military Threat,” *New York Times*, May 5, 1998, <http://www.nytimes.com/1998/05/05/world/india-s-new-defense-chief-sees-chinese-military-threat.html>.

is split between elites who want to avoid antagonizing China and hawkish proponents who do not shy away from belligerent statements, both sides agree on closing security gaps with its much stronger neighbor. Finally, the capabilities of the nuclear weapons program itself seem more of a response to China than to any other threat nation. Although other factors, such as the desire for great power status, can also explain capability trends, India's fear of China, combined with its own actions and rhetoric, indicate that China plays a significant, if not primary role, in affecting its nuclear weapons program.

B. CHINA AS A THREAT?

Two distinct threat perceptions of China in India exist, with more hawkish Indians viewing China as a current threat that must be deterred and moderate elements viewing China as a potential adversary that can be engaged.⁶¹ Yet, both factions agree that the Indian military must prepare against its northern neighbor. This desire for preparation stems from three main reasons. First, outstanding issues have yet to be resolved between both states, especially the territorial disputes in the Himalayas. Not only may these issues lead to open conflict, they also inhibit further trust building. Second, China greatly outclasses India in a conventional sense, and the past decade has seen this divide increase as China has enjoyed significant economic growth. Finally, China also outclasses India in a nuclear sense, which has heightened hawkish perceptions of China as “an existential threat from the north.”⁶² Hawks and moderates may disagree on engagement strategies, but both sides come together on the need to close both the conventional and strategic gap with China.

Numerous issues have strained Sino-Indian relations. Both states are experiencing periods of rapid economic growth that are increasing the demands of resource consumption. One resource, water, may become a particular point of contention since most Indian rivers depend on Tibet as a source while China “is now pursuing major inter-

⁶¹ Sidhu and Yuan, *China and India: Cooperation or Conflict?*, 145–149.

⁶² Arun Prakash, “Bridging Historical Nuclear Gaps: The View from India,” in *The China-India Nuclear Crossroads*, ed. Lora Saalman (Washington, DC: Carnegie-Tsinghua Center for Global Policy, 2012), 20.

basin and inter-river water transfer projects on the Tibetan plateau.”⁶³ Another resource, energy, may also lead to conflict since both states depend on increasing energy imports to fuel their economic growth.⁶⁴ In particular, the increased demand for energy has led to another source of tension, China’s increasing presence in the Indian Ocean.⁶⁵ Since 70 percent of all Chinese oil imports depend on the Straits of Malacca, and China has already undertaken massive infrastructure projects in Pakistan, many Indian hawks fear the construction of overseas naval bases in the Indian Ocean, particularly in the Pakistani port of Gwadar.⁶⁶ Although no evidence currently confirms China’s intent to pursue such projects, China, for its part, remains suspicious of Indian naval intentions and fears its power to disrupt Chinese sea lines of communications (SLOCs).⁶⁷ This situation of mutual distrust may lead to open conflict. Finally, the Indian people’s support for Tibet is another area of contention. Although India recognizes Tibet as a province of China, it does provide refuge to “more than 120,000 Tibetans and to the Dalai Lama” himself,⁶⁸ which has become a point of contention with Chinese leaders as they clamp down on Tibetan insurrection.

One particularly incendiary flashpoint that pertains to Indian security is China’s covert assistance to Pakistan’s own nuclear weapons program. This assistance has been well documented, although the details remain shrouded in secrecy. It is very likely that China provided “blueprints to [an] uranium implosion device”⁶⁹ and fissile material for

⁶³ Brahma Chellaney, “Coming Water Wars,” *International Economy* (Fall 2009): 38, http://www.international-economy.com/TIE_F09_Chellaney.pdf.

⁶⁴ Bloomberg Business Week, “China and India’s Growing Energy Rivalry,” December 16, 2010, http://www.businessweek.com/globalbiz/content/dec2010/gb20101215_795065.htm.

⁶⁵ Sidhu and Yuan, *China and India*, 48.

⁶⁶ Iskander Rehman, “Drowning Stability: The Perils of Naval Nuclearization and Brinkmanship in the Indian Ocean,” *Naval War College Review* 65, no. 4 (Autumn 2012): 75–76, <https://www.usnwc.edu/getattachment/187a93e1-db4c-474e-9be8-038bb7a64edb/Drowning-Stability--The-Perils-of-Naval-Nucleariza>.

⁶⁷ Taylor Fravel and Alexander Liebman, “Beyond the Moat: The PLAN’s Evolving Interests and Potential Influence,” in *The Chinese Navy: Expanding Capabilities, Evolving Roles*, ed. Philip Saunders et al. (Washington, DC: National Defense University Press, 2011), 69.

⁶⁸ Sidhu and Yuan, *China and India*, 173.

⁶⁹ Kristensen and Norris, “Pakistan’s Nuclear Forces, 2011,” 92.

“at least two nuclear bombs.”⁷⁰ China has also assisted Pakistan with its ballistic missile program, although countries like North Korea likely played a role as well.⁷¹ When Pakistan announced its Ghauri intermediate range ballistic missile (IRBM), Fernandes responded, “China is the mother of this missile.”⁷² Due to this extensive assistance, many Indian hawks have connected the Pakistani nuclear threat with China. They argue that Pakistan is a mere pawn in “Beijing’s encirclement strategy.”⁷³ Furthermore, any further advances in Pakistan’s strategic arsenal are viewed as evidence of China’s continued meddling and continued threat to India via proxy.⁷⁴ China’s Pakistan strategy is also viewed as an attempt to divert “New Delhi from its pursuit of a larger global role” by empowering a regional rival.⁷⁵ Despite its assistance, China would likely not go to war on Pakistan’s behalf. When the Kashmir conflict broke out in 1999, China was careful not to take a strong stance on either side.⁷⁶ Nevertheless, many Indians view Chinese assistance to Pakistan as evidence of Chinese duplicity, as well as part of a larger scheme to keep India tied down. This issue will likely continue to fuel distrust and hinder any efforts at confidence-building measures (CBMs).

The one issue most likely to bring China and India into conflict stems from what Indian hawks see as an increasingly “expansionist” Chinese foreign policy.⁷⁷ Specifically, they are concerned with China’s actions in the disputed territorial zones of Aksai Chin and Arunachal Pradesh. An actual war has already erupted over these disputed territories, and although violence since then has been rare, constant intrusions have occurred. Recently, China has embarked on a campaign of “improved infrastructure

⁷⁰ Sidhu and Yuan, *China and India*, 54.

⁷¹ Ibid., 55.

⁷² Tellis, *India’s Emerging Nuclear Posture*, 49.

⁷³ Mohan Malik, “Nuclear Proliferation in Asia: The China Factor,” *Australian Journal of International Affairs* 53, no. 1 (1999): 34.

⁷⁴ Jeffrey Lewis, “China’s Nuclear Modernization: Surprise, Restraint, and Uncertainty,” in *Strategic Asia 2013-14: Asia in the Second Nuclear Age*, ed. Ashley J. Tellis, Abraham M. Denmark, and Travis Tanner (Washington, DC: The National Bureau of Asian Research, 2013), 90.

⁷⁵ Tellis, *India’s Emerging Nuclear Posture*, 733.

⁷⁶ John Garver, “The Restoration of Sino-Indian Comity Following India’s Nuclear Tests,” *The China Quarterly*, no. 168 (December 2001): 884.

⁷⁷ Ganesh, “Nuclear Missile-Related Risks in South Asia,” 313.

in Tibet,” which has heightened “the threat perception” in the area.⁷⁸ The most recent high-profile intrusion occurred in April 2013, in the Aksai-Chin/Ladakh region. An entire platoon of Chinese soldiers encamped in a disputed area for two weeks, which sparked anti-Chinese protests within India.⁷⁹ Eventually, the issue was settled peacefully, but the argument over where the border should be drawn continues.⁸⁰ As the two states have increased their military presence in both border regions, hawks view another flare-up as increasingly likely.⁸¹

The border areas are also of particular interest to Indian analysts who fear a potential nuclear conflict with China. Many Indian military officials believe China possesses missiles that may be used as low-yield tactical nuclear devices, and that “conventional operations [in these regions] could therefore seamlessly escalate into a nuclear exchange.”⁸² Besides fears of escalation, hawkish analysts also fear potential nuclear war since they believe that China’s no first use policy does not apply to hostilities in the disputed regions.⁸³ Since China believes the areas are Chinese territory, these analysts argue that it can conduct a nuclear strike on Indian forces while claiming it has not attacked Indian territory itself. Furthermore, hawks have argued that China has already deployed missiles in Tibet to target India, a claim that China has consistently denied.⁸⁴ Although these fears of a Chinese nuclear-first strike following a conventional conflict seem limited to the most hawkish Indians, and in particular military officials, their arguments are bolstered by the strong distrust exhibited between China and India.

⁷⁸ Ali Ahmed, “Nuclear Doctrine and Conflict,” in *Grand Strategy for India: 2020 and Beyond*, ed. V. Krishnappa and Princy Marin George (New Delhi: Pentagon Security International, 2012), 139.

⁷⁹ Daily Mail, “China Invades India: Tensions Mount as Platoon of Soldiers Slip Across Border to claim Disputed Territory,” May 3, 2013, <http://www.dailymail.co.uk/news/article-2318389/Two-Chinese-incursion-leaves-India-verge-crises.html>.

⁸⁰ British Broadcasting Corporation, “India and China ‘Pull Back Troops’ in Disputed Border Area,” May 6, 2013, <http://www.bbc.com/news/world-asia-india-22423999>.

⁸¹ Frank Jack Daniel, “Special Report: In Himalayan Arms Race, China One-Ups India,” Reuters, July 30, 2012, <http://www.reuters.com/article/2012/07/30/us-india-china-idUSBRE86T00G20120730>.

⁸² Gaurav Kampani, “India: The Challenges of Nuclear Operationalization and Strategic Stability,” in *Strategic Asia 2013-14: Asia in the Second Nuclear Age*, ed. Ashley J. Tellis, Abraham M. Denmark, and Travis Tanner (Washington, DC: The National Bureau of Asian Research, 2013), 119.

⁸³ Sidhu and Yuan, *China and India*, 53.

⁸⁴ *Ibid.*, 50–51.

While China has nuclear de-targeting agreements with both Russia and the United States, it does not have any similar agreements with India.⁸⁵ Also, while India has multiple nuclear CBMs with Pakistan, it does not have a single nuclear-related CBM with China.⁸⁶

Besides issues that could lead to potential conflict, Indian security analysts also worry over the capability gap with China. In both economic and conventional military parameters, China has become a more threatening entity since 1998. In that year, India's GDP was \$428.7 billion while China's was \$1.02 trillion.⁸⁷ By 2013, China's GDP had grown to \$8.23 trillion while India's had only grown to \$1.84 trillion. The economic gap between the two increased by a factor of 10.⁸⁸ China's strong economic growth has helped fuel an increase in military spending, which also greatly outclasses India's. In 2013, India's total defense budget was \$46 billion⁸⁹ while China's nominal defense budget was \$117 billion, although many analysts in the U.S. Department of Defense believe the number is much higher (ranging from \$135 to \$215 billion).⁹⁰ Although doubts exist as to exact budget numbers, what is not in doubt is that a huge spending gap exists between the two states and that this gap has only increased over the years. This higher level of spending has ensured China's conventional superiority over India. In terms of personnel, China has a smaller ground army than India with 850,000 troops

⁸⁵ Center for Nonproliferation Studies, Monterey Institute of International Studies, "China's Nuclear Doctrine," 1998, http://cns.miiis.edu/archive/country_china/coxrep/doctrine.htm.

⁸⁶ Dipankar Banerjee, "Addressing Nuclear Dangers: Confidence Building between India-China-Pakistan," *India Review* 9, no. 3 (2010): 355.

⁸⁷ Trading Economics, "China GDP," accessed March 21, 2014, <http://www.tradingeconomics.com/china/gdp>; Trading Economics, "India GDP," accessed March 21, 2014, <http://www.tradingeconomics.com/india/gdp>.

⁸⁸ *Ibid.*

⁸⁹ Jane's, "India Defence Budget," Jane's Defence Budgets, last updated March 7, 2014, https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1327385&Pubabbrev=JDB_.

⁹⁰ Jane's, "China Defence Budget," Jane's Defence Procurement Budget, last updated March 7, 2014, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1327472&Pubabbrev=JDPB>.

compared to India's 1,100,000.⁹¹ Nevertheless, it retains a significant equipment advantage. China has 5,900 main battle tanks, 2,800 infantry fighting vehicles (IFVs), and over 1,750 armored personnel carriers (APCs)⁹² while India has 1,830 main battle tanks, 100 IFVs, and 165 APCs.⁹³ China retains a similar equipment advantage in the air force, with 1,162 combat aircraft compared to India's 659.⁹⁴ Of note, a smaller discrepancy exists in terms of fourth generation fighter aircraft; China has 395 while India has 359.⁹⁵ In terms of naval strength, India has more carriers and corvettes than China, with two carriers compared to China's one, and 24 corvettes compared to China's 11.⁹⁶ China, however, retains a substantial advantage with submarines, destroyers, and frigates, with 65 submarines compared to India's 14, 23 destroyers compared to India's eight, and 50 frigates compared to India's 15.⁹⁷ Overall, China has more personnel with 1,583,000 compared to India's 1,323,000,⁹⁸ and with a budget that continues to grow faster than India's, this conventional discrepancy will likely continue for years to come.

⁹¹ Jane's, "China-Army," *Jane's Sentinel Security Assessment-China and Northeast Asia*, May 23, 2014, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1303144&Pubabbrev=CNA>; Jane's, "India-Army," *Jane's Sentinel Security Assessment-South Asia*, January 16, 2014, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1304834&Pubabbrev=SAS>.

⁹² Jane's, "China-Army."

⁹³ Jane's, "India-Army."

⁹⁴ Jane's, "India-Air Force," *Jane's Sentinel Security Assessment-South Asia*, January 16, 2014, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1304835&Pubabbrev=SAS>; Jane's, "China-Air Force," *Jane's Sentinel Security Assessment-China and Northeast Asia*, May 6, 2014, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1303145&Pubabbrev=CNA>.

⁹⁵ Ibid.

⁹⁶ Jane's, "China-Navy," *Jane's Sentinel Security Assessment-China and Northeast Asia*, May 23, 2014, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1303146&Pubabbrev=CNA>; Jane's, "India-Navy," *Jane's Sentinel Security Assessment-South Asia*, February 24, 2014, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1304837&Pubabbrev=SAS>.

⁹⁷ Ibid.

⁹⁸ Jane's, "China-Armed Forces," *Jane's Sentinel Security Assessment-China and Northeast Asia*, April 22, 2014, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1303143&Pubabbrev=CNA>; Jane's, "India-Armed Forces," *Jane's Sentinel Security Assessment-South Asia*, January 16, 2014, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1304832&Pubabbrev=SAS>.

China has also retained a sizeable advantage in the nuclear realm. Due to the secrecy of its strategic program, accurately gauging the trends in China's nuclear arsenal is a difficult task. For instance, the *Bulletin of Atomic Scientists* estimated that China had approximately 400 nuclear warheads in 1999,⁹⁹ but after receiving additional information from Chinese reports, the organization downsized the arsenal to approximately 200 warheads in 2006.¹⁰⁰ Nonetheless, analysts like Hans Kristensen are confident that China is actively increasing its arsenal, with the 2008, 2010, and 2011 reports¹⁰¹ listing an increase to 240 warheads, while the latest report described another increase to 250 warheads.¹⁰² These increases would make China the only UN permanent Security Council member nation actively expanding its nuclear arsenal.¹⁰³ India, by contrast, has had a much more dramatic increase, going from 30–35 warheads in 2002¹⁰⁴ to 80–100 in 2011.¹⁰⁵ Yet, despite India's progress, China still maintains more than twice as many weapons. Also, China has retained its technological advantage as it modernizes its ballistic missiles.¹⁰⁶ China has already deployed missiles, such as the “new DF-21 IRBMs,” near “Da Qaidam in Qinghai Province, as well as new DF-31s in central China,” which can “provide coverage of major strategic targets in India.”¹⁰⁷ In contrast, only one of India's operational missiles, the Agni III, can reach deep into China and parts of the country remain out of reach. The Agni V can cover all of China, but it is still in the

⁹⁹ Robert S. Norris and William M. Arkin, “Chinese Nuclear Forces, 1999,” *Bulletin of the Atomic Scientists* 55, no. 79 (1999): 79, DOI: 10.2968/055003023.

¹⁰⁰ Robert S. Norris and Hans M. Kristensen, “Chinese Nuclear Forces, 2006,” *Bulletin of the Atomic Scientists* 62, no. 60 (2006): 60, DOI: 10.2968/062003017; Robert S. Norris and Hans M. Kristensen, “Chinese Nuclear Forces, 2010,” *Bulletin of the Atomic Scientists* 66, no. 134 (2010): 134, DOI: 10.1177/0096340210387046; Hans M. Kristensen and Robert S. Norris, “Chinese Nuclear Forces, 2011,” *Bulletin of the Atomic Scientists* 67, no. 81 (2011): 81, DOI: 10.1177/0096340211426630.

¹⁰¹ Robert S. Norris and Hans M. Kristensen, “Chinese Nuclear Forces, 2008,” *Bulletin of the Atomic Scientists* 64, no. 42 (2008): 42, DOI: 10.2968/064003009.

¹⁰² Hans M. Kristensen and Robert S. Norris, “Chinese Nuclear Forces, 2013,” *Bulletin of the Atomic Scientists* 69, no. 79 (2013): 79, DOI: 10.1177/0096340213508632.

¹⁰³ *Ibid.*

¹⁰⁴ Norris et al., “India's Nuclear Forces, 2002,” 70.

¹⁰⁵ Kristensen and Norris, “Indian Nuclear Forces, 2012,” 96.

¹⁰⁶ Kristensen and Norris, “Chinese Nuclear Forces, 2013,” 80.

¹⁰⁷ Lewis, “China's Nuclear Modernization,” 91.

testing phase. India has certainly made tremendous strides in its nuclear weapons program in the past decade. Nonetheless, in terms of both quantity and technological sophistication, China retains a strong lead.

Not everyone in India sees China as a threat. Furthermore, these proponents have rightfully pointed out that in the past decade, Sino-Indian ties have been on an upward trend. The most dramatic example of this positive engagement has occurred in the economic realm, in which “trade volume increased from a paltry \$260 million per year in 1990 to \$13.6 billion for 2004.”¹⁰⁸ A decade later, trade has now reached \$49.5 billion, and China has become India’s largest trading partner.¹⁰⁹ Energy officials in both the government and commercial sectors have also come together in joint-bids, which has upset many predictions that competing energy demands would become a new point of conflict.¹¹⁰ Since signing a key bilateral defense initiative known as the “2005 Agreement on Political Parameters and Guiding Principles for the Settlement of the India-China Boundary Question,” high-level exchanges have also occurred between military leaders, as well as goodwill port visits and joint participation in military exercises.¹¹¹ Yet, for many Indians, “the past 10 years of Sino-Indian rapprochement have failed to alleviate India’s security concerns.”¹¹² China still outmatches India, and if relations ever soured, it has the capabilities to coerce its weaker neighbor easily. Furthermore, many Indians agree, “India cannot hope to match Chinese capability without disastrous economic and political results.”¹¹³ In light of this agreement, a nuclear option may be the only cost-effective response. Malik argues that a “stockpile of 150–200 20-kt warheads and their delivery systems is expected to cost about US\$25 billion over

¹⁰⁸ Rollie Lal, *Understanding China and India: Security Implications for the United States and the World* (Westport, CT: Praeger Security International, 2006), 138.

¹⁰⁹ “China Emerges As India’s Top Trading Partner: Study,” *Times of India*, March 2, 2014, <http://timesofindia.indiatimes.com/business/india-business/China-emerges-as-Indias-top-trading-partner-Study/articleshow/31268526.cms>.

¹¹⁰ Lal, *Understanding China and India*, 139.

¹¹¹ Jabin T. Jacob, “India’s China Policy: Time to Overcome Political Drift,” *S. Rajaratnam School of International Studies*, June 2012, 7–8.

¹¹² Malik, “Nuclear Proliferation in Asia,” 33.

¹¹³ Deepa M. Ollapally, “Mixed Motives in India’s Search for Nuclear Status,” *Asian Survey* 41, no. 6 (November/December 2001): 942.

10 years.”¹¹⁴ Although that price tag is far from cheap, it is substantially smaller than the costs of catching up to China conventionally. Even more hawkish scholars, however, do not want an arms race with China since such a campaign would be far too costly. The goal is to achieve a credible deterrent, not nuclear parity with China. Hawks and moderates may disagree on whether China is a threat, but both do believe in pursuing a strong nuclear capability as the most prudent way to hedge against China. This goal is one that both pragmatists and hawks share as the only viable path to guaranteeing India’s safety.

C. ELITE STATEMENTS

Rhetoric from Indian elites has been split between officials who do not want to appear antagonistic towards China and leaders who are more willing to voice fears over a possible Chinese threat. Due to the backlash from the statements made from Prime Minister Vajpayee and former Defense Minister Fernandes, government officials are careful in their rhetoric about China. Tellis describes this strategy as part of India’s overall approach, which is “steady composure in New Delhi’s public statements about China coupled with lingering suspicion of Beijing in private.”¹¹⁵ Nevertheless, even moderate leaders have made other statements that indicate they are watching China and adjusting their capabilities accordingly. More hawkish elites are often more explicit in linking their deterrence strategy to China. Both sides agree, however, that India must close the capability gap with China, and furthermore, that it would be foolish to do so with a symmetrical strategy. Since China has a huge advantage that is only going to grow in the near future, India must find a different way to deter its foe than by building up its conventional strength. This idea of an asymmetrical strategy against China adds further credence that India must depend on its nuclear arsenal, which can deter China without matching all its capabilities.

Since the diplomatic fallout from the 1998 tests, Indian officials have been careful not to antagonize China with overly aggressive statements. Once China threatened to “tilt

¹¹⁴ Malik, “Nuclear Proliferation in Asia,” 35.

¹¹⁵ Tellis, *India’s Emerging Nuclear Posture*, 71.

towards Pakistan's position on the sensitive Kashmir issue,"¹¹⁶ leaders in New Delhi soon moved to mend relations. The Principal Secretary to the Prime Minister, Brajesh Mishra, stated, "India did not see China [as] an 'enemy,' or desire an 'arms race' with China" while President K. R. Narayanan declared, "that China did not constitute a threat to India, nor India a threat to China."¹¹⁷ Later Indian officials have continued this policy of careful rhetoric. At a conference organized by the Institute of Defence Studies and Analysis, Indian Defense Minister, A. K. Antony, discussed how India and China have built up their ties and stressed that Indian's nuclear program was not targeted against a particular nation.¹¹⁸ At the same time, he acknowledged, "We are carrying out continuous appraisals of its (China's) military capabilities" and "taking all necessary measures to shape our responses."¹¹⁹ Similarly, former Admiral Sureesh Mehta made a speech in which he stated that India's strategy "to deal with China must include reducing the military gap."¹²⁰ He also added, "It would be foolhardy to compare China and India as equals," and that India currently does not have "the intention to match China force for force."¹²¹ Finally, at another conference, National Security Advisor Shivshankar Menon argued that as long as nuclear weapons exist, India has "no choice, and a responsibility towards our own people, to have nuclear weapons to protect them from nuclear threats."¹²² Moderate leaders are careful not to name China as a threat, but they also stress the need to monitor China's capabilities and acknowledge that a nuclear arsenal is necessary for India's defense.

Other leaders, especially those no longer tied to the government, are more willing to explicitly call China a threat. Shyam Saran, former Foreign Secretary, once described

¹¹⁶ Garver, "Restoration of Sino-Indian Comity," 873.

¹¹⁷ *Ibid.*, 879–880.

¹¹⁸ "Minister Says India's Defense Policy Not 'Aggressive,'" *Press Trust of India News Agency, BBC Monitoring South Asia—Political*, February 11, 2010.

¹¹⁹ *Ibid.*

¹²⁰ Sureesh Mehta, "India's National Security Challenges," *Outlook India*, August 10, 2009, <http://www.outlookindia.com/article.aspx?261738>.

¹²¹ *Ibid.*

¹²² Shivshankar Menon, "Official Says Nuclear Weapons Deters World Powers from Threatening India," *Press Trust of India News Agency, BBC Monitoring South Asia—Political*, August 21, 2012.

China as “the one power which impinges most directly on India’s geopolitical space.”¹²³ Like Mehta, Saran also discusses the need to enhance India’s own capabilities but not through a matching strategy. He argues India needs to “have enough capabilities deployed to convince the other side that aggressive moves would invite counter-moves”¹²⁴ but also states that it would be foolish for India to try and “catch up with China...GDP to GDP, aircraft to aircraft, aircraft carrier to aircraft carrier.”¹²⁵ Narendra Modi, the BJP front-runner in the 2014 election, has also taken a more hawkish stance towards China in a bid to differentiate himself from the incumbent, Manmohan Singh. He has argued that China has a “mindset of expansionism” and that a harder line is needed to deter them.¹²⁶ Furthermore, he has stated that India’s nuclear weapons program “is necessary to be powerful—not to suppress anyone, but for our own protection.”¹²⁷ Moderates and hawks may disagree on whether or not to openly call China a competitor or adversary, but both sides agree on catching up to Chinese capabilities without matching them conventionally and maintaining a strong nuclear arsenal. Taken together, these statements indicate that Indian elites, both moderates and hawks, agree on enhancing the strategic arsenal as the most efficient way to guarantee India’s security against a nation they cannot catch up to conventionally.

D. PROGRAM CAPABILITIES

More than countering Pakistan, the capabilities of the Indian nuclear forces themselves appear tailored toward countering China. The entire trend of the program has steadily grown in both a quantitative and qualitative sense. In 16 years, India has created

¹²³ *The Hindu*, “India Ill-Prepared to Deal with China, Warns Shyam Saran,” August 30, 2012, <http://www.thehindu.com/news/national/india-illprepared-to-deal-with-china-warns-shyam-saran/article3836618.ece>.

¹²⁴ *Ibid.*

¹²⁵ *The Economic Times*, “Don’t Try Matching China in Each Field, Work on Assets: Shyam Saran,” December 6, 2013, http://articles.economictimes.indiatimes.com/2013-12-06/news/44864344_1_india-and-china-aircraft-carrier-shyam-saran.

¹²⁶ *Hindustan Times*, “If Narendra Modi Becomes PM, China, Pakistan Can Expect a Tougher India,” March 30, 2014, <http://www.hindustantimes.com/india-news/allaboutnarendramodi/if-modi-wins-election-neighbours-can-expect-a-more-muscular-india/article1-1202112.aspx>.

¹²⁷ Douglas Busvine, “Modi Says Committed to No First Use of Nuclear Weapons,” Reuters, April 17, 2014, <http://in.reuters.com/article/2014/04/16/uk-india-election-nuclear-idINKBN0D20QB20140416>.

approximately 100 nuclear warheads and has strengthened its ability to create more¹²⁸ while enhancing the technological sophistication of its delivery platforms. This effort is likely directed against a stronger nation than Pakistan. Due to Pakistan's small geography, India would not need a large arsenal to decimate the entire country. China, on the other hand, is a much larger nation with its capital in the northeastern part of the country while industrial and economic targets are on the coastline. To threaten any of these potential targets credibly would require more technologically demanding platforms than short-range ballistic missiles or strike aircraft. Furthermore, China, unlike Pakistan, is believed to be working on a tiered ballistic missile shield comprised of its HQ-9, HQ-16, and S-300 systems.¹²⁹ To get past this system, India would need a much more capable strategic force than it would against Pakistan.

One scholar, Gaurav Kampani notes, "India's principal effort—in both the past decade and the current one—has been to develop land-based intermediate-range ballistic missiles in order to close the strategic gap with China."¹³⁰ Its most recent success has been the Agni V, India's first missile that can be categorized as an ICBM.¹³¹ Although the missile is still in the testing phase, it can cover all of China, which greatly increases India's deterrence capability (See Figure 2). Furthermore, the trend of India's ballistic missile program has been to push the envelope constantly as opposed to refining its current arsenals. The Agni III only recently became operational while the Agni IV and Agni V remain in the testing phase. Recently, the DRDO announced plans for an Agni VI that would carry a much larger payload, which allows for the possibility of a MIRV.¹³² This trend of increasing both the range and destructive power of a ballistic missile also appears to be tailored against China. Pakistan has been within range of India's earliest ballistic missiles and MIRV weapons would be overkill against a small country that does

¹²⁸ Kristensen and Norris, "Indian Nuclear Forces, 2012," 96.

¹²⁹ Jane's, "Multilayered Chinese Integrated Air Defence System (IADS)," *Jane's Strategic Weapon Systems*, Updated March 17, 2013, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1705286&Pubabbrev=JSWS>.

¹³⁰ Kampani, "Challenges of Nuclear Operationalization," 122.

¹³¹ Kristensen and Norris, "Indian Nuclear Forces, 2012," 98.

¹³² Shukla, "Advanced Agni-6 Missile with Multiple Warheads Likely by 2017."

not even have a rudimentary ballistic missile shield. However, if China does set up a valid ballistic missile defense (BMD) system, India may view a MIRV as a necessary component for its strategic deterrence.

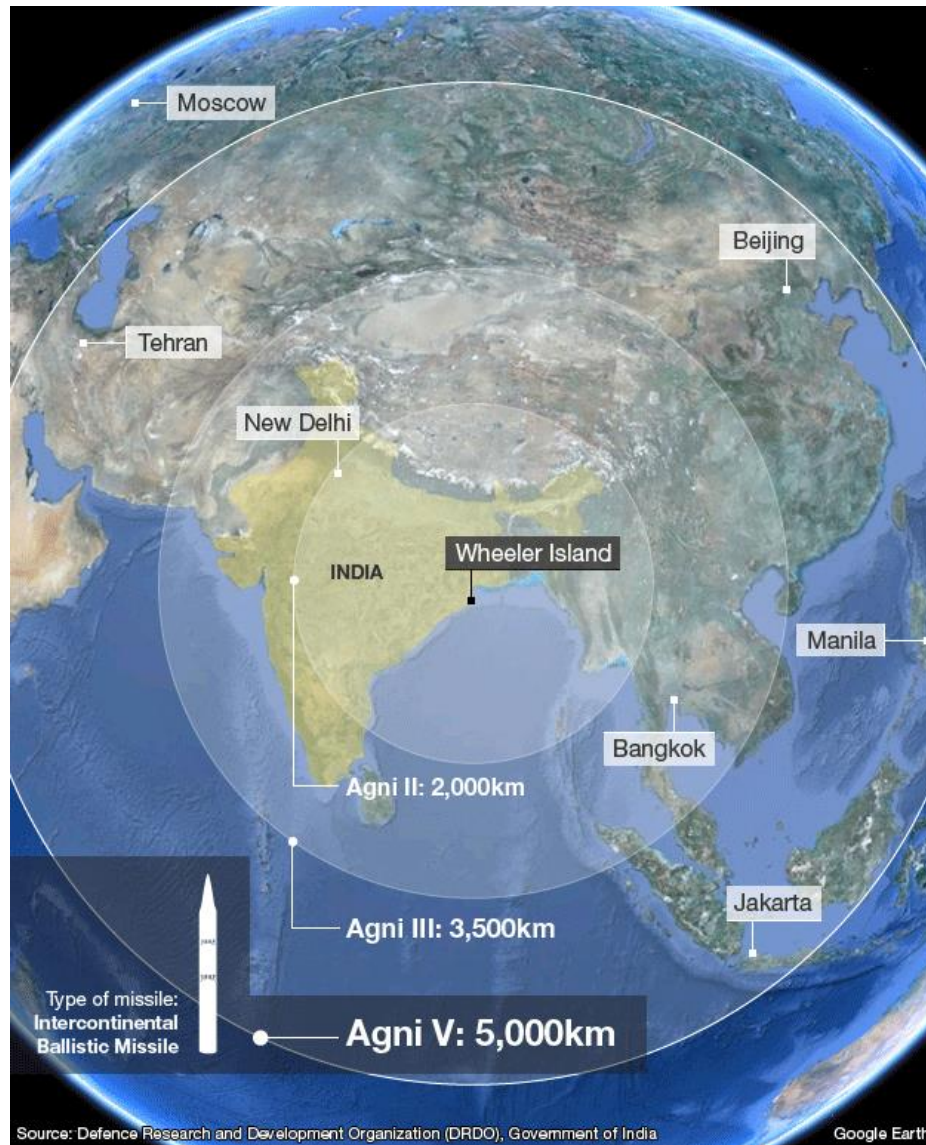


Figure 2. AGNI I, AGNI III, and AGNI V ranges compared to China¹³³

¹³³ British Broadcasting Company, “India Test Launches Agni-V Long-Range Missile,” April 19, 2012, <http://www.bbc.com/news/world-asia-india-17765653>.

India has also placed a lot of effort into building up a small fleet of nuclear ballistic submarines. Some analysts argue, “the planned nuclear submarine fleet with its short-range ballistic missiles is... Pakistan-specific,”¹³⁴ since the range of the proposed missile, the K-15, is short compared to its land-based counterparts. Nonetheless, this argument assumes that India does not have plans for a more advanced submarine-launched ballistic missile (SLBM). India has already successfully test launched the K-4,¹³⁵ a SLBM with a range of 3,000 km, comparable to the Agni III. Furthermore, it has plans for an even more advanced SLBM with a 5,000 km range.¹³⁶ With such ranges, India could easily cover strategic targets in China from deterrence patrols in the Indian Ocean. Once India masters its SLBM technology, a ballistic nuclear submarine would be as valid a deterrence against China as it would against Pakistan.

A stronger case can be made that India’s recent air modernization program is designed to deter Pakistan. Due to their limited range and susceptibility to ground defenses, strike aircraft would be a likely platform against Pakistan, not China. Nevertheless, some indications demonstrate that India may intend for its air forces to also play a role in deterring China. First, India has recently modified some of its aircraft to carry the BrahMos, which is a supersonic missile strongly believed to be capable of carrying a nuclear warhead.¹³⁷ These missiles can greatly enhance an aircraft’s striking range and make it more feasible to hit targets deep in Chinese territory. Furthermore, an air defense blog reported that the SFC asked for 40 nuclear capable strike aircraft, and that 40 Su-30MKIs were recently converted to carry the BrahMos cruise missile,¹³⁸ strongly indicating that these aircraft would play a role in strategic deterrence. Second, although more recent Su-30MKI deployments have been near Pakistan, “initial SU-30

¹³⁴ Tariq Osman Hyder, “Facing the Arihant Challenge,” *Indian Express*, August 12, 2009.

¹³⁵ Ankit Panda, “India Inches Closer to Credible Nuclear Triad with K-4 SLBM Test,” *The Diplomat*, May 13, 2014, <http://thediplomat.com/2014/05/india-inches-closer-to-credible-nuclear-triad-with-k-4-slbm-test/>.

¹³⁶ Sandeep Unnithan, “The Secret ‘K’ Missile Family,” *India Today*, November 20, 2010, <http://indiatoday.intoday.in/story/the-secret-k-missile-family/1/120488.html>.

¹³⁷ RIA Novosti, “India Modifies Brahmos Missile with New Nav System,” October 9, 2012, http://en.ria.ru/military_news/20121009/176500812.html.

¹³⁸ Simha, “How the Su-30 MKI Is Changing the IAF’s Combat Strategy.”

MKI squadron deployments had been focused near the Chinese border.”¹³⁹ It is difficult to ascertain if India intends for these Su-30MKIs to deter Chinese forces in a conventional sense or whether it intends to use them as platforms for strategic deterrence; whether the strike aircraft that have been deployed near China are the same ones that carry the BrahMos has not been confirmed. Nevertheless, the mere fact that India has deployed its more advanced aircraft to the Chinese border first strongly indicates that it prioritizes its northern neighbor as a greater threat than its western one.

Both the ballistic missile program and the nuclear submarine program, however, could also be motivated by a desire for great power status. Only a handful of countries in the world have ballistic missile submarines. Fewer have land-based ICBMs. Only three—the United States, Russia, and China—have both. If India is successful in operationalizing both the Agni V and the INS *Arihant*, it will join a very exclusive club. Furthermore, India’s desire for a nuclear triad has been a goal since its nuclear doctrine was first drafted in 1999. Since it was an early goal of India’s strategic community, even before an operational command structure was in place, India’s pursuit of a triad may be motivated by its desire for prestige rather than actual security concerns. Also, these technological achievements may be pushed by India’s defense organizations in an effort to prove their ability. The DRDO is behind the Agni, SLBM, and SSBN program while the DAE would be in charge of developing nuclear warheads that can fit either on a MIRV, SLBM, or ICBM platform. Both topics are explored in further depth in later chapters.

E. CONCLUSION

No smoking gun definitively points towards China as the primary driver of India’s nuclear weapons program. Yet, several indications demonstrate China is a strong factor in India’s strategic calculus. First, India has valid reasons to fear China. Not only do issues exist that could be the starting point for war, but China has a strong advantage in both conventional and nuclear forces. Pursuing a nuclear arsenal as a cheaper deterrent makes

¹³⁹ *Defense Industry Daily*, “India’s Flanker Fleet,” last modified May 5, 2014, <http://www.defenseindustrydaily.com/india-ordering-modernizing-su-30mkis-05852/>.

sense if India decides on a strategic program of “credible, minimum” deterrence.¹⁴⁰ As explained by Shyam Saran, the goal is not to catch up to China in an arms race but to close the gap enough so that India’s arsenal can be seen as a force that can credibly threaten China. Even moderates can embrace this policy since pursuing a strong nuclear arsenal can coexist with a policy of constructive engagement if they are careful with their diplomacy. Indian statements from both moderates and hawks seem to reinforce this strategy. Moderates are careful not to state openly that their arsenal is directed against China, but both groups of leaders have argued the necessity of a strong nuclear arsenal and of closing the capability gap with China through asymmetrical means. Finally, although multiple explanations may explain the trends in India’s nuclear weapons program, if India was focused solely on deterring China, its strategic program has taken all the necessary steps. Bolstering both its ballistic missile and submarine technology, as well as stationing cruise missile capable strike aircraft near contested areas, have all enhanced India’s ability to deter China. Due to both its environment, as well as its actions, India likely considers China one of the strongest drivers of its nuclear weapons program. As for China, the converse does not appear true for precisely the same reasons; since it maintains a strong advantage, it does not need to fear India to the same extent India fears China. Instead, China’s own arsenal appears to be directed against the United States, which maintains its own sizeable lead in both conventional and nuclear forces.¹⁴¹

¹⁴⁰ Shyam Saran, “Deterrence Is Not a Fantasy,” *Indian Express*, October 3, 2013.

¹⁴¹ Michael Mazza and Dan Blumenthal, “China’s Strategic Forces in the 21st Century: The People’s Liberation Army’s Changing Nuclear Doctrine and Force Posture,” in *The Next Arms Race*, ed. Henry D. Sokolski (Carlisle, PA: Strategic Studies Institute, 2012), 93–94.

THIS PAGE INTENTIONALLY LEFT BLANK

III. PAKISTAN AS A SECURITY THREAT

A. INTRODUCTION

Ever since Pakistan was created by partition in 1947, its relations with India have fluctuated between tension and outright hostility. The two states have fought at least four wars, and, most worrisome to proliferation experts in the international community, both states are nuclear powers. Before, and immediately after 1998, Pakistan's nascent nuclear arsenal likely played a strong role in driving India's nuclear weapons program due to the history of hostility between the two nations. In the past decade, however, India's conventional and nuclear power have increased and Indian leaders today are confident in their military's capability to respond to Pakistani provocations. Now that India has finally reached a point at which its ability to retaliate with nuclear weapons is assured, Pakistan is no longer a strong driver in India's nuclear weapons program.

Even though Pakistan is not as strong a driver as it used to be, India is far from complacent about the Pakistani nuclear threat. Many Indians view a nuclear attack from Pakistan as more likely than one from China, whether from escalation or nuclear terrorism. Nevertheless, these fears have not affected India's nuclear weapons program. Instead, India has decided to respond with diplomatic measures, such as nuclear-related CBMs. Also, since no conventional or nuclear gap exists as it does with China, India does not need to modify its program to address the Pakistani nuclear threat. Notably, India's Cold Start doctrine, created in response to the Kargil crisis of 1999 and the border standoff in 2002, indicates a desire to deal with Pakistani threats conventionally despite the possibility of nuclear war. Rhetoric from Indian elites also emphasizes their country's capacity for massive retaliation, which indicates leadership confidence in their ability to deal with Pakistan. Finally, trends within India's nuclear weapons program have not responded to Pakistan's own strategy of emphasizing tactical nuclear weapons. India certainly does not see Pakistan as a harmless neighbor, but its own actions indicate a desire to deal with these particular fears through engagement and conventional strategies instead of any corresponding changes in its nuclear program. In terms of explaining India's recent strategic trend of continued advancements, Pakistan is the weakest factor.

B. PAKISTAN A THREAT?

Most Indians currently see Pakistan as their country's most threatening adversary. "China is seen as a relatively more responsible and predictable actor" and, like India, it also maintains a NFU doctrine for its nuclear weapons.¹⁴² In contrast, Pakistan has refused to adopt a NFU policy since it intends to use its strategic arsenal to deter any conventional attacks by India. Nevertheless, the strongest nuclear-related fears with Pakistan are escalation and nuclear acquisition by a non-state actor. Both these fears do not readily translate into factors that would affect India's nuclear weapons program. After reaching a point at which the state had enough warheads and delivery platforms for assured devastation, Indian leaders have instead adopted other tactics to deal with Pakistan. Foremost of these measures are productive CBMs, which have helped defuse some of the tension of potential escalation. Also, Pakistan remains much weaker economically than India. Although its nuclear program is currently on par with India's, it is unlikely to keep pace with Indian advancements. Unlike with China, no driving fear exists that India's arsenal is not strong enough for deterrence. Genuine concern of a potential Pakistani nuclear strike does exist, however, but this concern has not turned into a driver of India's nuclear weapons program.

Although many Indian leaders, such as former Defence Minister George Fernandes, openly espouse confidence that they can prosecute a conventional war without triggering a nuclear conflict,¹⁴³ evidence indicates that they do remain concerned about the possibility of escalation. Foremost of these concerns stem from Pakistan's TNWs. As Kristensen notes, the new Hatf-9 short-range missile "wouldn't threaten Indian survival in itself" but it "would of course mean crossing the nuclear threshold early in a conflict."¹⁴⁴ Leaders like Shyam Saran have decried this lowering of the threshold,

¹⁴² Rajesh Rajagopalan, "India: The Logic of Assured Retaliation," in *The Long Shadow*, ed. Muthiah Alagappa (Stanford, CA: Stanford University Press, 2008), 195.

¹⁴³ C. Raja Mohan, "Fernandes Unveils 'Limited War' Doctrine," *The Hindu*, January 25, 2000. <http://www.hindu.com/2000/01/25/stories/01250001.htm>.

¹⁴⁴ *The Atlantic*, "Pakistan Seen Ready to Cross Nuclear Threshold," June 2, 2011, <http://www.theatlantic.com/international/archive/2011/06/pakistan-seen-readying-to-cross-nuclear-threshold/239817/>.

calling it “nuclear blackmail.”¹⁴⁵ By creating a tactical delivery platform, Pakistan has increased the risk that a nuclear weapon would be used in the beginning stages of a conflict. Also, not all Indian leaders are confident that their state could avoid the problem of escalation. Former Director General of Military Operation, V. R. Raghavan, notes several factors that could turn a conventional conflict into a nuclear one, such as differing perceptions on the value of objectives and “deficient early warning arrangements,” which may send “mixed signals.”¹⁴⁶ Sumit Ganguly also argues that the potential for mixed signals is heightened by the geography of the two countries. Due to the close proximity of the two states, a low margin for error exists; a ballistic missile could strike a major Pakistani or Indian city “within a span of a few minutes.”¹⁴⁷ An inadvertent launch or even a false warning could easily escalate to a counterstrike.¹⁴⁸ Yet, although fear of escalation has encouraged diplomatic engagement, this fear has not translated into any changes in India’s nuclear weapons program, even when dealing with the threat of TNWs. In fact, “Indian leaders have resisted pressures from their military to respond in kind to Pakistan’s development of tactical nuclear weapons.”¹⁴⁹ So far, no indications have arisen that TNWs or any other escalation factors have affected the course of India’s nuclear weapons program.

Another nuclear related fear that has not affected India’s strategic program is the fundamentalist threat. Indian leaders have openly voiced their fear that Pakistan’s arsenal may fall into terrorist hands.¹⁵⁰ Pakistan is seen as an instable state vulnerable to Islamic fundamentalists who may hijack the nation into initiating conflict. For their part, Hindu nationalists in India have a deep-seated historical antipathy to radical Islamists, who they

¹⁴⁵ Indrani Bagchi, “Even a Midget Nuke Strike Will Lead to Massive Retaliation, India Warns Pak,” *The Economic Times*, May 1, 2013.

¹⁴⁶ Khurshid Khan, “Limited War under the Nuclear Umbrella and its Implications for South Asia,” Stimson Institute, May 1, 2005, <http://www.stimson.org/essays/limited-war-under-the-nuclear-umbrella-and-its-implications-for-south-asia/>.

¹⁴⁷ Sumit Ganguly and Kent L. Biringier, “Nuclear Crisis Stability in South Asia,” *Asian Survey* 41, no. 6 (2001): 910.

¹⁴⁸ *Ibid.*

¹⁴⁹ Kampani, “Challenges of Nuclear Operationalization and Strategic Stability,” 123.

¹⁵⁰ “India Concerned Over Possibility of ‘Nuclear Terrorism’ in Region,” *Press Trust of India News Agency*, *BBC Monitoring South Asia–Political*, September 21, 2010.

see as “intolerant, hostile to Hindu values, proselytizing, expansionist, repressive, and violent.”¹⁵¹ This deep-seated hostility is especially strong in Kashmir, a region in which Pakistani-supported insurgents and the Indian-backed government have been locked in “a seemingly never-ending spiral” of violence.¹⁵² India already considers Pakistan a state-sponsor of terror due to its history of assisting separatists in the Kashmir region.¹⁵³ Furthermore, it fears the possibility that these extremists would acquire such weapons through security failings. Unlike other nuclear states, Pakistan must contend with an extreme “threat environment”¹⁵⁴ due to its religious extremists and ethnic separatists, both of which have recently grown in strength. Between 2005 and 2009, “militant attacks on Pakistan increased nearly 800 percent” while “suicide attacks increased twentyfold.”¹⁵⁵ Also, these Islamic militants have become bolder by taking up positions closer to cities like Islamabad.¹⁵⁶ Even more alarming to security analysts, these militants have become strong enough to assault military bases directly. One such attack occurred on May 22, 2011, when terrorists broke into the Pakistani Naval Station Mehran.¹⁵⁷ Another attack occurred on August 16, 2012, when militants successfully penetrated an air base suspected of housing nuclear weapons at Kamra, located only 45 miles from Islamabad.¹⁵⁸ If terrorists are already bold enough to attack these installations, they may be bold enough to steal a nuclear weapon housed there. The presence of TNWs may

¹⁵¹ Mohan Malik, “The Stability of Nuclear Deterrence in South Asia: The Clash between State and Antistate Actors,” *Asian Affairs* 30, no. 3 (2003): 189.

¹⁵² Ganguly and Biringir, “Nuclear Crisis Stability in South Asia,” 912.

¹⁵³ *Ibid.*, 908.

¹⁵⁴ Christopher Clary, “The Future of Pakistan’s Nuclear Weapons Program,” in *Strategic Asia 2013–14: Asia in the Second Nuclear Age*, ed. Ashley J. Tellis, Abraham M. Denmark, and Travis Tanner (Washington, DC: The National Bureau of Asian Research, 2013), 150.

¹⁵⁵ Brian Fishman, “The Taliban in Pakistan: An Overview,” in *Talibanistan: Negotiating the Borders Between Terror, Politics, and Religion*, ed. Peter Bergen with Katherine Tiedemann (Oxford: Oxford University Press, 2013), 349.

¹⁵⁶ *Ibid.*, 350.

¹⁵⁷ Faraz Khan, “Security Forces Retake PNS Mehran: 17-hour Battle of Nerves,” *The Express Tribune*, May 24, 2011, <http://tribune.com.pk/story/174805/security-forces-retake-pns-mehran-17-hour-battle-of-nerves>.

¹⁵⁸ Dean Nelson and Tom Hussain, “Militants Attack Pakistan Nuclear Air Base,” *The Telegraph*, August 16, 2012, <http://www.telegraph.co.uk/news/worldnews/asia/pakistan/9479041/Militants-attack-Pakistan-nuclear-air-base.html>.

further aggravate these risks. A warhead small enough to be used on the battlefield is likely more transportable and easier to steal than one mounted on a ballistic missile. These weapons would likely be deployed at multiple locations, “arrayed so as to cope with multiple potential Indian attack vectors,”¹⁵⁹ which may make them more vulnerable to capture. Ironically, recent speculation that the United States or other nations may try to seize Pakistan’s nuclear weapons to secure them may also increase the risks of non-state actors acquiring them. Fears of U.S. seizure can “lead to larger arsenals if Pakistani planners conclude that dispersal and deception are insufficient,”¹⁶⁰ but a larger arsenal increases the opportunities for a non-state actor to steal a nuclear warhead.

India also fears the possibility that these strategic weapons may fall into extremist hands if the government itself becomes more fundamentalist. Shivshankar Menon states, “the real threat to nuclear weapons in Pakistan was not from fundamentalist groups, but from within the establishment”¹⁶¹ as religious extremists grow in influence. Nawaz Sharif’s election win in 2013 has heightened these fears since his Pakistan Muslim League-Nawaz (PML-N) coalition is seen as more Islamic-leaning than the outgoing Pakistan People’s Party (PPP).¹⁶² Despite these fears, however, India has done little to counter Pakistan’s militant threat. This inaction is partly related to capability; recent strategic advancements would be of little use in stopping non-state actors. Instead, India’s best course of action would be to increase its counter-terrorist activities and diplomatic engagements with Pakistan to combat a common foe.

Since more advanced nuclear weapons could not counter escalation or non-state nuclear threats, India has mostly undertaken diplomatic actions to address its Pakistani-related fears. The most significant are the nuclear CBMs, measures which India notably has been unable to accomplish with China. Both Pakistan and India have engaged

¹⁵⁹ Shashank Joshi, “Pakistan’s Tactical Nuclear Nightmare: Déjà vu?” *The Washington Quarterly* 36, no. 3 (Summer 2013): 166, Center for Strategic and International Studies, http://csis.org/files/publication/TWQ_13Summer_Joshi.pdf.

¹⁶⁰ Clary, “Future of Pakistan’s Nuclear Weapons Program,” 142.

¹⁶¹ “NSA Said Quite the Opposite,” *The Pioneer*, November 11, 2011.

¹⁶² Vidya S. Sharma, “Pakistan’s New Prime Minister Shows Extremism Wins Elections,” *East Asia Forum*, last modified June 28, 2013, <http://www.eastasiaforum.org/2013/06/28/pakistans-new-prime-minister-shows-extremism-wins-elections/>.

multiple times to reduce risks related to nuclear misunderstanding and defuse the possibility of escalation. The first CBM was the Annual Notification of Nuclear Facilities at which both nations agreed to exchange “lists of nuclear installations” every year.¹⁶³ In 1999, both nations came together in a summit at Lahore to create additional nuclear-related CBMs, which included the following: engagement in bilateral consultations, availability of advance notifications for ballistic missile tests, and a continued moratorium on further nuclear explosion tests.¹⁶⁴ Afterwards, the Kargil Crisis disrupted further communication; yet, some CBMs were still conducted. Both nations continued ballistic launch notifications “in the spirit of Lahore and in the absence of a more formalized agreement.”¹⁶⁵ After the border standoff in 2002, nuclear-related CBMs, to include updating hotlines and continuing the moratorium on testing, resumed in 2004.¹⁶⁶ Since then, both Indian and Pakistani leaders have continued nuclear-specific meetings and discussions with the most recent occurring in 2012, in which both nations agreed to extend measures to mitigate risks from nuclear accidents for another five years.¹⁶⁷

Also, although the risk of a nuclear strike is higher with Pakistan, “India does not see Pakistan as presenting an existential threat.”¹⁶⁸ Furthermore, Indian leaders often view Pakistan with “feelings of superiority close to contempt.”¹⁶⁹ In terms of strategic dynamics, a good reason exists for this feeling. Pakistan and India have comparable numbers of warheads,¹⁷⁰ but the smaller nation lags in delivery platforms. Its longest

¹⁶³ Banerjee, “Addressing Nuclear Dangers: Confidence Building Between India-China-Pakistan,” 355.

¹⁶⁴ United States Institute of Peace, “Memorandum of Understanding, The Lahore Declaration,” February 23, 1999, http://www.usip.org/sites/default/files/file/resources/collections/peace_agreements/ip_lahore19990221.pdf.

¹⁶⁵ Ganguly and Biringer, “Nuclear Crisis Stability,” 914.

¹⁶⁶ Ministry of External Affairs, New Delhi, “Joint Statement, India-Pakistan Expert-Level Talks on Nuclear CBMs,” June 20, 2004, http://www.nti.org/media/pdfs/26_ea_india.pdf?_=1316627913.

¹⁶⁷ Ministry of External Affairs, New Delhi, “Joint Statement on India-Pakistan Expert Level Dialogue on Nuclear CBM’s,” December 28, 2012, <http://www.mea.gov.in/bilateral-documents.htm?dtl/21016/Joint+Statement+on+IndiaPakistan+Expert+Level+Dialogue+on+Nuclear+CBMs>.

¹⁶⁸ Rajagopalan, “Logic of Assured Retaliation,” 194.

¹⁶⁹ *The Economist*, “Know Your Own Strength,” March 30, 2013, <http://www.economist.com/news/briefing/21574458-india-poised-become-one-four-largest-military-powers-world-end>.

¹⁷⁰ Kristensen and Norris, “Pakistan’s Nuclear Forces, 2011,” 91–92; Kristensen and Norris, “Indian Nuclear Forces, 2012,” 96–97.

ranged operational ballistic missile is the Shaheen-2, a medium range ballistic missile (MRBM), which is comparable to the Agni II. Pakistan has no operational IRBMs and it does not have any ICBMs currently in development, while India has an operational IRBM (Agni III) and edges closer to an operational ICBM (Agni V). Nevertheless, due to its close proximity to India, Pakistan does not need a long-range missile capability for deterrence. It does, however, need a more survivable arsenal as a credible deterrent, and in this area as well, Pakistan lags behind India. Although plans are in the works to create an indigenous nuclear-powered submarine,¹⁷¹ Pakistan remains very far from the initial development stages while India edges closer to having an operational sea-based platform. Besides missiles, Pakistan also relies on strike aircraft, the F-16 and the Mirage V, with the F-16 being the more advanced and capable platform due to U.S.-funded upgrades.¹⁷² Yet, Pakistan only has 63 F-16s and 65 Mirage Vs.¹⁷³ In contrast, India has 88 Mig 27s, 99 Jaguars, 56 Mig 29s, 38 Mirage 2000s, and 177 Su-30MKIs that can execute a nuclear strike.¹⁷⁴ This disparity in numbers is further enhanced since the Mig 29s and the Mirage 2000s are comparable in quality to the F-16s while the Su-30MKIs are superior. When factoring in all its forces, the Indian Air Force could overwhelm Pakistani defenses and execute a nuclear strike. While Pakistan may have a similarly sized arsenal, its delivery platforms lag behind in both quantity and quality.

Furthermore, Pakistan is unlikely to close this strategic gap in the near future. In economic terms, Pakistan is a much weaker state. In 1998, India's GDP was \$428.7 billion while Pakistan's was \$62.2 billion.¹⁷⁵ By 2013, India's GDP had grown to \$1.84 trillion while Pakistan's grew to \$231 billion; the economic gap between the two had

¹⁷¹ Andrew Detsch, "Pakistan's Oversized Submarine Ambitions," *The Diplomat*, October 9, 2013, <http://thediplomat.com/2013/10/pakistans-oversized-submarine-ambitions/>.

¹⁷² Kristensen, "Pakistan's Nuclear Forces, 2011," 95.

¹⁷³ Jane's, "Pakistan-Air Force," *Jane's Sentinel Security Assessment—South Asia*, updated September 6, 2013, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1304869&Pubabbrev=SAS>.

¹⁷⁴ Jane's "India-Air Force."

¹⁷⁵ Trading Economics, "Pakistan GDP," last visited March 21, 2014, <http://www.tradingeconomics.com/pakistan/gdp>; Trading Economics, "India GDP," accessed March 21, 2014, <http://www.tradingeconomics.com/india/gdp>.

quadrupled.¹⁷⁶ Conventional military spending has increased this disparity. In 2013, India's total defense budget was \$46 billion,¹⁷⁷ which by itself is higher than Pakistan's entire GDP in 1992. Also, Pakistan's defense budget is a proportionally larger economic burden than India's. In 2013, its defense budget was \$8.84 billion and comprised 3.6 percent of its GDP.¹⁷⁸ India's defense budget in that same year only compromised 2.26 percent of its GDP, which made it a smaller economic burden even though it was five times larger.¹⁷⁹ With such a huge gap in economic power, the gap in nuclear capabilities will only grow in the future. As some analysts like Michael Krepon argue, over time, India's nuclear weapons program will outpace Pakistan's by sheer virtue of its greater capacities.¹⁸⁰ India has the money and the manpower to make greater headway in the future; Pakistan has neither.

Oddly enough, while Indian analysts remain confident that their country will retain both strategic and conventional superiority, Pakistan's weaker status actually heightens fears of the extremist threat. Retired Vice Admiral Vijay Shankar has argued that Pakistan's "fixation with achieving military parity with India," along with its policy of using fundamentalists as proxies in "Afghanistan and Kashmir," have now "made it more than plausible that elements of the nuclear arsenal could well fall into extremist hands."¹⁸¹ D. Suba Chandran states, "as India increases the distance between itself and Pakistan in the long-run (which will happen inevitably), the latter will engage in dangerous strategic calculations with its limited numbers to upset the Indian lead."¹⁸² India would likely win the nuclear race described by Michael Krepon, but this disparity

¹⁷⁶ Trading Economics. "Pakistan GDP," Trading Economics, "India GDP."

¹⁷⁷ Jane's, "India Defence Budget."

¹⁷⁸ Jane's, "Pakistan's Defence Budget," *Jane's Defence Budgets*, March 5, 2014, https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1327400&Pubabbrev=JDB_.

¹⁷⁹ Jane's, "India Defence Budget."

¹⁸⁰ Michael Krepon, "Nuclear Race on the Subcontinent," *New York Times*, April 4, 2013.

¹⁸¹ Vijay Shankar, "India, Pakistan and the Nuclear Race: The Elephant and the Dilemma of Nuclear Force Planning," in *India, Pakistan and the Nuclear Race*, ed. Ruhee Neog, Institute of Peace and Conflict Studies (July 2013): 6, http://www.ipcs.org/pdf_file/issue/SR142-Debate1307-NSP-NuclearRace.pdf.

¹⁸² D. Suba Chandran, "India, Pakistan and the Nuclear Race: No Clear Winners," in *India, Pakistan and the Nuclear Race*, ed. Ruhee Neog, Institute of Peace and Conflict Studies, July 2013, 8, http://www.ipcs.org/pdf_file/issue/SR142-Debate1307-NSP-NuclearRace.pdf.

would only encourage Pakistan to engage in more reckless behavior, which in turn would heighten the threat of extremist elements acquiring nuclear weapons. Nevertheless, the extremist threat has not affected India's nuclear weapons program. Other than hoping for deterrence, India's nuclear arsenal can do little against non-state actors. The weapons program is already strong enough to decimate Pakistan; other efforts, such as continual diplomatic engagements and counter-terrorist actions, are the only effective courses of action left. The possibility also exists of using a conventional strategy to neutralize militants: Cold Start.

C. REACTIONS TO PAKISTAN: COLD START

What prompted Cold Start were two Pakistani provocations that convinced the Indian military of a need for a rapid, conventional response. In May 1999, Pakistani troops posing as local militants crossed the line of control (LOC) and seized positions deep within Indian-controlled Kashmir. India responded with both ground and air attacks, and for the first time in history, two openly nuclear states waged a direct war with each other. After hundreds of casualties, and strong international pressure, both states agreed to an end and Pakistani forces moved back across the LOC. Despite the fear of escalation into a nuclear war, the aftermath actually left many Indian leaders with the impression that a limited conventional war could be waged successfully under a nuclear threat. George Fernandes stated that even under the nuclear shadow, "conventional war remained feasible though with definite limitations if escalation across the nuclear threshold was to be avoided."¹⁸³ Soon after Kargil, another event raised tensions once more. On December 13, 2001, five terrorists from Lashkar-e Taiba (LeT) and Jaish-e Mohammed (JeM) attacked the Indian Parliament in New Delhi and killed six security personnel and a Parliamentary employee.¹⁸⁴ Outraged, India initiated Operation Parakram in which 500,000 troops were mobilized near the border and several demands were made to Pakistan, such as arresting the leaders of LeT and JeM, and curbing their

¹⁸³ Mohan, "Fernandes Unveils 'Limited War' Doctrine."

¹⁸⁴ Rediff, "Terrorists Attack Parliament; Five Intruders, Six Cops Killed," December 13, 2001, <http://www.rediff.com/news/2001/dec/13parl1.htm>.

financial networks.¹⁸⁵ Pakistan also increased its troop presence at the border, and for a tense period of time, two enormous armies squared off over the LOC, as well as the rest of the Pakistani-Indian boundary. Despite fears over another possible escalation into nuclear war, once more, diplomatic pressure resolved the standoff.

Despite the peaceful resolution of the border standoff in 2002, the Indian military was frustrated that it was unable to mount a “swift military response” before international pressure ended the conflict.¹⁸⁶ This frustration created pressure for a change in Indian military doctrine. Cold Start would enable rapid mobilization of conventional Indian forces to execute punitive actions in the event of another crisis, which could include attacks from Pakistani-based non-state actors. This rapid mobilization would be achieved in two ways, “moving Strike Corps cantonments closer to the border” and creating “integrated battle groups (IBGs)” that would combine infantry, artillery, and armor elements to ensure sufficient firepower.¹⁸⁷ Not only would Indian forces have enough strength to punch through Pakistani lines, they would also hold newly captured Pakistani territory until a settlement could be reached, which would be achieved without crossing the nuclear threshold. The goal would be to wage a “limited war under the nuclear umbrella against Pakistan.”¹⁸⁸

Significantly, Cold Start implies that India is confident in both its regular and strategic advantages to rely on a conventional attacking force despite the threat of a nuclear response. This doctrine does not mean India finds Pakistan’s nuclear arsenal to be an empty threat. The premise of Cold Start is to avoid triggering Pakistani nuclear red lines. Yet, the fact that India believes it can successfully wage a rapid, limited offensive indicates a strong certainty in its conventional superiority. The doctrine also depends on Indian assurance in its own strategic advantages; India’s nuclear weapons are strong

¹⁸⁵ Rediff, “Govt Blames LeT for Parliament Attack, Asks Pak to Restrain Terrorist Outfits,” December 14, 2001, <http://www.rediff.com/news/2001/dec/14parl12.htm>.

¹⁸⁶ Gurmeet Kanwal, “IDSA Comment: India’s Cold Start Doctrine and Strategic Stability,” *Institute for Defence Studies and Analyses*, June 1, 2010, <http://idsa.in/node/5442/>.

¹⁸⁷ Ibid.

¹⁸⁸ Quinn J. Rhodes, “Limited War under the Nuclear Umbrella” (master’s thesis, Naval Postgraduate School, 2010), 25, http://edocs.nps.edu/npspubs/scholarly/theses/2010/Jun/10Jun_Rhodes.pdf.

enough to deter a Pakistani nuclear response even in the face of invasion, which raises the redlines to a point at which a limited conflict can be waged. Arguably, these beliefs are misguided and could result in an incident in which misperception enables nuclear conflict. Nevertheless, the conventional strategy of Cold Start demonstrates that India has strong confidence in its ability to deal with Pakistan. This confidence is at odds with a nuclear program that continues to push the envelope in technological improvements. Furthermore, Gaurav Kampani notes that the conventional strategy of Cold Start, which attempts to wage limited war under a nuclear umbrella, seems to be at odds with India's declared nuclear strategy of massive retaliation.¹⁸⁹ This seeming contradiction can be explained by India's certainty in both its conventional and nuclear forces. India is so assured by its superior firepower that it believes it can do both, wage a limited war and promise unlimited retaliation as well. Unlike China, a state that has both a conventional and nuclear advantage over India, Pakistan is seen to be weak enough to be vulnerable to the conventional strategy of Cold Start.

D. ELITE STATEMENTS

Statements from Indian elites also reinforce the belief that India's arsenal is strong enough to deal with Pakistan, although they also portray a narrative in which Pakistan is viewed as a potentially irresponsible nuclear power. Leaders consider Pakistan an irresponsible nuclear power for multiple reasons. Former Indian Army Chief Deepak Kapoor stated that Pakistan is a proliferation threat since it had gone "well beyond the degree of deterrence" as it continues to build up its arsenal.¹⁹⁰ Shyman Saran lambasted the Pakistani military's control of its nuclear assets since the "military's perceptions are not fully anchored in a larger national political and economic narrative."¹⁹¹ Furthermore,

¹⁸⁹ Kampani, "India: The Challenges of Nuclear Operationalization and Strategic Stability," 118.

¹⁹⁰ NDTV, "Pak Going beyond Degree of Deterrence: Army Chief," September 2, 2009, <http://www.ndtv.com/article/india/pak-going-beyond-degree-of-deterrence-army-chief-7929>.

¹⁹¹ Shyam Saran, "Is India's Nuclear Deterrent Credible," presented at Indian Habitat Centre, New Delhi, April 24, 2013, *Arms Control Wonk*, <http://krepon.armscontrolwonk.com/files/2013/05/Final-Is-Indias-Nuclear-Deterrent-Credible-rev1-2-1-3.pdf>.

he criticizes Pakistan's pursuit of TNWs, which he characterized as "nuclear blackmail, no different from the irresponsible behavior one witnesses in North Korea."¹⁹²

Nevertheless, despite Pakistan's perceived irresponsible behavior, Indian leaders remain confident that they can adequately deal with this threat through the promise of massive retaliation. During the border standoff in 2002, Army Chief General Sunderajan Padmanabhan promised that "should any nuclear weapons be used against Indian forces... the perpetrator of that particular outrage shall be punished, and so severely that their continuation thereafter in any form of fray will be doubtful."¹⁹³ George Fernandes, former defense minister, put it more bluntly when he warned that Pakistan would "get itself destroyed and erased from the world map" should it resort to using nuclear weapons.¹⁹⁴ Shyam Saran clarified that any distinctions between strategic or tactical nuclear weapons is "irrelevant," and promised nuclear retaliation for even battlefield use of a TNW.¹⁹⁵ Further reinforcing India's belief in its own arsenal is the fact that the state has never deviated from its adherence to NFU even in the face of strong provocation. While accusing Pakistan of nuclear blackmail, Fernandes also added, "India would not be 'impulsive' and would stick to its No-First Use policy."¹⁹⁶ Although speculation has arisen that the BJP may attempt to revise this policy if it regains power,¹⁹⁷ these fears recently turned out to be groundless, as newly elected Prime Minister Modi promised no change to the policy.¹⁹⁸

¹⁹² Saran, "Is India's Nuclear Deterrent Credible."

¹⁹³ "India 'Fully Ready' for Conventional Warfare; Army Chief Says Border Situation Is Serious but Pledges No First Use of Nuclear Weapons," *Western Morning News*, January 12, 2002.

¹⁹⁴ The Economic Times, "Pak Will Be Erased from World Map If It Nukes India: Fernandes," January 27, 2003, http://articles.economictimes.indiatimes.com/2003-01-27/news/27560676_1_defence-minister-george-fernandes-internal-problems-bbc-world.

¹⁹⁵ Bagchi, "Midget Nuke Strike Will Lead to Massive Retaliation."

¹⁹⁶ Alexander Nicoll, "India Indicates Threat of War Has Diminished; Kashmiri Conflict Pakistan's President Says 'No Sane Individual' Would Use Nuclear Weapons Indian Defence Mini," *Financial Times*, June 3, 2002.

¹⁹⁷ Sanjeev Miglani and John Chalmers, "BJP Puts 'No First Use' Nuclear Policy in Doubt," Reuters, April 7, 2014, <http://in.reuters.com/article/2014/04/07/india-election-bjp-manifesto-idINDEEA3605820140407>.

¹⁹⁸ Busvine, "India's Modi Says Committed to No First Use of Nuclear Weapons."

E. CAPABILITIES

Several scholars believe that India's nuclear weapons program in the early 1980s was only renewed when it became alarmed at how fast Pakistan's own program had advanced.¹⁹⁹ Although fears over Pakistan's nuclear arsenal may have been the original impetus for India's nuclear weapons program, the program's current trend does not appear to be tailored against Pakistan. By 2002, India had begun production of the Agni II, which had sufficient range and power to cover all of Pakistan (see Figure 3).²⁰⁰ Since that year, however, it has continued to work on new projects with capabilities that have little use against Pakistan, especially long-range ballistic missiles. Other systems that may be useful against Pakistan could also be explained by other factors, such as security fears from China or the desire for great power status. For instance, India has made significant strides towards a viable anti-ballistic missile shield to include successful launches of the Prithvi Air Defense missile (PAD) and the lower range but hypersonic advanced air defense missile.²⁰¹ If successful, this program would be equally valuable against China as it would be against Pakistan. Furthermore, the successful creation of a ballistic missile shield would also add to the nation's prestige. Due to its cost and complexity, very few nations have engaged in an active missile defense program.²⁰² Although Pakistan has discussed acquiring MIRV technology, this move is seen as a counter to India's proposed BMD system, which is already in development.²⁰³ Furthermore, Pakistan has recently moved towards emphasizing TNWs, weapons against which a BMD system would be less useful. If Pakistan continues its trend of acquiring TNWs, then arguably, a BMD would actually be more useful as a counter towards China,

¹⁹⁹ Kampani, "India: The Challenges of Nuclear Operationalization and Strategic Stability," 105.

²⁰⁰ Jane's, "Agni II Enters Production," *Jane's Missiles and Rockets*, April 23, 2002, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=News&ItemId=+++1197948&Pubabbrev=JMR>.

²⁰¹ R. Rajaraman, "Battlefield Weapons and Missile Defense: Worrisome Developments in Nuclear South Asia," *Bulletin of the Atomic Scientists* 70, no. 68 (2014): 72, DOI: 10.1177/0096340214523558.

²⁰² Andrew M. Sessler et al., "Countermeasures: A Technical Evaluation of the Operational Effectiveness of the Planned U.S. National Missile Defense System," *Union of Concerned Scientists, MIT Security Studies Program*, April 2000, 35, http://www.ucsusa.org/assets/documents/nwgs/cm_all.pdf.

²⁰³ Usman Ansari, "Pakistan Seeks to Counter Indian ABM Defenses," *Defense News*, March 21, 2011, <http://www.defensenews.com/article/20110321/DEFPEAT06/103210303/Pakistan-Seeks-Counter-Indian-ABM-Defenses>.

which is more likely to attack India with long-range ballistic missiles. Some analysts believe India's short-range Prahaar missile is a response to Hatf-9,²⁰⁴ but no proof exists that the Prahaar will be nuclear-capable, and Indian leaders seem set on responding to TNWs as they would against any nuclear attack, with massive strategic retaliation.²⁰⁵

Pakistan is also unlikely to be a driver of India's ballistic missile program, which remains focused on increasing both the range and payload. With a reduced payload, the Agni I can reach 1,200 km, which is enough to cover all of Pakistan.²⁰⁶ The Agni II, with a 2,000 km range, is more than enough to deter Pakistan in any scenario (see Figure 3). Yet, instead of refining and consolidating these missile systems, India has been on a path for continued range increases with the Agni III at 3,500 km and the Agni V at 5,000 km. Also, no need exists to increase the payload to devastate Pakistan completely. As Amit Gupta notes, "an Indian attack that decimated Lahore, Islamabad, and Karachi would essentially leave Pakistan with an economy and society that is in the 19th century."²⁰⁷ It is not necessary to destroy more than a few cities to decimate India's smaller neighbor. Yet, the DRDO recently announced plans for an Agni VI that would carry a much larger warhead, which allows the possibility of MIRV.²⁰⁸ Such improvements would be overkill for Pakistan, and would be better explained by either security fears over China or a desire for international prestige.

²⁰⁴ Shashank Joshi, "New Year, New Problem? Pakistan's Tactical Nukes," *The Diplomat*, January 2, 2013, <http://thediplomat.com/2013/01/pakistans-new-nuclear-problem/?allpages=yes>.

²⁰⁵ Saran, "Shyam Saran on India's Nuclear Deterrent"; Surya Gangadharan, "Prahaar India's Counter to Pak's Nasr Missile?" *IBN Live*, <http://m.ibnlive.com/blogs/suryagangadharan/79/62564/prahaar-indias-counter-to-paks-nasr-missile.html>.

²⁰⁶ Jane's, "Agni," *Jane's Strategic Weapons Systems*, last updated March 20, 2013, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1316705&Pubabbrev=JSWS>.

²⁰⁷ Amit Gupta, "India, Pakistan and Tactical Nuclear Weapons: Irrelevance for South Asia," *Institute of Peace and Conflict Studies*, January 6, 2014, <http://www.ipcs.org/article/india/ipcs-debate-india-pakistan-and-tactical-nuclear-weapons-irrelevance-for-4239.html>.

²⁰⁸ Shukla, "Advanced Agni-6 Missile with Multiple Warheads Likely by 2017."

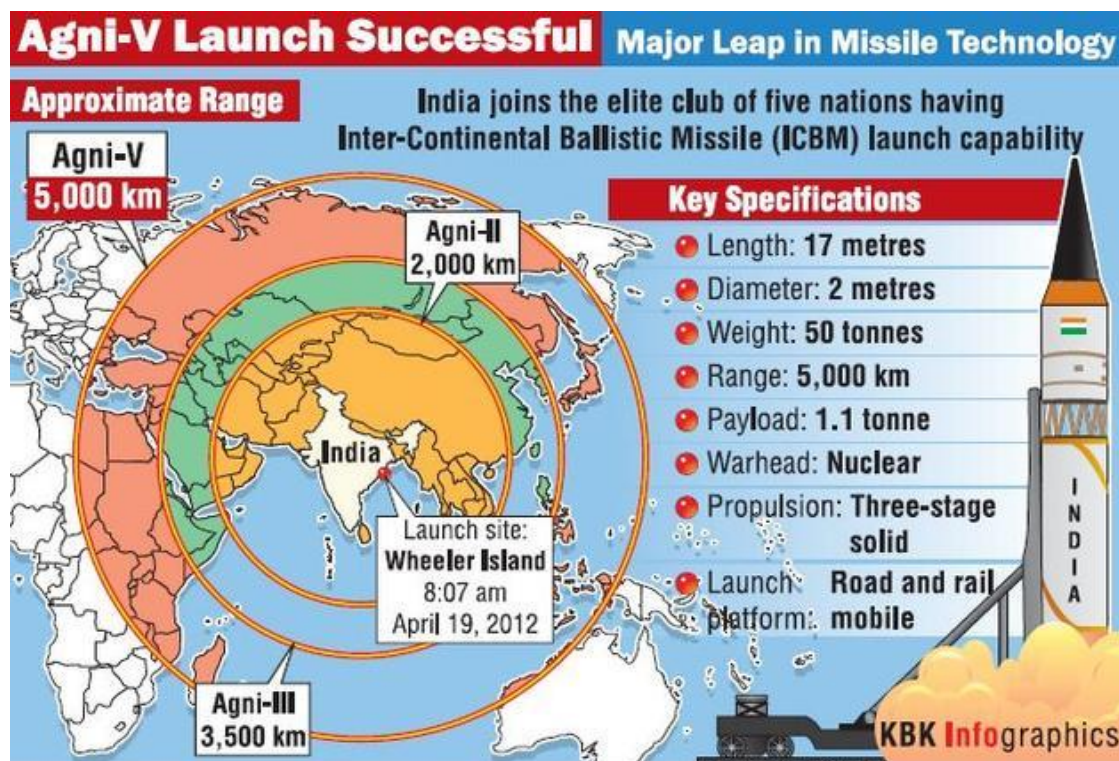


Figure 3. AGNI II range compared to Pakistan ²⁰⁹

Many see improvements in strike aircraft and India's pursuit of a nuclear ballistic submarine as Pakistan-specific, since the limited range of both platforms would seem to preclude their use against China. Nevertheless, while India has deployed its most advanced strike fighter, the Su-30MKI, closer to the Pakistani border,²¹⁰ it only started doing so after it had already deployed three separate squadrons close to the Chinese border along the Himalayas.²¹¹ This deployment pattern indicates that India prioritizes defending against China rather than Pakistan. Also, a ballistic nuclear submarine, which is the most survivable form of nuclear deterrence, would be equally useful against China as it would against Pakistan if India manages to obtain a long-range SLBM. The DRDO

²⁰⁹ M. Somasekhar, "Agni-V Gives India Long-Range Missile Strike Capability," *The Hindu*, April 19, 2012, <http://www.thehindubusinessline.com/economy/agniv-gives-india-longrange-missile-strike-capability/article3331062.ece>.

²¹⁰ Rahul Bedi, "India Deploys Su-30MKIs Close to Pakistan Border," *Jane's Defence Weekly*, October 6, 2011, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=News&ItemId=+++1188354&Pubabbrev=JDW>.

²¹¹ Defense Industry Daily, "India's Flanker Fleet."

is already hard at work at obtaining such a missile with the K-4.²¹² Furthermore, the desire for prestige may also explain India's pursuit of a ballistic submarine, since very few nations can lay claim to this achievement. The threat of Pakistan by itself does not necessarily explain India's development of its air-delivered and submersible nuclear platforms.

F. CONCLUSION

Rajesh Rajagopalan has argued that the past decade saw a rapid increase in India's modernization to ensure an adequate deterrent against Pakistan, but since that has been achieved, India will likely focus its efforts on deterring China.²¹³ In terms of threat perception, India does fear Pakistani nuclear power, specifically, the potential for escalation or a non-state attack. Yet, these fears have not translated into any changes in India's nuclear weapons program. Instead, India has sought to address these fears with diplomatic efforts, such as nuclear-related CBMs. Furthermore, currently, no capability gap exists that would explain India's desire to have a much stronger program. The conventional strategy of Cold Start, which relies on having an overwhelming advantage in both conventional and nuclear capabilities, actually indicates an Indian belief in its own superiority compared to Pakistan. This perception then does not match up with a nuclear weapons program that continues to push the envelope in ability. Also, the program itself has no response to Pakistan's new strategy of TNWs. Due to its advantages, the mismatch between program trends and Pakistan's own strategic trajectory, and nuclear threats that cannot be answered by a more capable strategic force, India likely does not see Pakistan as a strong driver of its nuclear weapons program. The converse is not true. Analysts in both countries agree that Pakistan is mostly motivated by its need to deter India.²¹⁴ Ironically, India fears Pakistan's attempt to catch up more than Pakistan's actual nuclear ability, since it believes this spending leaves the state more vulnerable to extremist non-state actors. Nevertheless, the possibility that both states can

²¹² Panda, "India Inches Closer to Credible Nuclear Triad with K-4 SLBM Test."

²¹³ Rajagopalan, "The Logic of Assured Retaliation," 210.

²¹⁴ Clary, "Future of Pakistan's Nuclear Weapons Program," 137.

conduct joint action against a common foe remains remote as strong distrust and antagonism remains, a distrust that continues to be fueled by Pakistan's desire to catch up while India races ahead due to other factors.

THIS PAGE INTENTIONALLY LEFT BLANK

IV. THE DESIRE FOR GREAT POWER STATUS

A. INTRODUCTION

When India first conducted its successful nuclear tests, then Prime Minister Atal Vajpayee bragged that India “has a big bomb now.”²¹⁵ For many analysts, India’s nuclear weapons program was motivated more by a desire for great power status than by any security fears. This theory is especially popular in Pakistan and China, where officials denounce India’s security claims as nonsensical since China has a NFU doctrine and Pakistan has a far weaker military.²¹⁶ Although these claims ignore the valid security fears Indian officials have, the desire for great power status remains a potent factor behind India’s nuclear weapons program, which makes it the second strongest driver. As long as India is not considered a world-class nuclear power, it likely will continue to pursue certain technical milestones, such as ICBM capabilities. Nevertheless, this driver is secondary to security fears from China, especially due to several organizational changes that indicate security concerns have become more prominent since 1998.

Despite initially facing sanctions from its 1998 tests, the past decade has seen growing acceptance of India as a nuclear power. Nevertheless, India has been unable to join the Nuclear Non-proliferation Treaty (NPT) as a nuclear weapon state and some nations continue to question the legitimacy of India’s nuclear weapons program. To counteract this reputation, India has embarked on a campaign to demonstrate it is a responsible nuclear power, but part of that campaign relies on enhanced capabilities to heighten its credibility. To be taken more seriously as a nuclear power, India will continue to pursue advanced nuclear-related technology to drive its strategic program forward. Elite statements also indicate a desire to break into an exclusive club, whether that is as a nuclear power or as a newly ICBM-capable nation. These statements demonstrate that the strong nationalism, which propelled India into an openly nuclear state, still exists as support for its newer programs. Also, in terms of capabilities, the

²¹⁵ Will Martin, “India Has Big Bomb, Brags PM but Vajpayee Insists His Country’s Aims Are Peaceful,” *The Journal*, May 16, 1998.

²¹⁶ Zhang, *China’s Changing Nuclear Posture: Reactions to the South Asian Nuclear Tests*, 26–27.

program has followed guidelines put in place before any security considerations, especially the doctrinal desire for a nuclear triad. Although this evidence indicates that the desire for status is a strong driver for India's nuclear weapons program, other evidence demonstrates that this driver has become secondary to security concerns. Many elite statements continue to stress the primacy of addressing security fears. Also, nuclear weapons are no longer just a status item for India. Since 2003, India has taken strides to operationalize its nuclear force and make it more responsive to security fears. Furthermore, India has attempted to leverage other factors, such as demographics or its growing economy, as justifications in its bid for a permanent seat on the UN Security Council. Before 1998, security concerns and the desire for prestige may have been roughly equivalent in influencing India's nuclear weapons program. Due to recent changes in doctrine and organization, however, security fears over China have become a stronger driver.

B. RESPONSIBLE BUT RISING NUCLEAR POWER

Contrary to many predictions, India has made great strides towards being seen as a legitimate nuclear power since 1998. The civil nuclear deal with the United States, in particular, helped elevate India's image as a responsible nuclear state. Nonetheless, India has not achieved complete acceptance. Several nations either refuse to engage with India as a nuclear peer or continue to pressure the nation to sign the NPT as a non-nuclear weapon state. To counter this environment and gain full acceptance, India has embarked on a campaign in which it attempts to demonstrate that it is a responsible nuclear power. Part of this campaign involves increasing its capabilities to gain better credibility. By improving its technology so that it gains ICBMs and other advanced platforms, India could make a better claim as a serious nuclear power, which makes it more attractive as a partner in non-proliferation institutions. Furthermore, India can create a record of non-proliferation by investing in advanced technology and then demonstrating its commitment to keeping that technology within the country. As India pushes for stronger acceptance, it likely will continue to pursue strong modernization to solidify its status as a true nuclear weapons state.

Immediately after the 1998 tests, India faced widespread censure. “Far from winning an invitation to a permanent seat in the Security Council,” the South Asian nation “came close to being labeled a pariah state.”²¹⁷ Nevertheless, Indian officials predicted they would face such a reaction and “after studies showed its economy was strong enough to survive without foreign aid,” decided “to go it alone.”²¹⁸ Soon, their prediction of eventual acceptance appeared to pay off as sanctions and international pressure lifted only a few years after the tests. Foremost among the accepting nations was the United States, which reached out to both India and Pakistan as vital allies in the War on Terror.²¹⁹ Later on, relations between the two nations went on a new upswing with the 2008 Civil Nuclear Deal. The United States pushed for this deal due to a changed strategic calculus, which is “in part owing to reforms within India and its increasing economic power, in part owing to a changed international context since 9/11.”²²⁰ India, on the other hand, saw numerous advantages in having access to foreign technology and foreign uranium supplies.²²¹ Regardless of motivation, one of the main consequences of the civil nuclear deal was changing India’s nuclear status from international pariah to near universal acceptance. Many analysts described the deal as “recognition of reality” that India is a nuclear power and would not be giving up its weapons.²²² As proof of this recognition, India did not face widespread censure for its recent Agni V testing.²²³ This recognition is in stark contrast to Amit Gupta’s prediction in 2001, who claimed that India’s nuclear program would be minimalist since “even advancing to a second-tier

²¹⁷ Amrita Narlikar, “Peculiar Chauvinism or Strategic Calculation? Explaining the Negotiating Strategy of a Rising India,” *International Affairs* 82, no. 1 (2006): 68.

²¹⁸ Rahul Bedi, “India Ready to Ride Out Global Censure; Country’s Leaders Gamble the Economic Is Strong Enough to Withstand Western Sanctions After Tests,” *South China Morning Post*, May 17, 1998.

²¹⁹ Alex Wagner, “Bush Waives Nuclear-Related Sanctions on India, Pakistan,” *Arms Control Association*, October 2001, <https://www.armscontrol.org/print/933>.

²²⁰ Amrita Narlikar, “India Rising: Responsible to Whom?” *International Affairs* 89, no. 3 (2013): 600.

²²¹ Karthika Sasikumar, “India’s Emergence as a ‘Responsible’ Nuclear Power,” *International Journal* 62, no. 4 (Autumn 2007): 832.

²²² Gideon Rachman, “Welcome to the Nuclear Club, India,” *Financial Times*, September 23, 2008.

²²³ India Today, “China, Europe Within India’s Striking Range As Agni-V Tested Successfully for Second Time.”

status would cause concern in the international community and lead to both military and economic reprisals.”²²⁴ No such reprisal occurred even after India demonstrated its new capacity to strike far beyond its borders.

Yet, India has not achieved universal recognition. China, in particular, refuses to acknowledge India as a legitimate nuclear power. It was the last holdout in the Nuclear Suppliers Group (NSG) to grant an exception for the U.S.-India civil nuclear deal, and has actively blocked India’s attempt to gain membership to the NSG since then.²²⁵ Its officials “tend to avoid direct statements about India’s nuclear forces,”²²⁶ but when pressed for bilateral discussions, they cite both India’s status as a non-nuclear power in the NPT, as well as India’s refusal to sign the Comprehensive Nuclear Test Ban Treaty (CTBT) as reasons to refuse further talks.²²⁷ For its part, Indian elites find China’s “reluctance to thus acknowledge India as a nuclear peer” particularly rankling.²²⁸

Besides China, other nations have also resisted viewing India as a legitimate nuclear power. Japan has “always felt uncomfortable with India’s status as a non-signatory to the Nuclear Non-Proliferation Treaty (NPT), the Comprehensive Test-Ban Treaty (CTBT), and the Fissile Material Cutoff Treaty (FMCT).”²²⁹ Negotiations for a civil nuclear deal between the two nations have been ongoing since 2010,²³⁰ and the biggest hurdle appears to be India’s status as a non-signatory member. A similar tension exists with Australia, with which “differences over the NPT and uranium exports remain

²²⁴ Amit Gupta, “India’s Third-Tier Nuclear State Dilemma: N Plus 20?” *Asian Survey* 41, no. 6 (November/December 2001): 1055.

²²⁵ Yogesh Joshi, “China Rivalry Keeping India Out of Nuclear Suppliers Group,” *World Politics Review*, June 14, 2013, <http://www.worldpoliticsreview.com/articles/13020/china-rivalry-keeping-india-out-of-nuclear-suppliers-group>.

²²⁶ Lewis, “China’s Nuclear Modernization,” 91.

²²⁷ Cunningham and Medcalf, *The Dangers of Denial*, 5.

²²⁸ *Ibid.*

²²⁹ Ankit Panda, “The Nuclear Problem in India-Japan Relations,” *The Diplomat*, October 31, 2013, <http://thediplomat.com/2013/10/the-nuclear-problem-in-india-japan-relations/>.

²³⁰ Business Standard, “India, Japan to Expedite Talks for a Civil Nuclear Pact,” January 25, 2014, http://www.business-standard.com/article/economy-policy/india-japan-to-expedite-talks-for-a-civil-nuclear-pact-114012500843_1.html.

a major thorn in the bilateral relationship.”²³¹ Recently, however, both nations have engaged constructively in their own civil nuclear deal, although much like the deal with Japan, it has yet to be finalized.²³² The fact that both nuclear deals with Japan and Australia have taken so long indicate that both states continue to view India as a less than legitimate nuclear power, mainly due to its status as a non-signatory of the NPT.

India has voiced an interest in joining the NPT,²³³ but one of the provisions of the treaty restricts nuclear weapon status to nations that “manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967.”²³⁴ Since India conducted its first nuclear test in 1974, it can only join as a non-nuclear weapon state, a restriction that it has consistently rejected. Instead, India has attempted to enhance its legitimacy by embarking on a campaign to portray itself as a responsible nuclear power. In this narrative, India has emphasized its “immaculate record in preventing any proliferation, its willingness to act as a responsible nuclear weapons’ power through No-First-Use commitments, and its democratic credentials.”²³⁵ India has halted additional nuclear tests, despite not being a signatory to the CTBT. Also, it has attempted to gain entry to the four export control regimes: the Nuclear Suppliers Group, the Missile Technology Control Regime, the Wassenaar Arrangement, and the Australia Group.²³⁶ By joining these organizations, India hopes to burnish its image as a responsible nuclear power, as well as “a regime upholder”²³⁷ of the nuclear status quo.

²³¹ Rory Medcalf, “Grand Stakes: Australia’s Future Between China and India,” in *Asia Responds to its Rising Powers: China and India*, ed. Ashley J. Tellis, Travis Tanner, and Jessica Keough (Washington, DC: The National Bureau of Asian Research, 2011), 216.

²³² R. K. Radhakrishnan, “Civil Nuclear Deal Talks Making Good Progress, Says Australian Envoy,” *The Hindu*, March 14, 2014, <http://www.thehindu.com/news/national/civil-nuclear-deal-talks-making-good-progress-says-australian-envoy/article5781885.ece>.

²³³ David P. Fidler and Sumit Ganguly, “India Wants to Join the Non-Proliferation Treaty As a Weapon State,” *Yale Global Online, Yale University*, January 27, 2010, <http://yaleglobal.yale.edu/content/india-wants-join-non-proliferation-treaty>.

²³⁴ Daryl Kimball, “The Nuclear Nonproliferation Treaty (NPT) At a Glance,” *Arms Control Association*, <http://www.armscontrol.org/factsheets/nptfact/>.

²³⁵ Amrita Narlikar, “All That Glitters Is Not Gold: India’s Rise to Power,” *Third World Quarterly* 28, no. 5 (2007): 988.

²³⁶ “India Stakes Claim to Membership of Exclusive N-clubs,” *Afternoon Voice*, March 28, 2012.

²³⁷ Narlikar, “India Rising,” 607.

In this context, India's desire for great power status plays a key role in India's desire for nuclear legitimacy. By enhancing its own capabilities, India gains a much more credible voice as it attempts to join nuclear-related associations and gain full acceptance as a nuclear power. Sumit Gupta describes this dynamic as an issue of "international currencies of power."²³⁸ More than just having a nuclear weapon, a state needs the delivery platform and other associated capabilities to be seen as an actual power. Without the power to project its nuclear capabilities extra-regionally, this lack of credibility "imposes major constraints on India's ability to be treated as a serious nuclear power within the international system"²³⁹ and India would be viewed "as a third-tier nuclear power."²⁴⁰ Gupta notes that an ICBM program in particular "would also allow [India], in theory, to be a key player when it comes to discussing and formulating new arms control regimes."²⁴¹ By pursuing enhanced capabilities concurrently with its campaign to be seen as a responsible nuclear power, India can enhance its own image. India's pursuit of status, therefore, plays a pivotal role in its search for legitimacy, and thus, the desire for great power status continues to be a major driver of its nuclear weapons program.

This relationship between capability and credibility can be seen in certain statements made by Indian leaders and analysts. In a joint statement between President George W. Bush and Prime Minister Manmohan Singh, both leaders stressed India's position as "a responsible state with advanced nuclear technology" as justification for the civil nuclear deal.²⁴² Since India already possesses "advanced nuclear technology," its credibility as a responsible partner is greater than it would be otherwise. David Fidler and Sumit Ganguly argue that bringing India into the NPT would benefit the cause of non-proliferation since "with India supporting the regime, the world would finally have all nuclear-armed great powers committed to the same rules—an unprecedented

²³⁸ Gupta, "India's Third-Tier Nuclear State Dilemma," 1048.

²³⁹ Ibid., 1054.

²⁴⁰ Ibid., 1048.

²⁴¹ Ibid., 1047.

²⁴² State Department Archives, "Joint Statement by President George W. Bush and Prime Minister Manmohan Singh," White House Press Release, July 18, 2005, <http://2001-2009.state.gov/p/sca/rls/pr/2005/49763.htm>.

convergence that could reinvigorate non-proliferation politics in a manner more meaningful than the distant vision of a world without nuclear weapons.”²⁴³ Implicit in their argument is that India already is a great power; it has status and authority that would strengthen the NPT. More than just responsibility, India adds legitimacy because it is a growing nuclear weapons power. By continuously pursuing technological sophistication in its strategic arsenal, India increases pressure on other nations to let it into associations. If India does reach the capabilities of other great nuclear powers, yet remains excluded, the credibility of organizations like the NPT would decrease.

In a roundabout way, India could also use its increased capabilities as a platform to prove its legitimacy as a responsible nuclear power. For instance, by creating ballistic missile technology and then making a point about not exporting them, India creates a record of nonproliferation. When India drafted its own domestic weapons of mass destruction (WMD) bill, it made a point of how this bill prohibits the transfer of both nuclear technology, as well as delivery mechanisms.²⁴⁴ Obviously, merely possessing increased capability does not increase a state’s legitimacy. Advancements in North Korea’s ballistic missile technology have certainly not made it more legitimate in the eyes of the international community. In addition to its status as a democratic nation, however, India could add a record of nonproliferation that it can create in conjunction with its advanced capabilities. This record can exert significant pressure on the rest of the world for letting it become a truly accepted nuclear power. By becoming a significant nuclear state, India could then be seen as a responsible one as well.

C. ELITE STATEMENTS

Some elite statements also support the argument that the desire for great power status continues to be a strong factor in motivating India’s strategic arsenal. These statements can be broken down into two categories. Some statements, from both Indian leaders and the media, express satisfaction at breaking into an elite club of nations after

²⁴³ Fidler and Ganguly, “India Wants to Join the Non-Proliferation Treaty As a Weapon State.”

²⁴⁴ Reshmi Kazi, “India: A Responsible Nuclear Power,” Nuclear–Articles #1749, *Institute of Peace and Conflict Studies*, May 19, 2005, <http://www.ipcs.org/article/nuclear/india-a-responsible-nuclear-power-1749.html>.

achieving certain technical feats, such as a successful ICBM launch. Other statements, in keeping with the strong national pride extolled by the BJP prior to the 1998 tests, emphasize how these achievements were indigenous and completely homegrown. Both indicate that a desire for status continues to drive nuclear-related achievements. Nevertheless, some Indian elites continue to emphasize security fears and directly challenge the prestige arguments.

Much like former Prime Minister Vajpayee's declaration that India "has a big bomb now,"²⁴⁵ several Indian leaders have continued the trend of praising their state's newly found entrance into an exclusive group. When India successfully test launched its Agni V ICBM, BJP President Nitin Gadkari stated, "The fully indigenous missile Agni-V has put India in the elite club of nations."²⁴⁶ DRDO Chief V. K. Saraswat continues the theme of an elite club by remarking, "the Agni-V compares favourably with ICBMs in use by nuclear weapons states like Britain, China, France, Russia and the U.S."²⁴⁷ After the successful launch of the SLBM K-15, the DRDO scientists involved with the project declared, "India has joined an elite group of nations capable of lofting nuclear missiles from air, land and sea."²⁴⁸

Media reports also reinforce the theme of finally breaking into an elite association when discussing nuclear-related achievements. Immediately after the 1998 tests, David Kinsella and Jugdep S. Chima analyzed several media reports and observed "an apparent preoccupation with what it takes to become a member of the 'superleague', 'rarefied strata', or 'exclusive club' of nation-states."²⁴⁹ This same preoccupation with an "exclusive club" has continued with media reports today. Much like Indian leaders, news media reports boasted about joining a select ICBM club with the successful Agni V test

²⁴⁵ Martin, "India Has Big Bomb, Brags PM but Vajpayee Insists His Country's Aims Are Peaceful."

²⁴⁶ Zee News, "Agni-V Missile Test Has Put India Into Elite Club: BJP," April 19, 2012, http://zeenews.india.com/news/nation/agni-v-missile-test-has-put-india-into-elite-club-bjp_770693.html.

²⁴⁷ Rahul Bedi, "Agni-V Missile to Take India into Elite Nuclear Club," *British Broadcasting Corporation*, April 18, 2012, <http://www.bbc.com/news/world-asia-india-17738633>.

²⁴⁸ Jay Menon, "India Flies Submarine-Launched Ballistic Missile," *Aviation Week*, January 29, 2013, <http://aviationweek.com/awin/india-flies-submarine-launched-ballistic-missile>.

²⁴⁹ David Kinsella and Jugdep S. Chima, "Symbols of Statehood: Military Industrialization and Public Discourse in India," *Review of International Studies* 27, no. 3 (July 2001): 370.

launch.²⁵⁰ The media also hyped up reports about the proposed Agni VI with MIRV capability. Although the missile is nowhere close to the testing phase, news articles discussed how achieving MIRV capability would again put India in an exclusive club.²⁵¹ When the INS *Arihant*'s reactor went critical, one article described how this event "has enabled India to join a select club of nations like the US, Russia, China, the UK and France."²⁵²

Other statements focus more on the indigenous part of the achievement. Instead of discussing how India has achieved feats on an international scale, these statements emphasize the fact that much of this accomplishment occurred due to their country's own ingenuity. After the first successful test of the Agni V, Lok Sabha Speaker Meira Kumar called it, "a major leap forward in India's missile technology and military deterrent capabilities."²⁵³ As soon as the nuclear reactor onboard the INS *Arihant* activated, former Prime Minister Manmohan Singh stated that it was a "giant stride in the progress of our indigenous technological capabilities."²⁵⁴ Defence Minister A. K. Antony also chimed in with praise, describing it as "a very important milestone in the nation's journey towards self-reliance in critical areas."²⁵⁵

Yet, many statements are still made by Indian leaders who remain adamant that India's nuclear weapons program is driven by security fears. Indian National Security Adviser, Shivshankar Menon, argued that since India lives in a world with nuclear weapons, it has "no choice, and a responsibility towards [its] own people, to have nuclear

²⁵⁰ British Broadcasting Corporation, "India Media Hail Agni-V Long-Range Missile Launch," April 20, 2012, <http://www.bbc.com/news/world-asia-india-17781198>.

²⁵¹ Indian Express, "Agni-VI Missile in the Works, India to Be in World's Elite Nuclear Club," February 9, 2013, <http://archive.indianexpress.com/news/agnivi-missile-in-the-works-india-to-be-in-worlds-elite-nuclear-club/1071407/>.

²⁵² Malhotra, "How India's Pride INS Arihant Was Built."

²⁵³ The Economic Times, "Parliament Hails Launch of Agni V," April 24, 2012, http://articles.economictimes.indiatimes.com/2012-04-24/news/31392787_1_agni-v-strike-range-surface-to-surface-missile.

²⁵⁴ Indian Express, "INS Arihant' Activated, PM Terms It As 'Giant stride' for Country," August 10, 2013, <http://indianexpress.com/article/technology/technology-others/ins-arihant-activated-pm-terms-it-as-giant-stride-for-country/>.

²⁵⁵ Zee News, "Antony Congratulates Defence Scientists on INS Arihant," August 10, 2013, http://zeenews.india.com/news/nation/antony-congratulates-defence-scientists-on-ins-arihant_868120.html.

weapons to protect them from nuclear threats.”²⁵⁶ Shyam Saran, former Foreign Secretary, goes even further in justifying India’s program as a necessary action to address India’s security fears. He states that India’s program was the product of “an increasingly complex and hostile security environment,”²⁵⁷ but he also categorically rejects the great power status argument. Arguing that the great power status argument “does not square with facts,” Saran continues to declare that India’s security environment, as well as the steps it has taken to operationalize its nuclear force, demonstrate that security fears are paramount over any prestige considerations.²⁵⁸

D. CAPABILITIES

Shortly after the 1998 tests, India released a draft of its nuclear doctrine. Besides outlining its objective of maintaining “credible minimum nuclear deterrence,” India declared that it would have a “triad of aircraft, mobile land-based missiles and sea-based assets.”²⁵⁹ India did not even have a clear command structure in place, besides an emphasis on civilian leadership, yet the state already decided that a triad was necessary. This early timing suggests that a desire for prestige drove this requirement more than any actual military concerns. Furthermore, India has not wavered from its goal. It has made tremendous progress in operationalizing both an ICBM and a ballistic missile submarine, while also upgrading its aircraft to extend their strike range. These changes have all directly addressed the shortcomings raised by Sumit Gupta, who argued that India could only be a “third-tier” nuclear power since its nuclear forces “cannot be deployed or used to project power beyond the immediate South Asian region.”²⁶⁰ By investing in ICBM and SLBM technology while increasing the range of its strike aircraft, India has addressed the power projection issues that kept it a regionally focused nuclear power.

²⁵⁶ “India Not to Give Up Nuclear Arms Until Global Disarmament—Security Advisor,” *British Broadcasting Corporation, Monitoring South Asia*, August 22, 2012.

²⁵⁷ Saran, “Is India’s Nuclear Deterrent Credible.”

²⁵⁸ *Ibid.*, 9–10.

²⁵⁹ Arms Control Association, “India’s Draft Nuclear Doctrine.”

²⁶⁰ Gupta, “India’s Third-Tier Nuclear State Dilemma,” 1054.

Furthermore, a viable triad would certainly catapult India into a top-tier nuclear power since only three other nations can lay claim to this achievement.

A security-based argument, however, can be made for each of India's nuclear capabilities. Due to the great distances involved, the only credible way India could deter China would be with an ICBM. A ballistic missile submarine is the most survivable form of nuclear deterrence, which makes it a valuable tool against both Pakistan and China. Also, although MIRV capabilities and a BMD shield seem excessive, Shyam Saran argues that "both enhance the survivability of assets and the credibility of India's nuclear doctrine."²⁶¹ By enhancing the survivability of India's arsenal, both a MIRV-capable missile and a BMD shield make it a much viable deterrent even in the event of a first strike by an adversary. Although the 1999 doctrine may indicate the desire for status was a strong factor in driving a nuclear triad at that time, India's nuclear weapons program has undergone several doctrinal and organizational changes that now indicate security concerns have become a stronger driver, even over the desire for great power status.

E. WHY PRESTIGE IS LESS IMPORTANT THAN SECURITY

Although the desire for great power status remains a strong driving force, changes in India's doctrine indicate it now prioritizes security fears over prestige. India has taken significant strides towards operationalizing its nuclear force and making it combat ready. Part of this change includes giving greater control to the military and putting nuclear forces at a higher level of readiness. Both developments indicate that security fears are now paramount in shaping India's strategic program. Evidence also indicates that India does not see its nuclear power as prestigious as other factors. Notably, India has not leveraged its status as a growing nuclear state in its bid to become a permanent member of the UN Security Council. Since India uses other attributes in its campaign for great power status and it has taken concrete steps to address security fears, the security threat appears more potent as a driving force than prestige.

Many proponents of the great power status argument point out that poor coordination has occurred between the military and the bureaucratic bodies responsible

²⁶¹ Saran, "Deterrence Is Not a Fantasy."

for the nuclear arsenal. Amrita Narlikar notes that the nuclear policy is “closely guarded between the Prime Minister, the Department of Atomic Energy (which includes the Atomic Energy Commission) and the Defence Research and Development Organization; the inputs and influence of the Ministry of Defence in this critical security area have been very limited.”²⁶² Due to this poor coordination, they argue that nuclear weapons must be prestige items only, since the institution responsible for India’s defense plays a small role in policy and has little input. In response, Shyam Saran has argued that this belief is an untrue characterization, and that India’s actual record “demonstrates quite clearly a sustained and systematic drive to operationalize various components of the nuclear deterrent in a manner best suited to India’s security environment.”²⁶³ He further states that the military may seem shut out due to strict civilian control, which is a necessity since “the very nature of nuclear deterrence as practised by a civilian democracy dictates that decisions relating to the nature and scope of the arsenal, its deployment and use, be anchored in the larger architecture of democratic governance.”²⁶⁴

India’s history of nuclear control supports Saran’s argument. From the beginning of the program, “the military has progressively achieved greater control over India’s nuclear weapons.”²⁶⁵ Harsh Pant notes that India has been well aware of the need for a strong command and control element to ensure proper use of its strategic arsenal. In response to these criticisms, India finally established a National Command Authority, and the “armed forces, including the Defense Intelligence Agency, are well represented on this council.”²⁶⁶ Furthermore, “a proper command has been established, with the flow of command from the PM [Prime Minister] to NSA [National Security Advisor] to CDS/Chairman COSC [Combined Defence Services/Chairman of Chief of Staff

²⁶² Narlikar, “Peculiar Chauvinism,” 62.

²⁶³ Saran, “Is India’s Nuclear Deterrent Credible,” 7.

²⁶⁴ *Ibid.*, 10.

²⁶⁵ M. V. Ramana, “Risks of a LOW Doctrine,” *Economic and Political Weekly* 38, no. 9 (March 1–7, 2003): 860.

²⁶⁶ Pant, “India’s Nuclear Doctrine and Command Structure: Implications for India and the World,” 285.

Committee] to C-in-C SFC [Commander in Chief for Strategic Forces Command].”²⁶⁷ The SFC in particular was created to “instill greater coordination and joint planning between the services.”²⁶⁸ Since 2005, its “organizational presence within India’s nuclear planning has grown substantially” with staff strength nearly twice the size of a conventional operational command.²⁶⁹ Critics rightfully point out that much work still remains in finalizing the command and control structure to include rectifying “inherent tensions” and fixing “loose ends.”²⁷⁰ Nevertheless, India has undeniably made significant progress in turning its strategic arsenal into a viable force.

Evidence also exists that the military is at a higher state of readiness for its nuclear forces than previously believed. M.V. Ramana notes that the military had been “purchasing components of an early warning system” to include a Green Pine radar from Israel.”²⁷¹ This radar system would be essential for detecting incoming ballistic missile launches, and thus, enabling a quicker response. From interviews with former SFC officials, Vipin Narang discovered that “India, while adhering to its posture of assured retaliation, has increased the baseline readiness of at least a subset of its nuclear forces, if not all of them.”²⁷² This increased readiness comes from “encapsulated” or “canisterized” systems “in which the warhead is likely pre-mated to the delivery vehicle and kept hermetically sealed for storage and transport,” a process only possible now that India has largely moved to solid-fueled ballistic missiles.²⁷³ Although both Ramana and Narang fear this heightened readiness may lead to easier escalation, if true, it would also be evidence that security fears, as opposed to the desire for great power status, have become a stronger driver of India’s nuclear weapons program.

²⁶⁷ Pant, “India’s Nuclear Doctrine and Command Structure: Implications for India and the World,” 285.

²⁶⁸ Kampani, “India: The Challenges of Nuclear Operationalization and Strategic Stability,” 107.

²⁶⁹ Ibid., 108.

²⁷⁰ Pant, “India’s Nuclear Doctrine and Command Structure,” 291.

²⁷¹ Ramana, “Risks of a LOW Doctrine,” 860.

²⁷² Vipin Narang, “Five Myths About India’s Nuclear Posture,” *Washington Quarterly* 36, no. 3 (Summer 2013): 148.

²⁷³ Ibid.

Several analysts have linked India's nuclear weapons program with its desire for a permanent seat on the UN Security Council.²⁷⁴ Yet, Indian officials have mostly focused their arguments for a seat on being "the world's largest democracy, the second most populous nation, and a consistent contributor to UN peacekeeping missions."²⁷⁵ In particular, officials often stress the demographic argument. With 1.2 trillion people, India alone comprises 17 percent of the total world population.²⁷⁶ I. K. Gujral, a member of India's Parliament, argues that if the UN is "as democratic as it pretends to be," it should include the South Asian nation to reflect "the world's population" more accurately.²⁷⁷ Indian officials have also emphasized their nation's "economic potential."²⁷⁸ Currently, India's GDP is the tenth largest in the world,²⁷⁹ but several economists have predicted that it will become the third largest GDP by 2030 and may come close to matching the United States by 2050.²⁸⁰ Furthermore, India is in a strong position for future growth since it has a "barely tapped market and a cheap labor force of potentially gigantic proportions."²⁸¹ While both the demographic and economic arguments are repeatedly stressed in a bid for a permanent seat, no Indian officials have ever brought forth the nuclear argument, even as a sign of their nation's increasing technological sophistication. India could certainly enhance its bid as it acquires both ICBM and SLBM technology, since the other permanent members have one or both systems. Yet, even with the recent

²⁷⁴ Institute of Chinese Studies, "Chinese Reactions to India's Agni-V Firing."

²⁷⁵ The Christian Science Monitor, "India Lobbies for Permanent Seat in United Nations Security Council," 1994, [http://www.csmonitor.com/1994/1003/03022.html/\(page\)/2](http://www.csmonitor.com/1994/1003/03022.html/(page)/2).

²⁷⁶ Central Intelligence Agency, "Country Comparison: Population, CIA World Factbook," last accessed April 30, 2014, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html>.

²⁷⁷ The Christian Science Monitor, "India Lobbies for Permanent Seat in United Nations Security Council."

²⁷⁸ Rohan Mukherjee and David M. Malone, "India and the UN Security Council: An Ambiguous Tale," *Economic and Political Weekly* 48, no. 29 (July 2013): 113, http://scholar.princeton.edu/rmukherj/files/Mukherjee_Malone_EPW.pdf.

²⁷⁹ World Bank, "Gross Domestic Product 2012," last modified April 9, 2014, <http://databank.worldbank.org/data/download/GDP.pdf>.

²⁸⁰ Goldman Sachs, "India Revisited, White Paper," June 2010, http://www.goldmansachs.com/gsam/docs/instgeneral/general_materials/whitepaper/india_revisited.pdf.

²⁸¹ Mira Kamdar, "India: Richer, Poorer, Hotter, Armed," *World Policy Journal* 25, no. 3 (Fall 2008): 96.

success of the Agni V, India has continued to focus on other factors, which may indicate that the relationship between the desire for great power status and its nuclear weapons program is not as strong as originally believed.

F. CONCLUSION

The desire for great power status remains a strong factor in driving India's nuclear weapons program, but it is still secondary to security fears from China. This driver will remain strong as long as universal recognition of its legitimacy as a nuclear power has not been achieved. Mira Kamdar notes that India has finally "rid itself of the great humiliation of exclusion from the ultimate power bloc of the world's official nuclear powers,"²⁸² but it still has some ground to cover before every nuclear state considers it a peer. Besides expounding on how it is a responsible nuclear power, India has been pursuing enhanced capabilities as a way to bolster its credibility and create a record of responsibility. Certain statements from elites also indicate a desire to enter "a select club of nations."²⁸³ Finally, India's program itself started with a desire for a triad before establishing strategic requirements. While security fears may explain India's desire to acquire ICBMs, SLBMs, and MIRV technology, all these systems are also prestigious items that would greatly enhance India's national stature as a nuclear power. Yet, evidence also exists that demonstrates security concerns have become a stronger factor relative to the desire for prestige since 1998. Some elite statements specifically prioritize security fears over the desire for status. Also, India's recent operationalization drive to include greater input from the military, as well as heightened readiness, indicates a shift towards addressing security concerns. India's own foreign policy, which has leveraged its demographic and economic advantages in its bid for a permanent seat, also weakens the status argument. Although it is likely that India's desire for status will continue to play a role in shaping its nuclear weapons program, at least until it gains universal recognition

²⁸² Kamdar, "India: Richer, Poorer, Hotter, Armed," 107.

²⁸³ Malhotra, "How India's Pride INS Arihant Was Built."

as a nuclear power, organizational changes and India's recent foreign policy indicate that security fears over China have overtaken the desire for great power status as the strongest driver.

V. DOMESTIC FACTORS

A. INTRODUCTION

For several analysts, domestic organizations are the strongest drivers of India's nuclear weapons program. In their view, these organizations used strong internal pressure to drive the program in a way that furthered their agendas, such as increased support. Political parties used nuclear weapons to bolster their popularity and divert attention away from other domestic issues. Scientific organizations used the program as a path to enhance their own credentials and prove to the world that their technical abilities rivaled that of great powers to justify their autonomy and budgetary increases. According to many accounts of India's nuclear history, these domestic factors were essential in pushing India from a posture of ambiguity to openly declaring its nuclear status. Yet, in the post-1998 world, these forces have weakened in potency. Due to political consequences and organizational changes, both political parties and scientific institutions have seen a decrease in their ability to drive India's nuclear weapons program.

The two relevant factors behind India's nuclear weapons program are political parties, specifically the BJP, and scientific organizations. The BJP may have played a crucial role in India's nuclear policy before 1998, but recent evidence indicates a curtailment of that role. First, politicians have become more hands-off with nuclear policy, since achievements in that field do not translate into electoral success. The Indian population remains far more focused on other issues. Second, no huge difference exists between the two major party coalitions when it comes to nuclear policy, which also indicates that politicians play a limited role in driving it. Scientific agencies, namely the DAE and the DRDO, remain key players in driving India's nuclear weapons program. Both institutions retain significant input and oversight over the nuclear weapons program, as well as great autonomy. Yet, their ability to drive India's strategic arsenal has been lessened for several reasons. Both organizations are experiencing an infringement of command as the military increasingly takes greater control of the nuclear forces. For the DAE, several high-profile debates have weakened its authority and driving power. The DRDO has recently suffered from both funding shortfalls and a loss of confidence in its

abilities. Since they control crucial aspects of the nuclear command and control system, scientific organizations will remain relevant in influencing India's nuclear weapons program, but the evidence indicates that this influence has steadily eroded since 1998. Due to this erosion, domestic factors are a weaker driving force than both security fears and the desire for great power status.

B. POLITICAL PARTIES

More than any other domestic factor, many analysts cite the political party as the primary driver that pushed India into an openly nuclear state. The BJP coalition is often cited as a "critical factor" in this monumental decision since it included "the strong Hindu-nationalist faction, the Rashtriya Swayamsevak Sangh (RSS)."²⁸⁴ Achin Vanaik argues, "Neither scientists nor top civil servants are as important as the key coterie of Sangh ideologues/leaders and the politicians-administrators."²⁸⁵ Whether it was to achieve great power status or guarantee India's security, the Hindu nationalists were the hawkish faction that demanded a nuclear bomb regardless of international consequences. Nevertheless, even if this historical account were true, political parties are no longer a dominant driving force mainly due to the BJP's own downfall. A successful nuclear policy did not translate into electoral victory, which has made nuclear security much less of a priority for political elites. Furthermore, the main party coalitions have not bothered to differentiate their nuclear policies, which makes political party ideology even less of a factor in India's nuclear weapons program.

Initially, the BJP experienced "overwhelming public support for the nuclear tests."²⁸⁶ Yet, it later suffered a resounding loss in the 2004 elections to the Indian National Congress (INC) party coalition. Numerous reasons have been given to explain this defeat, but the most common are over-confidence in the party itself and a failure to

²⁸⁴ Ollapally, "Mixed Motives in India's Search for Nuclear Status," 933.

²⁸⁵ Achin Vanaik, "Unraveling the Self-Image of the Indian Bomb Lobby," *Economic and Political Weekly* 39, no. 46/47 (November 20–26, 2004): 5006.

²⁸⁶ Ollapally, "Mixed Motives in India's Search," 941.

improve the economic conditions of impoverished Indians.²⁸⁷ Regardless, what is clear is that the BJP's successful push for India to become a nuclear power was not enough to win votes. As mentioned by Deepa Ollapally, "there are important, heavy domestic pressures on the political leadership to sustain India's economic growth."²⁸⁸ Nationalistic pride at owning nuclear weapons could not outweigh these pressures. Indians may have felt some satisfaction that their country had now joined an elite club, but these weapons did not create jobs or bring food to the hungry. Despite the hopes of the political elites, increasing national pride failed to distract the people from more immediate issues and they voted accordingly.

As a result, politicians have now weakened their focus on India's nuclear security program. Arun Prakash has argued, "The politician, as a rule, has found it expedient to detach himself from national security matters because of his belief that they do not win or lose votes."²⁸⁹ In its 2009 election manifesto, the INC only mentioned a commitment to nuclear energy and the civil-nuclear agreement it pursued with the United States.²⁹⁰ This commitment is in contrast to its 2004 manifesto, which at least paid lip service to a "credible nuclear weapons programme."²⁹¹ The BJP mentioned changing India's strategic nuclear program, but only in the context of opposition to the civil-nuclear deal brokered by the INC.²⁹² Neither manifesto delineated a strong change in India's nuclear weapons program, nor any indication of a major shift in the program's current direction. The Janata Dal party did reiterate a commitment to ICBMs in its own manifesto for

²⁸⁷ *The Hindu*, "Advani: NDA Lost in 2004 Because of Over-Confidence, Wrong Slogans," March 3, 2009, <http://www.hindu.com/2009/03/03/stories/2009030359971000.htm>.

²⁸⁸ Ollapally, "Mixed Motives in India's Search," 941.

²⁸⁹ Arun Prakash, "India's Nuclear Deterrent: The More Things Change..." Policy report from S. Rajaratnam School of International Studies, *Nanyang Technological University, Singapore*, March 2014, 5.

²⁹⁰ Indian Elections, "Lok Sabha Elections 2009: Manifesto of the Indian National Congress," Indian National Congress Manifesto for 2009, 2009, <http://www.indian-elections.com/pdf/manifesto09-cong.pdf>.

²⁹¹ Indian Elections, "Indian National Congress," Indian National Congress Manifesto for 2004, 2004, <http://www.indian-elections.com/partymanifestoes/party-manifestoes04/congress.html>.

²⁹² Indian Elections, "Bharatiya Janata Party," BJP Party Manifesto for 2009 Election, 2009, <http://www.indian-elections.com/partymanifestoes/bjp.html>.

2009,²⁹³ but this commitment is in keeping with the current trends of the program as only a few years later, the INC would oversee the maiden launch of the Agni V. The one party that did advocate for a radical change was the Communist Party of India–Marxist, which advocated, “Striving for a de-nuclearised environment in South Asia.”²⁹⁴ Nonetheless, all the manifestos devoted much more space to tackling economic and social issues, especially corruption. While both of these issues were certainly major talking points for previous elections, they have remained so for more recent manifestos while the issue of nuclear security has dropped off.

During the 2014 election, the BJP did make comments that it would revise India’s strategic doctrine, which sparked widespread furor that radical changes would abound if the BJP were elected. Most commentators’ greatest fear was that the BJP would change India’s NFU doctrine.²⁹⁵ Eventually, the BJP frontrunner, Narendra Modi, specifically stated there would not be any attempts to change the NFU doctrine.²⁹⁶ This explanation is in keeping with the trend since 1998; despite rhetoric on both sides, neither major party has had any significant differences in nuclear policy. This trend of strategic agreement likely continued before 1998. Although the BJP received credit for turning India into an openly nuclear power, Bhumitra Chakma notes that “the Congress Government attempted to test a nuclear weapon in December 1995,” but only aborted the attempt after the United States detected the preparations and applied extreme pressure.²⁹⁷ The INC wanted to turn India nuclear as well; they were simply less successful than the BJP at hiding their preparations. When the Congress-led coalition took back power in 2004, the trends set in motion by the 1999 draft nuclear doctrine did not suffer any real disruptions, especially

²⁹³ Indian Elections, “Janata Dal (Secular),” JDS Party Manifesto for 2009 Election, 2009, <http://www.indian-elections.com/partymanifestoes/jds.html>.

²⁹⁴ Indian Elections, “Communist Party of India (Marxist) Manifesto for the 15th Lok Sabha Elections,” CPI (M) Manifesto for 2009 Election, 2009, <http://www.indian-elections.com/partymanifestoes/cpi.html>.

²⁹⁵ Jason Burke, “Indian Election Alarm As BJP Raises Prospect of Nuclear Weapons Rethink,” *The Guardian*, April 7, 2014, <http://www.theguardian.com/world/2014/apr/07/indian-election-bjp-manifesto-nuclear-weapons>.

²⁹⁶ Busvine, “India’s Modi Says Committed to No First Use of Nuclear Weapons.”

²⁹⁷ Bhumitra Chakma, “Toward Pokhran II: Explaining India’s Nuclearisation Process,” *Modern Asian Studies* 39, no. 1 (February 2005): 233.

the desire for a viable nuclear triad. In fact, successful test launches of an ICBM and initial sea trials of a SSBN occurred under a Congress-led regime. The party reiterated its own commitment to a credible deterrent,²⁹⁸ and it continued the negotiations started by the BJP with the United States on its strategic weapons program.²⁹⁹

The one nuclear issue that did cause political disagreement was the civil nuclear deal with the United States in 2008. Much of the BJP anger at the deal stemmed from clauses that required opening up the country to the International Atomic Energy Agency (IAEA), which the BJP saw as an infringement upon India's sovereignty and foreign policy options.³⁰⁰ Yet, the civil nuclear deal would not have truly affected India's strategic reserves. As per the terms of the deal, eight reactors would not fall under any restrictions nor would any military facilities.³⁰¹ Although Tellis argues that these reactors would likely not be used for weapons-grade plutonium "so long as India's vast demand for power continues to remain unsatisfied,"³⁰² nothing can stop India from doing so should the strategic situation warrant a vast increase in fissile-material production. Despite BJP fears of sovereignty infringement, the deal has arguably increased fissile-material production since it frees up domestic reserves. Besides squabbling on details to gain political points, neither party has advocated a strong departure from the trends set in the 1999 draft nuclear doctrine. No party has truly set out to revamp or change the nuclear program, which further reinforces the argument that political leaders have mostly been hands-off when it comes to the program.

²⁹⁸ Indian Elections, "Indian National Congress Manifesto for 2004."

²⁹⁹ Sasikumar, "India's Emergence As a 'Responsible' Nuclear Power," 829.

³⁰⁰ Hemendra Singh Bartwal, "BJP Opposes Indo-U.S. Nuclear Deal," *Hindustan Times*, April 8, 2007, <http://www.hindustantimes.com/india-news/bjp-opposes-indo-us-nuclear-deal/article1-240573.aspx>.

³⁰¹ Bajoria and Pan, "The U.S.-India Nuclear Deal."

³⁰² Ashley Tellis, *Atoms for War? U.S.-Indian Civilian Nuclear Cooperation and India's Nuclear Arsenal* (Washington, DC: Carnegie Endowment for International Peace, 2006), 48.

C. DEPARTMENT OF ATOMIC ENERGY

While many analysts emphasize the role the BJP played in taking India nuclear, others attribute India's scientists as the true "fathers of the Indian bomb programme."³⁰³ These scientists were mainly motivated by a desire "to show the West that they could do high-quality and original work on their own."³⁰⁴ The two main scientific bodies that have been instrumental in India's nuclear weapons program are the DAE and the DRDO. The DAE, which is in charge of India's civilian nuclear program as well, manages the fissile cores.³⁰⁵ Due to its strong budget, the DAE likely enjoys continued high levels of autonomy and prestige, which makes it the strongest domestic factor in India's nuclear weapons program. Nevertheless, indications have arisen that the DAE may be constrained in its influence. High-level debates over the civil-nuclear deal and the continuation of testing raise doubts as to the DAE's authority, which makes it a less potent driver of India's nuclear weapons program. Furthermore, as the military becomes increasingly involved in command and control, some of the autonomy the DAE enjoys will necessarily be limited. In the future, the DAE may become less of a driver.

Unlike many other bureaucratic organizations, the atomic scientists enjoyed considerable autonomy. Arun Prakash has complained that the DAE has little oversight, which makes it "impossible to question overstated scientific claims or affix accountability for meeting time, cost and performance targets."³⁰⁶ Part of its autonomy stems from the difficulty of its subject. The atomic scientists were able to enjoy a "role as [a] single source of information" due to "the complexity of the issue, and the general indifference of India's political elite towards international issues."³⁰⁷ The politicians more often than not ceded way to the expert opinion. Due to its position of expertise, leaders of the DAE and its subcomponent, the Atomic Energy Commission (AEC), likely

³⁰³ Kapur, *Pokhran and Beyond*, 235.

³⁰⁴ Sunil Dasgupta, "The Reluctant Nuclear Power," in *Arming without Aiming*, ed. Stephen Cohen and Sunil Dasgupta (Washington, DC: Brookings Institution Press, 2010), 102.

³⁰⁵ *Ibid.*, 116.

³⁰⁶ Prakash, "India's Nuclear Deterrent: The More Things Change," 2.

³⁰⁷ Karsten Frey, "State Interests and Symbolism in India's Nuclear Build-Up," Working Paper no. 8, South Asia Institute, University of Heidelberg, 2002, 19, <http://archiv.ub.uni-heidelberg.de/volltextserver/4104/1/hpsacp8.pdf>.

play leading roles in India's NCA. Gaurav Kampani has speculated that "given India's past institutional practices," DAE and AEC officials likely are on both the Political Council and Executive Council of the NCA.³⁰⁸

Prestige is difficult to measure, but one indication is a legacy of budgetary increases, which the DAE has enjoyed for much of its history. Although nuclear energy "contributes only about 2.5 per cent to the country's power supply," the DAE "receives a substantial share of the central government's R and D expenditure."³⁰⁹ Furthermore, it has enjoyed a trend of "copious budgetary increases" since the 1998 tests,³¹⁰ which has continued to this day. Discerning precise budget numbers is sometimes a murky subject in India, but according to the Central Plan Outlays, the DAE saw an "increase of 55.59% from [2013 to 2014]—from Rs. 8,920 crore to Rs. 13,879 crore."³¹¹ This large increase is mirrored by the demand for grants, in which the DAE saw an increase of 49.72 percent.³¹² Both numbers are also far ahead of the previous budget increase between the 2011 to 2012 plan and the 2012 to 2013 plan. According to the Central Plan Outlays, the increase was 22.92 percent,³¹³ the demand for grants had a 13.78 percent increase,³¹⁴ and the Observer Research Foundation (ORF) had a 7.99 percent increase.³¹⁵ Regardless, these increases show a clear prioritization of the DAE, especially when compared to other scientific departments (See Figure 4).

³⁰⁸ Kampani, "India: The Challenges of Nuclear Operationalization and Strategic Stability," 109.

³⁰⁹ Ambuj Sagar, "India's Energy R and D Landscape: A Critical Assessment," *Economic and Political Weekly* 37, no. 38 (September 21–27, 2002): 3932.

³¹⁰ M. V. Ramana, "Scientists, Nuclear Weapons, and the Peace Movement," *Economic and Political Weekly* 39, no. 46/47 (November 20–26, 2004): 5013.

³¹¹ Vasudevan Mukunth, "Improved Outlook for S&T in India after Union Budget '13?" *The Hindu*, June 4, 2013, <http://www.thehindu.com/opinion/blogs/blogs-the-copernican/article4462373.ece>.

³¹² Department of Atomic Energy, India Budget, "Notes on Demands for Grants, 2013–2014," <http://indiabudget.nic.in/ub2013-14/eb/sbe4.pdf>.

³¹³ Mukunth, "Improved Outlook for S&T."

³¹⁴ Department of Atomic Energy, "Notes on Demands for Grants, 2013–2014."

³¹⁵ Deba R. Mohanty, "Defence Spending Trends in India," *Observer Research Foundation*, http://orfonline.org/cms/export/orfonline/modules/analysis/attachments/defence_1333106028570.pdf.

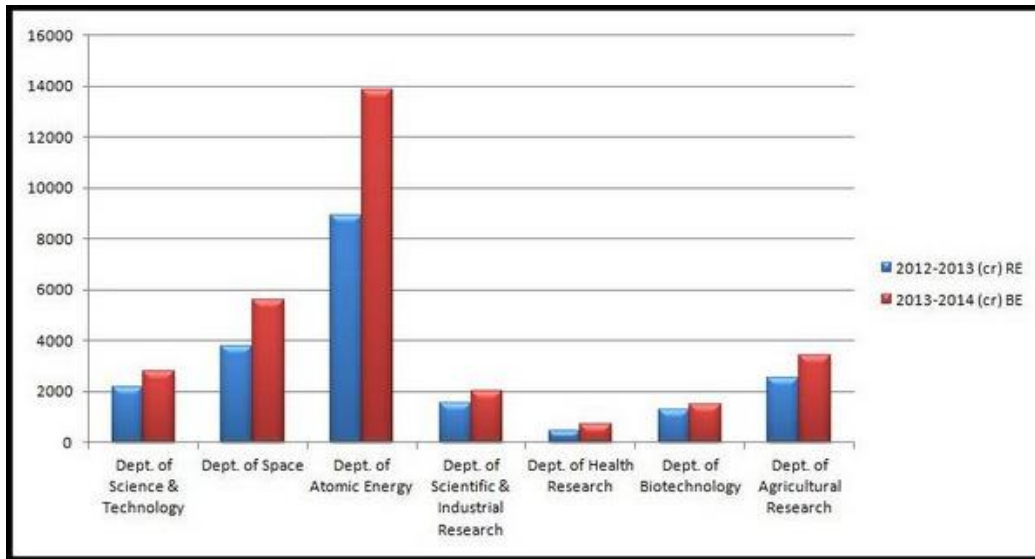


Figure 4. DAE budget compared to other scientific agencies³¹⁶

Due to the immense budgets and autonomy, many analysts believe the DAE wields nearly unstoppable influence in determining nuclear policy. M. V. Ramana blames the DAE for “mistaken ideas” that have been enshrined into policy. Such ideas include “nuclear weapons preserve peace; the command and control of nuclear weapons is an easy task; nuclear reactors generate cheap electricity; and dealing with nuclear waste is not a problem.”³¹⁷ Furthermore, many analysts believe the “top levels” of the DAE experienced strong pressure to be “socialized into or at least sympathetic to government propaganda and policy.”³¹⁸ Yet, recent events have argued strongly against the DAE’s authority. Both bureaucratic and high level arguments have spilled into open disagreement with official DAE nuclear policy, which have weakened the organization as a force. Ashok Kapur discusses how immediately after the tests in 1998, the DAE “indicated that no further tests were required, and hence, there was no scientific reason not to sign the CTBT.”³¹⁹ Despite this official stance, several prominent nuclear scientists have publicly disputed this view. Notably, P. K. Iyengar, former chairman of

³¹⁶ Mukunth, “Improved Outlook for S&T.”

³¹⁷ Ramana, “Scientists, Nuclear Weapons, and the Peace Movement,” 5015.

³¹⁸ Darren C. Zook, “A Culture of Deterrence: Nuclear Myths and Cultural Chauvinism in South Asia,” *World Policy Journal* 17, no. 1 (Spring 2000): 44.

³¹⁹ Kapur, *Pokhran and Beyond*, 242.

the AEC, has outspokenly criticized the results of the Pokhran II tests as being much more underwhelming than published; the explosions were less than advertised and a thermonuclear reaction likely never occurred.³²⁰ K. Santhanam, a former nuclear advisor at DRDO, has echoed these sentiments.³²¹ Both have urged further testing to guarantee an adequate strategic arsenal,³²² a call that the nuclear establishment has resisted.³²³ These calls for more tests were predicted by George Perkovich, who has argued, “Indian weaponeers will continue to press for unending programs to refine nuclear warheads and, more important, extend the range and diversity of missile systems.”³²⁴ Strong internal pressure to continue tests likely exists as India pursues “new delivery systems such as cruise missiles that would require major modifications in warhead design.”³²⁵ Such actions would further isolate India, which explains why top leaders continue to resist heeding such calls. Nevertheless, these public debates may indicate a split within the DAE, which may constrain its ability and authority to push through an agenda. Although India has not conducted any more nuclear tests, it has yet to sign the CTBT, which indicates a certain paralysis instead of decisively choosing one side of the debate.

This same type of public debate can be seen in the furor over the civil nuclear deal. Ashley Tellis clearly delineates why the DAE has pursued this project. Not only does the agreement “provide India regularized access to imported natural uranium fuel,” it also opens “access to new reactor technology” and further integrates India “into the global nuclear industry’s research and development network.”³²⁶ Yet, some former DAE members, to include P. K. Iyengar, have voiced opposition to the deal on the same

³²⁰ P. K. Iyengar, “Non-Fissile Doubts: One nuclear Lie Puts Our Entire Strategic Decision-Making at Stake,” *Outlook India*, October 26, 2009, <http://www.outlookindia.com/article.aspx?262331>.

³²¹ K. Santhanam and Ashok Parthasarathi, “Pokhran-II: An H-bomb Disaster,” *Business Standard*, December 11, 2009, http://www.business-standard.com/article/opinion/k-santhanam-ashok-parthasarathi-pokhran-ii-an-h-bomb-disaster-109121100016_1.html.

³²² Zubair Ahmed, “Call for More India Nuclear Tests,” *British Broadcasting Corporation*, August 28, 2009, <http://news.bbc.co.uk/2/hi/8226625.stm>.

³²³ Times of India, “Santhanam Wrong on Pokhran II N-test,” August 27, 2009, <http://www.timesnow.tv/Santhanam-wrong-on-Pokhran-II-N-test/articleshow/4325796.cms>.

³²⁴ Perkovich, *India’s Nuclear Bomb: The Impact on Global Proliferation*, 447.

³²⁵ Kampani, “India: The Challenges of Nuclear Operationalization,” 121.

³²⁶ Tellis, “Atoms for War?” 50–51.

grounds as the BJP, notably fears that the agreement would infringe on Indian sovereignty.³²⁷ Besides opening up some of their nuclear reactors to IAEA inspectors, critics also worried about creating an image of overreliance on the United States, who played an essential role in the NSG approving the deal.³²⁸ The DAE leaders clearly won this argument, but the battle was a close call; the measure passed by 275 votes to 256, with 10 votes abstaining.³²⁹ The ability of the opponents to put up a fight was doubtless bolstered by the former DAE experts.

In the future, the influence of the DAE may further be weakened by the very element it is supporting, the military. Since the 2003 doctrine established the SFC, it has substantially increased its “organizational presence within India’s nuclear planning.”³³⁰ One area that would significantly impinge on the DAE’s traditional area of nuclear control is the Indian Navy’s SLBM. The DAE controls the fissile cores, which remain demated from the missile platforms. Yet, by necessity, the ballistic missiles onboard a submarine must be mated and ready for launch to be operational. As the military exercises greater control over nuclear assets, conversely the DAE will have a weaker ability to drive the program. By necessity, the military’s influence over nuclear matters will increase once the SSBN becomes operational.

D. DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION

The other scientific organization that has played a pivotal role in India’s nuclear weapons program is the DRDO, which is India’s premier military industrial organization. Like the DAE, it has traditionally enjoyed strong autonomy and a large budget hike after the 1998 tests. Yet, it is not as strong a domestic factor as the DAE. Recently, the military budget has remained somewhat stagnant, and the DRDO’s share of that budget has not

³²⁷ *The Hindu*, “Appeal to Parliamentarians on Nuclear Deal,” August 15, 2006, <http://www.hindu.com/2006/08/15/stories/2006081502861100.htm>.

³²⁸ Sharon Squassoni, “The U.S.-Indian Deal and Its Impact,” *Arms Control Association*, *Arms Control Today*, July/August 2010, http://www.armscontrol.org/act/2010_07-08/squassoni.

³²⁹ Rama Lashmi and Emily Wax, “India’s Government Wins Parliament Confidence Vote,” *Washington Post*, July 23, 2008, <http://www.washingtonpost.com/wp-dyn/content/article/2008/07/22/AR2008072200161.html>.

³³⁰ Kampani, “India: The Challenges of Nuclear Operationalization,” 108.

increased despite repeated recommendations to do so. Also, despite its notable accomplishments in nuclear delivery platforms, its reputation in other fields has been less than stellar, which has led to both a backlash and a drive to reorganize that further weakened the organization. Finally, like the DAE, its influence has decreased as the military exerts greater control.

Much like their nuclear counterparts, DRDO scientists enjoy considerable autonomy due to little oversight. First, their organization enjoys a high level of secrecy, which “makes the DRDO even less accountable than other Indian S and T organisations in the public sector.”³³¹ Also, much like the DAE, the DRDO has benefited from political overseers who had “little knowledge about strategic or military affairs, let alone the intricacies of military technology and hardware.”³³² Both secrecy and inscrutability are multiplied when it comes to the DRDO’s role in nuclear technology. Furthermore, the DRDO’s push for indigenization makes considerable sense with nuclear-related weapons. Nearly every piece of technology associated with India’s nuclear modernization drive is indigenous. The exception is the BrahMos cruise missile, but even that is a joint venture by the DRDO and Russia. Since no nation would be willing to hand over nuclear-related technology as easily as they would conventional, India has no choice but to rely on the DRDO when it comes to ballistic missiles, missile shields, and other like items. For analysts like Christopher Clary, proof of this autonomy can be found in India’s pursuit of “very short-range ballistic missiles (Prahaar), ballistic missile defenses, multiple independently maneuverable reentry vehicles, and increasingly accurate medium- and intermediate-range ballistic missiles.”³³³ Such advanced systems may be driven by the desires of the DRDO to prove its capability as opposed to strategic needs, although the desire for great power status and fears over China’s advanced arsenal may also be valid

³³¹ Ravinder Pal Singh, “An Assessment of Indian Science and Technology and Implications for Military Research and Development,” *Economic and Political Weekly* 35, no. 31 (July 29–August 4, 2000): 2769.

³³² Sunil Dasgupta, “Struggling with Reform,” in *Arming without Aiming*, ed. Stephen Cohen and Sunil Dasgupta (Washington, DC: Brookings Institution Press, 2010), 33.

³³³ Clary, “The Future of Pakistan’s Nuclear Weapons Program,” 156.

drivers. Finally, due to its ownership of non-nuclear warhead assemblies,³³⁴ the DRDO likely plays a key role in the NAC on both the Executive and Political Councils.³³⁵

Both immediately before and after the 1998 tests, defense R and D saw a dramatic boost in spending. Between 1994 to 1995 and 1999 to 2000, “R and D expenditure in dollar terms increased from \$362 million... to \$612 million.”³³⁶ Afterward, defense spending received “more than a threefold hike in the decade after the war in Kargil.”³³⁷ Unlike the DAE, however, the DRDO has not seen such vast budget increases in more recent years. Although the 2013 to 2014 budget experienced a small amount of growth, “the modest increase in the defence budget comes in the wake of high inflationary and unfavourable exchange rate regimes.”³³⁸ This situation translates into a real negative growth of “by 1.3 per cent and 3.7 per cent in terms of WPI and CPI-NS, respectively.”³³⁹ Since the DAE can address both “military security and development,”³⁴⁰ it has been shielded by the defense stagnation that has plagued the DRDO.

Furthermore, the DRDO has been unable to achieve a bigger portion of the defense budget. The DRDO has advocated for “9% of the total allocated sum for the defence sector”³⁴¹ while the Parliament’s Standing Committee on Defence “has

³³⁴ Dasgupta, “The Reluctant Nuclear Power,” 116.

³³⁵ Kampani, “India: The Challenges of Nuclear Operationalization,” 109.

³³⁶ S. Chandrashekar and K. P. Basvarajappa, “Technological Innovation and Economic Development: Choices and Challenges for India,” *Economic and Political Weekly* 36, no. 34 (August 25–31, 2001): 3241.

³³⁷ Pavan Nair, “An Evaluation of India’s Defence Expenditure,” *Economic and Political Weekly* 44, no. 51 (December 19–25, 2009): 40.

³³⁸ Laxman K. Behera, “India’s Defence Budget 2013–14: A Bumpy Road Ahead,” *Institute for Defence Studies and Analysis*, March 4, 2013, http://idsa.in/idsacomments/IndiasDefenceBudget2013-14_lkbehera_040313.

³³⁹ Ibid.

³⁴⁰ M. V. Ramana, excerpt from *The Power of Promise: Examining Nuclear Energy in India* (City of Westminster, London: Penguin Books, 2013), quoted in “History of The Power of Promise: Examining Nuclear Energy in India,” February 22, 2013, <http://newsclick.in/india/history-power-promise-examining-nuclear-energy-india>.

³⁴¹ Jatinder Kaur Tur, “Shrinking Budget Worries DRDO Head,” *The Times of India*, October 20, 2013, <http://timesofindia.indiatimes.com/city/hyderabad/Shrinking-budget-worries-DRDO-head/articleshow/24409185.cms>.

recommended that [the] R&D budget should be at least 14 to 15 percent of the total defence budget of the country.”³⁴² Nevertheless, “the R& D budget has been languishing at an average 6 percent of the defence budget since 2000.”³⁴³ The Institute for Defence Studies and Analysis (IDSA) think tank has seen a similar trend; with the DRDO budget allocation averaging six percent between 2008 and 2014 (see Figure 5). Furthermore, DRDO success in nuclear-related technology has not translated into any noticeable allocation increases. Between the 2009 to 2010 and 2010 to 2011 budgets, the DRDO saw its greatest jump in budgetary allocation as it went from 5.99 percent to seven percent.³⁴⁴ Yet, no successful maiden launches occurred in 2010. 2012 was a stellar year for DRDO nuclear achievements with the successful test launch of both the K-15 and Agni V, India’s first ICBM,³⁴⁵ but between the 2012 to 2013 and the 2013 to 2014 budgets, the DRDO budget allocation went down from six percent to five percent of the total defense budget.³⁴⁶

³⁴² Vinod Anand, “Defence Budgeting: Trends and Issues,” *Journal of Defence Studies* 3, no. 4 (October 2009): 143.

³⁴³ Ibid.

³⁴⁴ Laxman K. Behera, “Budgeting for India’s Defence: An Analysis of Defence Budget 2010–11 and the Likely Impact of the 13th Finance Commission on Future Defence Spending,” *Institute for Defence Studies and Analysis*, March 3, 2010, http://www.idsa.in/idsacomments/BudgetingforIndiasDefence2010-11_lkbehera_030310.

³⁴⁵ Dinesh C. Sharma, “India’s Space Odyssey—A Timeline,” last modified March 24, 2013, <http://indiatoday.intoday.in/story/india-space-odyssey-timeline-missile-programme-space-launch-vehicle-slv-satellite-launch-vehicle-agni-missiles/1/259195.html>.

³⁴⁶ Laxman K. Behera, “India’s Defence Budget 2012–13,” *Defence Review Asia*, June 3, 2012, <http://www.defencereviewasia.com/articles/169/India-s-Defence-Budget-2012-13>; Laxman, K. Behera, “India’s Defence Budget 2011–12,” *Institute for Defence Studies and Analysis*, March 7, 2011, http://www.idsa.in/idsacomments/IndiasDefenceBudget2011-12_lkbehera_070311.

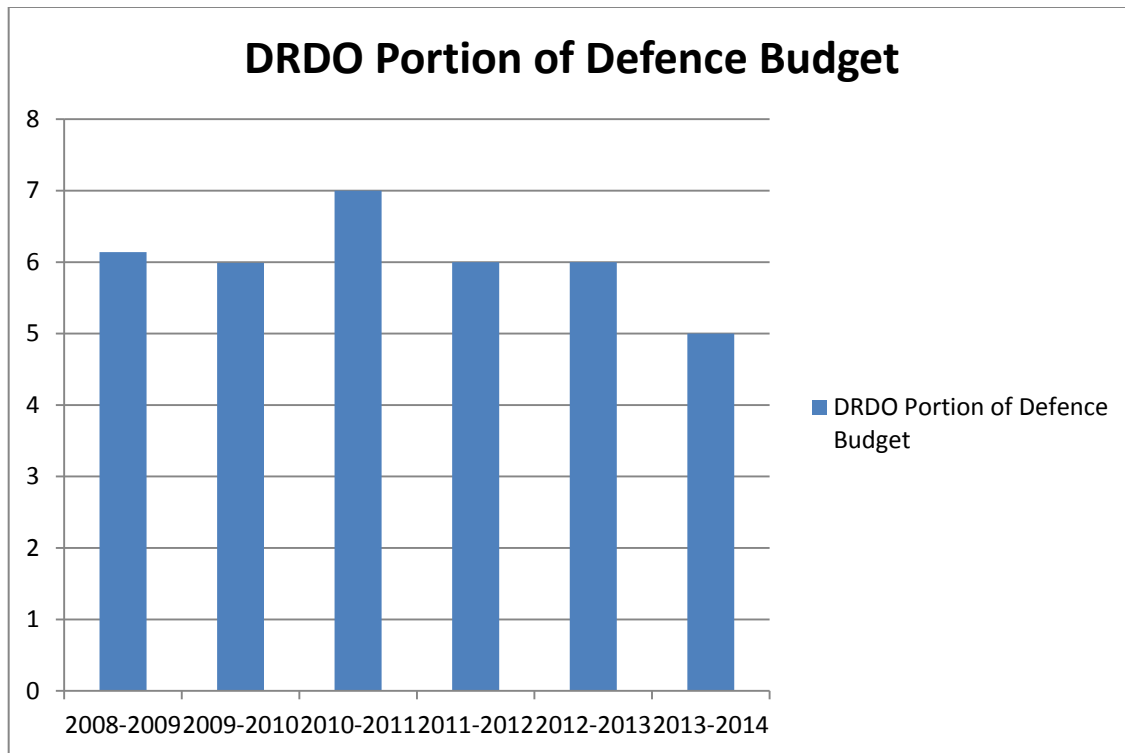


Figure 5. DRDO portion of defence budget³⁴⁷

Beyond budget woes, the DRDO's reputation has come under siege due to a failure to perform. Despite success in nuclear platforms, the DRDO has been unable to meet "qualitative requirements (QRS)" and much of their products suffer from "inordinate delay."³⁴⁸ Personnel issues have also been a problem. Not only does the DRDO have the "most adverse ratios of engineers to auxiliaries and support staff among

³⁴⁷ Laxman K. Behera, "India's Defence Budget 2008-09," *Institute for Defence Studies and Analysis*, March 19, 2008, http://idsa.in/idsastrategiccomments/IndiasDefenceBudget2008-09_LKBehera_190308; Laxman K. Behera, "India's Defence Budget 2009-10: An Assessment," *Institute for Defence Studies and Analysis*, February 18, 2009, http://idsa.in/idsastrategiccomments/IndiasDefenceBudget2009-10_LKBehera_180209; Behera, "Budgeting for India's Defence: An Analysis of Defence Budget 2010-11"; Behera, "India's Defence Budget 2011-12"; Behera, "India's Defence Budget 2012-13"; Behera, "India's Defence Budget 2013-14: A Bumpy Road Ahead."

³⁴⁸ Nair, "An Evaluation of India's Defence Expenditure," 46.

R and D organisations,”³⁴⁹ it has also been “haemorrhaging scientists and technicians at the rate of 20–27 per cent annually as they flock to the private sector.”³⁵⁰

The DRDO’s issues have caused a backlash amongst Indian leaders, who have now started to scrutinize the agency’s performance. In 2007, the DRDO came under independent audit by an eight-member committee headed by P. Rama Rao, former chief of the Department of Science and Technology.³⁵¹ Notably, one of the delayed systems that prompted the audit was the “Advanced Technology Vessel nuclear submarine programme,”³⁵² which would later become the INS *Arihant*. In 2008, the committee “recommended that the DRDO turn over a number of its laboratories to other government agencies and confine itself to eight or 10 critical areas, where it had demonstrated competence.”³⁵³ Furthermore, Indian Defence Minister A. K. Antony recommended the involvement of “private industries and businesses.”³⁵⁴ Several years passed before the recommendations were finally adopted in 2010,³⁵⁵ and efforts to decentralize the DRDO have continued in 2013.³⁵⁶ It remains to be seen whether these results will actually result in a more efficient and accountable organization. Nevertheless, what is not in doubt is that the DRDO has recently suffered both a loss of prestige and bureaucratic heft. Despite its success with the Agni-line of missiles, the DRDO may find it difficult to push for new projects if the Indian leadership remains dissatisfied with the organization’s results.

³⁴⁹ Singh, “An Assessment of Indian Science and Technology,” 2765.

³⁵⁰ Jane’s, “India’s Defence Minister Serves Notice on DRDO,” *Jane’s Defence Industry*, February 19, 2007, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=News&ItemId=+++1136314&Pubabbrev=JDIN>.

³⁵¹ Jane’s, “India Launches ‘Thorough’ Audit of DRDO’s Effectiveness,” *Jane’s Defence Weekly*, January 24, 2007, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=News&ItemId=+++1156150&Pubabbrev=JDW>.

³⁵² Ibid.

³⁵³ Dasgupta, “Struggling with Reform,” 35.

³⁵⁴ Jane’s, “India Urges DRDO and Private Firms to Work As a Team,” *Jane’s Defence Weekly*, January 14, 2008, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=News&ItemId=+++1175779&Pubabbrev=JDW>.

³⁵⁵ Press Information Bureau, Government of India, “MoD Announces Major DRDO Restructuring Plan,” May 13, 2010, <http://pib.nic.in/newsite/erelease.aspx?relid=61808>.

³⁵⁶ Ajai Shukla, “Decentralisation Top Priority: New DRDO Chief,” *Business Standard*, June 7, 2013, http://www.business-standard.com/article/economy-policy/decentralisation-top-priority-new-drdo-chief-113060700032_1.html.

Also, like the DAE, the DRDO has suffered from a loss of influence due to the increasing role of the military. Unlike the DAE, however, the DRDO is a defense-only institution with a history of conflict with the armed forces, which means it will likely see an even greater encroachment by the military upon its priorities. This antipathy stems from a divergence in goals. The military “is interested in getting the best possible weapons irrespective of the producer,” while “the scientific establishment places greater value on the development of indigenous technological capacity even if it does not produce the weapons the military wants.”³⁵⁷ Due to this divergence, the perspective in the armed forces is that the DRDO has been forcing its technology on an unwilling military.³⁵⁸ Arun Prakash, a former Chairman of the Chiefs of Staff, argues that the military “continues to remain excluded from the higher echelons of the national security edifice,” but he also admits, “the SFC appears to be gaining in operational efficiency and is a frequent participant in DRDO’s missile test firings as well as regular drills and exercises.”³⁵⁹ Furthermore, the Indian Navy will gain control of a critical leg of the nuclear triad once the INS *Arihant* becomes operational. Despite Prakash’s fears that “New Delhi’s security establishment has remained frozen in time over the past six decades,”³⁶⁰ the SFC and its growing role are signs that the establishment is changing. In the future, the military will have a greater say, which will weaken the DRDO’s ability to push for its own favored projects over security needs.

E. CONCLUSION

Domestic factors remain important, but each is facing constraints that have reduced its influence. The strongest domestic factor is the DAE and scientists in the nuclear world. As long as India prioritizes overall development of the nation to include energy advancements, the DAE can justify its research and expenditures, and remain a potent force. The second strongest domestic factor is the DRDO, which recently has seen

³⁵⁷ Dasgupta, “Struggling with Reform,” 33–34.

³⁵⁸ Eric Arnett, “And the Loser Is... the Indian Armed Forces,” *Economic and Political Weekly* 33, no. 36/37 (September 5–18, 1998): 2339.

³⁵⁹ Prakash, “India’s Nuclear Deterrent: The More Things Change,” 4–5.

³⁶⁰ *Ibid.*, 5.

budgetary woes and a crisis of faith in its abilities. The weakest domestic factors are the political parties, who are more inclined to focus their efforts on economic development and social ills as opposed to national security. Recently, rumors that the BJP would drastically change policy turned out to be baseless, and thus far, no indications are apparent that either the INC or BJP want to alter the trends set out in the 1999 draft nuclear doctrine significantly. Domestic factors may have been paramount before 1998, but due to recent changes in organization and bureaucratic priorities, their influence has waned and other elements, such as security fears, have become stronger explanations of India's nuclear weapons program.

THIS PAGE INTENTIONALLY LEFT BLANK

VI. CONCLUSION

A. COMPARING THE FACTORS

This thesis has examined four separate factors as possible drivers in India's nuclear weapons program: security fears from China, security fears from Pakistan, the desire for great power status, and domestic elements. Also, the scope of this thesis has focused on the program's evolution since 1998; instead of attempting to explain why India went nuclear, this thesis has narrowed its examination to determining what factors are currently relevant. Of all these factors, the security fear from China is the strongest driver behind India's current trend of nuclear modernization and expansion. Another strong factor is India's desire for great power status, which has encouraged the country's strong growth in nuclear-related capabilities. Both security fears from China and the desire for great power status are potent drivers of India's nuclear weapons program, but the China factor is stronger due to recent organizational changes that emphasize security concerns. Domestic organizations, such as political parties and scientific agencies, are the third strongest factor, and have weakened in potency since 1998 due to the same organizational changes that have decreased the influence of the status factor. Finally, security fears from Pakistan are currently the weakest driver of India's nuclear weapons program. Since Indian capabilities have surpassed the point needed to handle Pakistan in a strategic sense, the continued growth of the program cannot be explained by any concerns over Pakistan's own arsenal.

More than any other factor, China as a security threat has increased in prominence as a driver in India's nuclear weapons program since 1998. Both India and China have seen strong economic growth in the past decade, but China has experienced higher levels of prosperity, which has allowed it to retain its strong lead in both conventional and nuclear forces.³⁶¹ Furthermore, despite increasing engagement, outstanding issues that may lead to conflict still exist between the two nations. Resource disputes, Indian anger at Chinese support to Pakistan, and friction from an unresolved border may all drive the

³⁶¹ Trading Economics, "China GDP, Trading Economics; India GDP."

two most populous nations into a confrontation. Indian hawks and moderates may disagree on whether China presents an immediate threat, but both sides concur that as long as China retains its lead in both conventional and nuclear fields, their state must focus on its nuclear arsenal as its only viable counter. The goal is to turn the arsenal into a force that can reliably deter China, not to reach nuclear or conventional parity; to attempt parity would be foolhardy considering China's economic advantages. Statements from both hawkish and moderate elites also support this desire to counter China asymmetrically through a strong nuclear deterrent. Finally, India's own nuclear weapons program has moved in a direction that best counters China. Focusing on long-range ballistic missiles and deploying strike aircraft that can carry nuclear-capable cruise missiles near the Himalayan borders are all strategies that can better deter China. Although other drivers may explain these actions, China as a security threat is the strongest explanation for India's nuclear weapons program when factoring in the country's threat environment, elite statements, and the trajectory of the program itself.

Pakistan as a security threat is the weakest driver behind India's strategic arsenal. Immediately after 1998, a strong argument could be made that India was more focused on Pakistan since both nations had just started their nuclear programs and India had yet to achieve an operational IRBM. Now that it has already deployed the Agni II, which can cover all of Pakistan,³⁶² India has reached a point at which its leaders are confident that their nation has the capabilities needed to deal with their western neighbor in a strategic sense. Furthermore, the Pakistani nuclear threats that India is concerned about are not issues that can be countered with an advanced arsenal. India fears both escalation and a non-state actor acquiring a nuclear warhead. To deal with these threats, it has engaged in diplomatic confidence-building measures, as well as rhetoric that promises massive retaliation. Neither strategy involves changing India's nuclear weapons program. For instance, Pakistan's new emphasis on tactical nuclear weapons certainly raises the risks of escalation into a nuclear conflict, but none of India's strategic projects has any utility in countering this development. Also, India's Cold Start doctrine, which advocates a conventional-only approach to Pakistan, demonstrates its confidence in both its

³⁶² Jane's, "Agni."

conventional and nuclear superiority. Arguably, this confidence is misplaced, but nevertheless, India has continued on a trajectory of continued growth in both the quantity and quality of its nuclear arsenal. The threat of Pakistan by itself does not adequately explain this trend.

The desire for great power status is a strong factor in explaining India's nuclear weapons program, but it remains secondary to security fears over China. Although India has recently become more accepted as a nuclear power, it still has not gained universal acceptance from countries like China, Japan, and Australia. To counter this lack of acceptance, India has embarked on a campaign to portray itself as a responsible nuclear power, a campaign that also involves increasing its capabilities to improve its credibility as a nuclear weapons state. By developing capabilities, such as ICBM technology, India can become a significant nuclear power, which puts pressure on the international system to take it more seriously as a partner in treaties and nonproliferation agreements. In turn, these new memberships will help India gain increased legitimacy and acceptance as a nuclear weapons state. This capability can also help India improve its legitimacy by helping it create a record of nonproliferation with its new technology. Also, elite statements indicate a strong level of pride in both international nuclear achievements, as well as indigenous breakthroughs in technology. Finally, the nuclear program has not deviated much from the goals of the 1999 draft nuclear doctrine, which was set up before outlining specific security fears. Nevertheless, with the establishment of the SFC, the military has steadily increased its control over India's nuclear affairs. Furthermore, India has never used its growing nuclear capability as justification for a permanent seat on the UN Security Council, and instead, has chosen to emphasize its demographic and economic power. Organizational changes, as well as India's own foreign policy, indicate that the desire for great power status has decreased in potency since 1998. Although it remains a strong driver, it has been eclipsed by security fears over China.

Domestic factors were likely a big influence in pushing India to go openly nuclear with the 1998 tests, but recent trends have curtailed that influence. Ever since the electoral loss of the BJP in 2004, the political value of success in nuclear security appears to have diminished. Furthermore, no substantive difference exists in nuclear policy

between the two major party coalitions. Although the BJP recently promised to re-evaluate the nuclear doctrine, no significant changes in India's strategic arsenal have occurred, which indicate that nuclear security continues to be a non-issue for political parties. Scientific organizations, on the other hand, continue to retain significant influence. Both the DAE and the DRDO control key components of India's atomic weapons, and both organizations have personnel on the branches that form the NCA, the Political Council and Executive Council.³⁶³ Both the DAE and DRDO also benefit from strong autonomy, which allows them to drive agendas despite nominally following political rule. While the DAE benefits from an enormous budget since it is in charge of both the nuclear weapons program, as well as India's civilian nuclear energy program,³⁶⁴ it nevertheless has recently suffered a loss of authority due to public disputes that have gone against official policy, as well as increasing encroachment by the military. The DRDO also suffers from the same encroachment by the military, but it has also suffered from a stagnant budget, as well as a loss of confidence from political leaders who have become dissatisfied with its desultory performance. Domestic factors, especially the DAE and DRDO, may remain stronger drivers for India's nuclear weapons program than Pakistan, but they are weaker than both China and the desire for great power status.

At the same time, these factors are not completely separate entities from one another. China as a threat may be the strongest factor in India's nuclear weapons program, but the country also plays a role in India's desire for great power status. It has actively blocked India's bid to be a part of the NSG³⁶⁵ and refuses to engage with India as a nuclear peer, a fact that Indian leaders find aggravating.³⁶⁶ As long as China continues to snub its southern neighbor, India will likely pursue capabilities that can enhance its prestige, both to deter China and to signal China to take it more seriously as a fellow nuclear power. A similar relationship exists between the desire for great power status and domestic factors, especially the DRDO. Indigenous projects that require

³⁶³ Kampani, "India: The Challenges of Nuclear Operationalization and Strategic Stability," 109.

³⁶⁴ Ramana, "History of the Power of Promise: Examining Nuclear Energy in India."

³⁶⁵ Joshi, "China Rivalry Keeping India Out of Nuclear Suppliers Group."

³⁶⁶ Cunningham and Medcalf, *The Dangers of Denial*, 5.

advanced technological skills can enhance India's international prestige, but they can also enhance the reputation of the scientific organizations that succeed with such projects. For instance, the latest success in achieving a functioning reactor with the INS *Arihant* not only increased national pride, but also encouraged Indian politicians to praise "our scientific community particularly those working with DRDO."³⁶⁷ Conversely, the lack of political success from pursuing nuclear-related achievements may indicate that Indian voters do not necessarily care about international accomplishment, which, in turn, weakens the desire for great power status as a driver. Finally, certain technological triumphs may have multiple plausible drivers. For instance, the Agni V could simultaneously deter China, gain international prestige for India, and also reflect great credit on its scientific agencies. As long as current and future nuclear-related projects can have multiple, plausible motivations, it will be difficult to separate each driver completely and weigh them accurately. Nevertheless, by taking a comprehensive look and comparing every factor in a relative sense, this thesis has determined that security fears over China are the strongest driver of India's nuclear weapons program, with the desire for great power status remaining a strong but secondary driver.

B. IMPLICATIONS FOR SOUTH ASIAN NUCLEAR STABILITY

As long as China remains the strongest driver of India's nuclear weapons program, it will be inextricably linked to South Asian nuclear stability. Whatever actions it takes will likely reverberate throughout both India and Pakistan. Due to its own fears over "nuclear coercion" from the United States,³⁶⁸ China will likely continue to modernize and enhance its strategic arsenal. Even if it decides to halt its current trend of upgrading both its conventional and nuclear forces, the capability gaps in both areas are so large that India will continue to feel pressured into developing a strong nuclear arsenal in the near future. Pakistan, which feels the same type of pressure from India, will likely follow suit and also receive substantial assistance from China. India, finding this assistance threatening, will further encourage its own arsenal building, and the arms race

³⁶⁷ The Economic Times. "Parliament Hails Launch of Agni V."

³⁶⁸ Lewis, "China's Nuclear Modernization: Surprise, Restraint, and Uncertainty," 85.

will continue. Some analysts have described this situation as a “vicious circle, in which an action by one results in an escalatory reaction from the other two.”³⁶⁹ Not only does this cycle of escalation increase the risk of a nuclear conflict, it also heightens distrust, which debilitates any chances for a diplomatic resolution. Furthermore, the likely increase in Pakistan’s arsenal will have destabilizing consequences beyond South Asia itself.

Currently, these three nations are the only declared nuclear powers actively increasing the size of their arsenals, which raises proliferation concerns in the region. As long as either India or China feels insecure about the status of its arsenal, this trend of both quantitative and qualitative growth will likely continue in the near future. Unless Pakistan sees a vast jump in its own arsenal, its actions are unlikely to affect India’s own nuclear weapons program, which prioritizes the China security threat. Nevertheless, Pakistan’s arsenal will likely continue to grow in response to India’s own projected strategic expansion. Although all three nations have a long way to go before catching up to the nuclear weapons stockpiles of either Russia or the United States, the regional tensions, as well as the complicated trilateral nature of the relationship, may increase the chance of escalation more so than the bilateral posturing that occurred during the Cold War. Furthermore, the geography itself raises the risks of a nuclear conflict. The United States and the former Soviet Union were separated by thousands of miles of ocean, which gave leaders on both sides time to determine whether launches were false warnings or mistakes. India and Pakistan, being neighboring adversaries, have no such luxuries. A false warning on one side could easily turn into multiple barrages before leaders on both sides have a chance to contact one another. The possible deployment of nuclear-capable Su-30MKI aircraft near the Himalayas, coupled with China’s own build-up in the region, may also raise the stakes of escalation between these two nations. Although nuclear war between India and China appears less likely than nuclear war between India and Pakistan, as long as outstanding issues still exist, and both nations continue modernizing their arsenals, the risk that a border conflict may escalate into a more catastrophic outbreak cannot be completely dismissed.

³⁶⁹ Ganesh, “Nuclear Missile-Related Risks in South Asia,” 306.

The situation of constant escalation also exacerbates existing tensions. In this dynamic, India may feel more threatened than either nation since the other states have a strong partnership that India often perceives to be directed against it. Rather than see Pakistan as a separate threat, India views Chinese assistance to Pakistan as evidence of a “hostile Sino-Pakistan nuclear nexus, which continues to operate even today.”³⁷⁰ India may feel confident in its abilities to deal with Pakistan on both a conventional and strategic level, but nonetheless, any Pakistani military advancement will be seen as proof of a Sino-Pakistani alliance. Much like how former Defence Minister Fernandes blamed China for Pakistan’s acquisition of the Ghauri IRBM,³⁷¹ Indian leaders today will likely continue to blame China as Pakistan increases its own technological capabilities. In turn, tensions will be raised and the trust necessary to reach any diplomatic solutions between all three nations will be diminished.

China for its part will likely respond to Indian advancements with continued Pakistani assistance. Soon after the United States and India finalized their civil nuclear deal, China conducted a similar civil nuclear deal with Pakistan.³⁷² In the future, China may increase this assistance as Indian capabilities continue to grow. Although its government has consistently refused to deal with India as a nuclear peer, Chinese media reports convey a sense of unease as India edges closer to a strategic arsenal that can credibly threaten China. After the successful launch of the Agni V, as well as Indian media proclamations that the missile was a “China-killer,”³⁷³ Ananth Krishnan notes that Chinese media reports fired back at India with statements that warned India not to become “arrogant during disputes with China.”³⁷⁴ These media reports further warned, “For the foreseeable future, India would stand no chance in an overall arms race with

³⁷⁰ “Weapon That Has More Than Symbolic Value,” *Jammu. Early Times*, May 6, 2013.

³⁷¹ Tellis, *India’s Emerging Nuclear Posture*, 49.

³⁷² Chidanand Rajghatta, “U.S. to Object to China-Pakistan Nuclear Deal,” *Times of India*, June 15, 2010, <http://timesofindia.indiatimes.com/world/pakistan/US-to-object-to-China-Pakistan-nuclear-deal/articleshow/6049782.cms>.

³⁷³ Palash Ghosh, “India Preparing to Test ‘China-Killer’ Nuclear Missile,” *International Business Times*, April 17, 2012, <http://www.ibtimes.com/india-preparing-test-%E2%80%98china-killer%E2%80%99-nuclear-missile-438348>.

³⁷⁴ Ananth Krishnan, “A ‘Political Missile,’ Say Chinese Media,” *The Hindu*, April 19, 2012, <http://www.thehindu.com/news/national/a-political-missile-say-chinese-media/article3332404.ece>.

China.”³⁷⁵ If India makes any more advancements, such as credible MIRV technology, China may increase the technological assistance it gives to Pakistan, as well as accelerate the modernization of its own strategic arsenal.

The nuclear dynamics between India and Pakistan will likely continue to be destabilizing for three key reasons. First, India’s confidence in its ability to deal with Pakistan may actually heighten the risk of escalation. As long as Indian leaders believe the conventional strategy of Cold Start can be accomplished without triggering Pakistani red-lines, then the risk of a limited local conflict turning into a nuclear exchange is always present. Unfortunately, due to the chaotic nature of war, many uncertainties exist, such as false warning alarms that can easily trigger a red-line and invite an escalatory response. Second, Pakistan’s new emphasis on TNWs further heightens this risk of escalation. By creating nuclear weapons that can be used on the battlefield in a tactical sense, Pakistan has drastically lowered the threshold for nuclear war. Indian leaders have repeatedly stressed that they would respond to any nuclear strike, even a limited tactical one, with overwhelming force.³⁷⁶ Finally, the growing strength of Islamic extremists may also enhance the possibility of escalation. These extremists have increasingly acted out of control for Pakistani authorities, going as far as attacking Pakistani security forces,³⁷⁷ as well as facilities that may house nuclear weapons.³⁷⁸ As long as authorities in India and Pakistan have poor cooperation in combating terrorism, extremists can exploit this seam to conduct attacks and provoke strong Indian reprisals, which furthers their propaganda campaign. A situation could be easily envisioned in which India suffers a terrorist attack, but dissatisfied with Pakistan’s response, decides to launch Cold Start to take action against the militants into their own hands. Pakistani authorities use a TNW in response and then a nuclear conflict has erupted.

The combination of TNWs and strong Islamic extremists in Pakistan may also have destabilizing effects beyond South Asia. Groups like the LeT and Tehrik-e Taliban

³⁷⁵ Krishnan, “A ‘Political Missile,’ Say Chinese Media.”

³⁷⁶ Bagchi, “Midget Nuke Strike Will Lead to Massive Retaliation.”

³⁷⁷ Fishman, “The Taliban in Pakistan: An Overview,” 349.

³⁷⁸ Nelson and Hussain, “Militants Attack Pakistan Nuclear Air Base.”

Pakistan (TTP) maintain strong links with Islamic extremists in other nations. Due to their mobility, relatively small size, and the likelihood of being deployed to vulnerable battlefield locations, TNWs are more susceptible to seizure by a non-state actor and they are much easier to transport to locations outside Pakistan. Using a cargo ship, trans-national terrorists can carry a stolen TNW to Mumbai or potentially outside the region to strike at targets as far away as the United States. These extremists do not even need to steal the entire platform to cause international panic. The warheads on TNWs are designed to be smaller than those on larger ballistic missiles. By taking a small amount of fissile material and combining it with traditional explosives, terrorists can create a dirty bomb that will be just as effective in inciting hysteria and complicating first response efforts.

C. IMPLICATIONS FOR THE UNITED STATES

Regardless of current U.S. policy, it already is seen as a key player in South Asian nuclear stability. China's own campaign to upgrade its strategic arsenal is likely directed against the United States,³⁷⁹ which is its most capable potential adversary. Since India's strongest driver is China's nuclear program, the Western superpower has an indirect effect on India's arsenal, and consequently, on Pakistan's as well. Despite its geographical distance, the United States is just as involved in this security spiral as China, India, and Pakistan. Also, its own interests in countering global proliferation are greatly complicated by the nuclear dynamics in South Asia. Critics within Pakistan and China are quick to condemn U.S. endeavors to block the transfer of nuclear technology as hypocritical due its own civil nuclear deal with India.³⁸⁰ Furthermore, this deal has not translated into a strong partnership with India, at least to the level of the alliance enjoyed by China and Pakistan. Finally, the United States remains very concerned with the potential for nuclear terrorism as Pakistan continues to expand its arsenal and engage in efforts that may heighten the risk of a non-state seizure.

³⁷⁹ Mazza and Blumenthal, "China's Strategic Forces in the 21st Century: The People's Liberation Army's Changing Nuclear Doctrine and Force Posture," 93–94.

³⁸⁰ Maleeha Lodhi, "Nuclear Hypocrisy," *The News*, July 17, 2012, <http://www.thenews.com.pk/Todays-News-9-120897-Nuclear-hypocrisy>.

As outlined in the latest Quadrennial Defense Review, the United States currently maintains a strong commitment to stability in South Asia,³⁸¹ and counter-proliferation of both nuclear and ballistic missile technology.³⁸² Finding a way to slow down the security spiral in South Asia would certainly help with both goals. Unfortunately, U.S. efforts at engagement with the region have been hampered since at least two major players, Pakistan and China, do not see the Western power as an impartial observer. Suspensions by both nations that the United States is biased towards India have only been heightened by the 2008 civil nuclear deal. Furthermore, some analysts have also speculated that the U.S.-led tilt towards India is part of a broader strategy to contain and encircle China.³⁸³ As for Pakistan, it has its own history of tumultuous relations with the United States that prevents it from engaging constructively on sensitive nuclear issues. As long as both Pakistan and China view the United States with suspicion, any attempts to curtail strategic upgrades in the interest of stability and nonproliferation will be met with strong resistance.

Also, the U.S.-tilt towards India has not translated into a strong partnership for both nations. India itself has been unsure of what to make of its relationship with the United States. It recognizes the security benefits of allying with a superpower, especially since “the extent to which Indo-U.S. strategic relations grow in the near to medium term will be an important external factor in gauging perceptions of Indian vulnerability and status.”³⁸⁴ Yet, India also fears losing its autonomy by drawing too close to such a strong nation. Some backlash has already occurred among Indian elites due to a perceived overreliance on the United States. Specifically, the civil nuclear deal is seen as proof that

³⁸¹ Department of Defense, “Quadrennial Defense Review 2014, 2014, 17, http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf.

³⁸² *Ibid.*, 14.

³⁸³ Willy Lam, “Beijing’s Alarm Over New ‘U.S. Encirclement Conspiracy,’” *China Brief* 5, no. 8 (2005), *Jamestown Foundation*, http://www.jamestown.org/single/?tx_ttnews%5Btt_news%5D=3843#.U4RyYfldWiR.

³⁸⁴ Ollapally, “Mixed Motives in India’s Search for Nuclear Status,” 942.

India has cast its lot with the West, and that it has disrupted “time tested relations with Russia and west Asian countries” as a result.³⁸⁵

In addition to fears over regional stability, U.S. fears over proliferation and the potential for nuclear terrorism are particularly strong over Pakistan. Due to its own history of dealing with Islamic extremism, the United States greatly fears the possibility that one or more nuclear weapons from Pakistan would fall into a non-state actor’s hands as the regime continues to face bold attacks by militants like LeT. Unfortunately, instead of enhancing cooperation to combat a common foe, the public voicing of these fears has led to a strong backlash by Pakistani authorities.³⁸⁶ Tensions have increased between the two states as Pakistan fears that the United States intends to steal the Islamic nation’s arsenal under the guise of securing nuclear weapons from terrorists. The 2011 raid that killed Osama bin Laden, which demonstrated U.S. ability to penetrate deep into Pakistani territory, only aggravated these fears.³⁸⁷ In response, Pakistan has undertaken its own actions to ensure that an outside power cannot seize its entire arsenal, to include expanding the quantity of its nuclear warheads,³⁸⁸ and allegedly, periodically dispersing its strategic weapons in “civilian-style vehicles without noticeable defenses.”³⁸⁹ These measures would certainly complicate a foreign power’s attempt to seize multiple strategic weapons, but they also make individual warheads more vulnerable to acquisition by a non-state actor.

³⁸⁵ Kamal Mitra Chenoy and Anuradha M. Chenoy, “India’s Foreign Policy Shifts and the Calculus of Power,” *Economic and Political Weekly* 42, no. 35 (September 1–7, 2007): 3552.

³⁸⁶ Robert Windrem, “U.S. Prepares for Worst-Case Scenario with Pakistan Nukes,” *National Broadcasting Company*, August 3, 2011, http://investigations.nbcnews.com/_news/2011/08/03/7189919-us-prepares-for-worst-case-scenario-with-pakistan-nukes.

³⁸⁷ Yochi Dreazen, “Fear That U.S. Can Grab Nuclear Arsenal Heightens Pakistani Anger,” *National Journal*, May 9, 2011, <http://www.nationaljournal.com/nationalsecurity/fear-that-u-s-can-grab-nuclear-arsenal-heightens-pakistani-anger-20110509>.

³⁸⁸ Clary, “Future of Pakistan’s Nuclear Weapons Program,” 142.

³⁸⁹ Jeffrey Goldberg and Marc Ambinder, “The Ally from Hell,” *The Atlantic*, October 28, 2011, 5, <http://www.theatlantic.com/magazine/archive/2011/12/the-ally-from-hell/308730/>.

D. RECOMMENDATIONS FOR THE UNITED STATES

Due to the complicated nuclear dynamics in the region, the United States must tread carefully as it navigates diplomatic relations with all three nations. It should still pursue engagement with the region, but it needs to be patient, in particular with a country like India that is cautious of entangling alliances. Also, the engagement must be led by competent diplomats who could also continue ties with Pakistan and China so that both nations do not feel alienated as a Western power draws closer to India. Pursuing a multilateral forum may be the best bet for the United States to slow down the regional trend of strategic modernization.

As it pursues continued engagement with India, the United States must recognize how strongly this growing power values its autonomy.³⁹⁰ Much of the current delays and pitfalls in the U.S.-India relationship can be attributed to this great fear that any closer ties with the West would place this autonomy at risk. Undoubtedly, as both nations progress in their relationship, “India and the United States will likely continue to quarrel over a wide range of issues, from development policy to climate change.”³⁹¹ The United States should recognize that the best approach would involve incremental progress that will likely see some setbacks. Also, an understanding of India’s desire for great power status can help provide some key leverage. India still desires “access to certain forms of advanced technology and defense equipment that the United States and its allies can provide.”³⁹² Also, it “remains significantly underrepresented in key institutions that define great-power status,”³⁹³ such as the NPT. The United States still holds much sway over such organizations, and much like how it convinced the NSG to allow an exception for the U.S.-India deal, it can provide crucial support for India’s future membership

³⁹⁰ Ashley J. Tellis, “The United States and Asia’s Rising Giants,” in *Strategic Asia 2011–12: Asia Responds to Its Rising Powers*, ed. Ashley J. Tellis, Travis Tanner, and Jessica Keough (Washington, DC: The National Bureau of Asian Research, 2011), 19.

³⁹¹ John D. Ciorciari, “India’s Approach to Great Power Status,” *The Fletcher Forum of World Affairs* 35, no. 1 (2011): 83, <http://fletcher.tufts.edu/Fletcher-Forum/Archives/~//media/Fletcher/Microsites/Fletcher%20Forum/PDFs/2011winter/Ciorciari.pdf>.

³⁹² *Ibid.*, 83–84.

³⁹³ *Ibid.*, 84.

campaigns. By offering its aid in both technology and diplomatic support, the United States can push India forward on engagement even when the inevitable setbacks occur.

The United States should also increase engagement with China and Pakistan. It needs to build better ties with both nations and assure them that closer U.S. ties with India do not necessarily mean a degradation of relations with Pakistan and China as well. Regional forums that specifically address the issue of nuclear stability can be another diplomatic avenue. Both India and Pakistan are already observer nations for the Shanghai Cooperative Organization; China could help leverage this organization to start regional talks specifically focused on stabilizing nuclear relations. To maximize the effectiveness of such an institution, the United States should also encourage the presence of Russia, a nation with which it has already engaged in constructive nuclear talks. Both states can use their experience in the previous arms reduction treaties to help guide the agenda. Furthermore, Russia, China, the United States, India, and Pakistan all face a common adversary in the form of Islamic extremism. Taking a cooperative approach to this issue can help assuage U.S. and Indian fears over Pakistan's strategic arsenal, which in turn, can help placate Pakistani fears that other states would attempt to secure its nuclear warheads.

All three nuclear powers in South and East Asia have a common interest in not seeing a devastating war erupt. Furthermore, India and China are undergoing crucial phases of growth that depend on regional stability. These multiple points of common interests can provide the United States and other world powers a base from which they can engage in a constructive dialogue that will help stabilize the nuclear relationships in the region. Currently, due to its security fears over China, India will likely continue to push for a quantitative and qualitative improvement in its strategic arsenal. Due to their own security fears, China and Pakistan will likewise do the same. To counter this trend, cautious but effective diplomatic action must be undertaken so that all three states can see the greater danger of escalation and proliferation. The United States and Russia have made great progress in de-escalating the potential for nuclear conflict between them, but to counteract continued global proliferation, these actors must now focus their attention on South Asia.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

- Ahmed, Ali. "Nuclear Doctrine and Conflict." In *Grand Strategy for India: 2020 and Beyond*, edited by V. Krishnappa and Princy Marin George, 138–145. New Delhi: Pentagon Security International, 2012.
- Ahmed, Zubair. "Call for More India Nuclear Tests." *British Broadcasting Corporation*. August 28, 2009. <http://news.bbc.co.uk/2/hi/8226625.stm>.
- Anand, Vinod. "Defence Budgeting: Trends and Issues." *Journal of Defence Studies* 3, no. 4 (October 2009): 139–143.
- Ansari, Usman. "Pakistan Seeks to Counter Indian ABM Defenses." *Defense News*. March 21, 2011. <http://www.defensenews.com/article/20110321/DEFBEAT06/103210303/Pakistan-Seeks-Counter-Indian-ABM-Defenses>.
- Arms Control Association. "India's Draft Nuclear Doctrine." Last modified August 17, 1999. http://www.armscontrol.org/act/1999_07-08/ffja99.
- Arnett, Eric. "And the Loser Is... the Indian Armed Forces." *Economic and Political Weekly* 33, no. 36/37 (September 5–18, 1998): 2339–2340.
- Atlantic, The. "Pakistan Seen Ready to Cross Nuclear Threshold." June 2, 2011. <http://www.theatlantic.com/international/archive/2011/06/pakistan-seen-readying-to-cross-nuclear-threshold/239817/>.
- Bagchi, Indrani. "Even a Midget Nuke Strike Will Lead to Massive Retaliation, India Warns Pak." *The Economic Times*, May 1, 2013.
- Bajoria, Jayshree, and Esther Pan. "The U.S.-India Nuclear Deal." *Council on Foreign Relations*. Updated November 5, 2010. <http://www.cfr.org/india/us-india-nuclear-deal/p9663>.
- Banerjee, Dipankar. "Addressing Nuclear Dangers: Confidence Building Between India-China-Pakistan." *India Review* 9, no. 3 (2010): 345–363.
- Bartwal, Hemendra Singh. "BJP Opposes Indo-U.S. Nuclear Deal." *Hindustan Times*. April 8, 2007. <http://www.hindustantimes.com/india-news/bjp-opposes-indo-us-nuclear-deal/article1-240573.aspx>.
- Bedi, Rahul. "Agni-V Missile to Take India into Elite Nuclear Club." *British Broadcasting Corporation*. April 18, 2012. <http://www.bbc.com/news/world-asia-india-17738633>.

- . “India Deploys Su-30MKIs Close to Pakistan Border.” *Jane’s Defence Weekly*. October 6, 2011. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/=Janes/DisplayPage.aspx?DocType=News&ItemId=+++1188354&Pubabbrev=JDW>.
- . “India Ready to Ride Out Global Censure; Country’s Leaders Gamble the Economic Is Strong Enough to Withstand Western Sanctions After Tests.” *South China Morning Post*. May 17, 1998.
- Behera, Laxman K. “Budgeting for India’s Defence: An Analysis of Defence Budget 2010-11 and the Likely Impact of the 13th Finance Commission on Future Defence Spending.” *Institute for Defence Studies and Analysis*. March 3, 2010. http://www.idsa.in/idsacomments/BudgetingforIndiasDefence2010-11_lkbehera_030310.
- Behera, Laxman K. “India’s Defence Budget 2008–09.” *Institute for Defence Studies and Analysis*. March 19, 2008. http://idsa.in/idsastrategiccomments/IndiasDefenceBudget2008-09_LKBehera_190308.
- . “India’s Defence Budget 2009–10: An Assessment.” *Institute for Defence Studies and Analysis*. February 18, 2009. http://idsa.in/idsastrategiccomments/IndiasDefenceBudget2009-10_LKBehera_180209.
- . “India’s Defence Budget 2012–13.” *Defence Review Asia*. June 3, 2012. <http://www.defencereviewasia.com/articles/169/India-s-Defence-Budget-2012-13>.
- . “India’s Defence Budget 2013–14: A Bumpy Road Ahead.” *Institute for Defence Studies and Analysis*. March 4, 2013. http://idsa.in/idsacomments/IndiasDefenceBudget2013-14_lkbehera_040313.
- . “India’s Defence Budget 2011–12.” *Institute for Defence Studies and Analysis*. March 7, 2011. http://www.idsa.in/idsacomments/IndiasDefenceBudget2011-12_lkbehera_070311.
- Bhat, Aditya. “Top 10 Achievements and Developments of Indian Military in 2013.” *International Business Times*. December 31, 2013. <http://www.ibtimes.co.in/articles/532404/20131231/top-10-achievements-developments-indian-military-2013.htm>.
- Bloomberg Business Week. “China and India’s Growing Energy Rivalry.” December 16, 2010. http://www.businessweek.com/globalbiz/content/dec2010/gb20101215_795065.htm.
- BrahMos Aerospace. “Air Launch Weapon System.” 2012. <http://www.brahmos.com/content.php?id=19>.
- British Broadcasting Company. “India Test Launches Agni-V Long-Range Missile.” April 19, 2012. <http://www.bbc.com/news/world-asia-india-17765653>.

- . “India and China ‘Pull Back Troops’ in Disputed Border Area.” May 6, 2013. <http://www.bbc.com/news/world-asia-india-22423999>.
- . “India Media Hail Agni-V Long-Range Missile Launch.” April 20, 2012. <http://www.bbc.com/news/world-asia-india-17781198>.
- . “Indians Swing behind Tests.” May 13, 1998. http://news.bbc.co.uk/2/hi/special_report/1998/05/98/india_nuclear_testing/92972.stm.
- Burke, Jason. “Indian Election Alarm As BJP Raises Prospect of Nuclear Weapons Rethink.” *The Guardian*. April 7, 2014. <http://www.theguardian.com/world/2014/apr/07/indian-election-bjp-manifesto-nuclear-weapons>.
- Burns, John F. “India’s New Defense Chief Sees Chinese Military Threat.” *New York Times*. May 5, 1998. <http://www.nytimes.com/1998/05/05/world/india-s-new-defense-chief-sees-chinese-military-threat.html>.
- Business Standard. “India, Japan to Expedite Talks for a Civil Nuclear Pact.” January 25, 2014. http://www.business-standard.com/article/economy-policy/india-japan-to-expedite-talks-for-a-civil-nuclear-pact-114012500843_1.html.
- Busvine, Douglas. “Modi Says Committed to No First Use of Nuclear Weapons.” Reuters. April 17, 2014. <http://in.reuters.com/article/2014/04/16/uk-india-election-nuclear-idINKBN0D20QB20140416>.
- Center for Nonproliferation Studies. Monterey Institute of International Studies. “China’s Nuclear Doctrine.” 1998. http://cns.miiis.edu/archive/country_china/coxrep/doctrine.htm.
- Central Intelligence Agency. “Country Comparison: Population, CIA World Factbook.” Last accessed April 30, 2014. <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html>.
- Chakma, Bhumitra. “Toward Pokhran II: Explaining India’s Nuclearisation Process.” *Modern Asian Studies* 39, no. 1 (February 2005): 189–236.
- Chandran, D. Suba. “India, Pakistan and the Nuclear Race: No Clear Winners.” In *India, Pakistan and the Nuclear Race*, edited by Ruhee Neog, 7–8. Institute of Peace and Conflict Studies. July, 2013. http://www.ipcs.org/pdf_file/issue/SR142-Debate1307-NSP-NuclearRace.pdf.
- Chandrashekar, S., and K. P. Basvarajappa. “Technological Innovation and Economic Development: Choices and Challenges for India.” *Economic and Political Weekly* 36, no. 34 (August 25–31, 2001): 3238–3245.

- Chari, P. R. "India, Pakistan and the Nuclear Race: The Strategic Entanglement." In *India, Pakistan and the Nuclear Race*, edited by Ruhee Neog, 3–4. Institute of Peace and Conflict Studies. July 2013. http://www.ipcs.org/pdf_file/issue/SR142-Debate1307-NSP-NuclearRace.pdf.
- Chellaney, Brahma. "Coming Water Wars." *International Economy* (Fall 2009): 38–39. http://www.international-economy.com/TIE_F09_Chellaney.pdf.
- Chenoy, Kamal Mitra, and Anuradha M. Chenoy. "India's Foreign Policy Shifts and the Calculus of Power." *Economic and Political Weekly* 42, no. 35 (September 1–7, 2007): 3547–3554.
- Christian Science Monitor, The. "India Lobbies for Permanent Seat in United Nations Security Council." 1994. [http://www.csmonitor.com/1994/1003/03022.html/\(page\)/2](http://www.csmonitor.com/1994/1003/03022.html/(page)/2).
- Ciorciari, John D. "India's Approach to Great Power Status." *The Fletcher Forum of World Affairs* 35, no. 1 (2011): 61–89. <http://fletcher.tufts.edu/Fletcher-Forum/Archives/~media/Fletcher/Microsites/Fletcher%20Forum/PDFs/2011winter/Ciorciari.pdf>.
- Clary, Christopher. "The Future of Pakistan's Nuclear Weapons Program." In *Strategic Asia 2013–14: Asia in the Second Nuclear Age*, edited by Ashley J. Tellis, Abraham M. Denmark, and Travis Tanner, 130–160. Washington, DC: The National Bureau of Asian Research, 2013.
- Cunningham, Fiona and Rory Medcalf. *The Dangers of Denial: Nuclear Weapons in China-India Relations*. Australia Square, NSW: Lowy Institute for International Policy, 2011.
- Daily Mail. "China Invades India: Tensions Mount As Platoon of Soldiers Slip Across Border to Claim Disputed Territory." May 3, 2013. <http://www.dailymail.co.uk/news/article-2318389/Two-Chinese-incursion-leaves-India-verge-crises.html>.
- Daniel, Frank Jack. "Special Report: In Himalayan Arms Race, China One-ups India." Reuters. July 30, 2012. <http://www.reuters.com/article/2012/07/30/us-india-china-idUSBRE86T00G20120730>.
- Dasgupta, Sunil. "Struggling with Reform." In *Arming without Aiming*, edited by Stephen Cohen and Sunil Dasgupta, 29–52. Washington, DC: Brookings Institution Press, 2010.
- . "The Reluctant Nuclear Power." In *Arming without Aiming*, edited by Stephen Cohen and Sunil Dasgupta, 97–122. Washington, DC: Brookings Institution Press, 2010.

- Dawn. "India Approves \$2.4 Billion French Mirage Jet Upgrade." July 14, 2011. <http://www.dawn.com/news/643939/india-approves-2-4-billion-french-mirage-jet-upgrade>.
- Defense Industry Daily. "India's Flanker Fleet." Last modified May 5, 2014. <http://www.defenseindustrydaily.com/india-ordering-modernizing-su-30mkis-05852/>.
- Department of Atomic Energy. India Budget. "Notes on Demands for Grants, 2013–2014." <http://indiabudget.nic.in/ub2013-14/eb/sbe4.pdf>.
- Department of Defense. "Quadrennial Defense Review 2014." 2014. http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf.
- Detsch, Andrew. "Pakistan's Oversized Submarine Ambitions." *The Diplomat*. October 9, 2013. <http://thediplomat.com/2013/10/pakistans-oversized-submarine-ambitions/>.
- Dreazen, Yochi. "Fear That U.S. Can Grab Nuclear Arsenal Heightens Pakistani Anger." *National Journal*. May 9, 2011. <http://www.nationaljournal.com/nationalsecurity/fear-that-u-s-can-grab-nuclear-arsenal-heightens-pakistani-anger-20110509>.
- Economist, The. "Know Your Own Strength." March 30, 2013. <http://www.economist.com/news/briefing/21574458-india-poised-become-one-four-largest-military-powers-world-end>.
- Economic Times, The. "Don't Try Matching China in Each Field, Work on Assets: Shyam Saran." December 6, 2013. http://articles.economictimes.indiatimes.com/2013-12-06/news/44864344_1_india-and-china-aircraft-carrier-shyam-saran.
- . "Pak Will Be Erased from World Map if It Nukes India: Fernandes." January 27, 2003. http://articles.economictimes.indiatimes.com/2003-01-27/news/27560676_1_defence-minister-george-fernandes-internal-problems-bbc-world.
- . "Parliament Hails Launch of Agni V." April 24, 2012. http://articles.economic-times.indiatimes.com/2012-04-24/news/31392787_1_agni-v-strike-range-surface-to-surface-missile.
- Fidler, David P., and Sumit Ganguly. "India Wants to Join the Non-Proliferation Treaty As a Weapon State." *Yale Global Online*. Yale University. January 27, 2010. <http://yaleglobal.yale.edu/content/india-wants-join-non-proliferation-treaty>.
- Filkins, Dexter. "India, Pakistan Inch Toward War as Clinton Visits." *Los Angeles Times*. March 19, 2000. <http://articles.latimes.com/2000/mar/19/news/mn-10448>.
- Fishman, Brian. "The Taliban in Pakistan: An Overview." In *Talibanistan: Negotiating the Borders Between Terror, Politics, and Religion*, edited by Peter Bergen with Katherine Tiedemann, 336–387. Oxford: Oxford University Press, 2013.

- Fravel, Taylor, and Alexander Liebman. "Beyond the Moat: The PLAN's Evolving Interests and Potential Influence." In *The Chinese Navy: Expanding Capabilities, Evolving Roles*, edited by Philip Saunders, Christopher Yung, Michael Swaine, Andrew Nien-Dzu Yang, 41–80. Washington, DC: National Defense University Press, 2011.
- Frey, Karsten. "State Interests and Symbolism in India's Nuclear Build-Up." Working Paper no. 8. South Asia Institute. *University of Heidelberg*, 2002. <http://archiv.ub.uni-heidelberg.de/volltextserver/4104/1/hpsacp8.pdf>.
- Ganesh, R. N. "Nuclear Missile-Related Risks in South Asia." In *The Next Arms Race*, edited by Henry D. Sokolski, 305–355. Carlisle, PA: Strategic Studies Institute, 2012.
- Gangadharan, Surya. "Prahaar India's Counter to Pak's Nasr Missile?" *IBN Live*. <http://m.ibnlive.com/blogs/suryagangadharan/79/62564/prahaar-indias-counter-to-paks-nasr-missile.html>.
- Ganguly, Sumit, and Kent L. Biringer. "Nuclear Crisis Stability in South Asia." *Asian Survey* 41, no. 6 (2001): 907–924.
- Garver, John. "The Restoration of Sino-Indian Comity Following India's Nuclear Tests." *The China Quarterly*, no. 168 (December 2001): 865–889.
- . *Protracted Contest: Sino-Indian Rivalry in the Twentieth Century*. Seattle, WA: University of Washington Press, 2001.
- Ghosh, Palash. "India Preparing to Test 'China-Killer' Nuclear Missile." *International Business Times*. April 17, 2012. <http://www.ibtimes.com/india-preparing-test-%E2%80%99china-killer%E2%80%99-nuclear-missile-438348>.
- Global Security Newswire. "Pakistani Army Chief Said to Oppose 'No First Use' Nuke Rule." Nuclear Threat Initiative, May 9, 2011. <http://www.nti.org/gsn/article/pakistani-army-chief-said-to-oppose-no-first-use-nuke-rule/>.
- Goldberg, Jeffrey, and Marc Ambinder. "The Ally from Hell." *The Atlantic*. October 28, 2011. <http://www.theatlantic.com/magazine/archive/2011/12/the-ally-from-hell/308730/>.
- Goldman Sachs. "India Revisited, White Paper." June 2010. http://www.goldmansachs.com/gsam/docs/instgeneral/general_materials/whitepaper/india_revisited.pdf.
- Graham, Thomas W. "Nuclear Weapons Stability or Anarchy in the 21st Century: China, India, and Pakistan." In *The Next Arms Race*, edited by Henry D. Sokolski, 261–304. Carlisle: Strategic Studies Institute, 2012.

- Gupta, Amit. "India, Pakistan and Tactical Nuclear Weapons: Irrelevance for South Asia." *Institute of Peace and Conflict Studies*. January 6, 2014. <http://www.ipcs.org/article/india/ipcs-debate-india-pakistan-and-tactical-nuclear-weapons-irrelevance-for-4239.html>.
- . "India's Third-Tier Nuclear State Dilemma: N Plus 20?" *Asian Survey* 41, no. 6 (November/December 2001): 1044–1063.
- Hindu, The*. "Advani: NDA Lost in 2004 Because of Over-Confidence, Wrong Slogans." March 3, 2009. <http://www.hindu.com/2009/03/03/stories/2009030359971000.htm>.
- . "Appeal to Parliamentarians on Nuclear Deal." August 15, 2006. <http://www.hindu.com/2006/08/15/stories/2006081502861100.htm>.
- . "India Ill-Prepared to Deal with China, Warns Shyam Saran." August 30, 2012. <http://www.thehindu.com/news/national/india-illprepared-to-deal-with-china-warns-shyam-saran/article3836618.ece>.
- Hindustan Times*. "If Narendra Modi Becomes PM, China, Pakistan Can Expect a Tougher India." March 30, 2014. <http://www.hindustantimes.com/india-news/allaboutnarendramodi/if-modi-wins-election-neighbours-can-expect-a-more-muscular-india/article1-1202112.aspx>.
- Hyder, Tariq Osman. "Facing the Arihant Challenge." *Indian Express*. August 12, 2009.
- Hymans, Jacques E. C. "Why Do States Acquire Nuclear Weapons? Comparing the Cases of India and France." In *Nuclear India in the Twenty-First Century*, edited by D. R. SarDesai and Raju G. C. Thomas, 139–160. New York: Palgrave Macmillan, 2002.
- "India 'Fully Ready' for Conventional Warfare; Army Chief Says Border Situation Is Serious but Pledges No First Use of Nuclear Weapons." *Western Morning News*, January 12, 2002.
- "India Concerned Over Possibility of 'Nuclear Terrorism' in Region." *Press Trust of India News Agency. BBC Monitoring South Asia–Political*, September 21, 2010.
- "India Not to Give Up Nuclear Arms Until Global Disarmament—Security Advisor." *Press Trust of India News Agency. BBC Monitoring South Asia–Political*, August 22, 2012.
- "India Stakes Claim to Membership of Exclusive N-clubs." *Afternoon Voice*. March 28, 2012.

- India Today*. "China, Europe within India's Striking Range As Agni-V Tested Successfully for Second Time." September 15, 2013. <http://indiatoday.intoday.in/story/india-test-fires-agni-v-china-europe-withing-indias-striking-range/1/309908.html>.
- Indian Elections. "Bharatiya Janata Party." BJP Party Manifesto for 2009 Election. 2009. <http://www.indian-elections.com/partymanifestoes/bjp.html>.
- . "Communist Party of India (Marxist) Manifesto for the 15th Lok Sabha Elections." CPI (M) Manifesto for 2009 Election. 2009. <http://www.indian-elections.com/partymanifestoes/cpim.html>.
- . "Indian National Congress." Indian National Congress Manifesto for 2004. 2004. <http://www.indian-elections.com/partymanifestoes/party-manifestoes04/congress.html>.
- . "Janata Dal (Secular)." JDS Party Manifesto for 2009 Election. 2009. <http://www.indian-elections.com/partymanifestoes/jds.html>.
- . "Lok Sabha Elections 2009: Manifesto of the Indian National Congress." Indian National Congress Manifesto for 2009. 2009. <http://www.indian-elections.com/pdf/manifesto09-cong.pdf>.
- Indian Express*. "Agni-VI Missile in the Works, India to Be in World's Elite Nuclear Club." February 9, 2013. <http://archive.indianexpress.com/news/agnivi-missile-in-the-works-india-to-be-in-worlds-elite-nuclear-club/1071407/>.
- . "'INS Arihant' Activated, PM Terms It As 'Giant Stride' for Country." August 10, 2013. <http://indianexpress.com/article/technology/technology-others/ins-arihant-activated-pm-terms-it-as-giant-stride-for-country/>.
- Institute of Chinese Studies. "Chinese Reactions to India's Agni-V Firing." May 2012. <http://www.icsin.org/ICS/ICSAnalysispdf/4.pdf>.
- Iyengar, P. K. "Non-Fissile Doubts: One Nuclear Lie Puts Our Entire Strategic Decision-Making at Stake." *Outlook India*. October 26, 2009. <http://www.outlookindia.com/article.aspx?262331>.
- Jacob, Jabin T. "India's China Policy: Time to Overcome Political Drift." *S. Rajaratnam School of International Studies*, June 2012.
- Jane's. "Agni II Enters Production." *Jane's Missiles and Rockets*. April 23, 2004. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=News&ItemId=+++1197948&Pubabbrev=JMR>.

- . “Agni.” *Jane’s Strategic Weapons Systems*. Last modified March 20, 2013. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1316705&Pubabbrev=JSWS>.
- . “China Defence Budget.” *Jane’s Defence Procurement Budget*. March 7, 2014. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1327472&Pubabbrev=JDPB>.
- . “China–Air Force.” *Jane’s Sentinel Security Assessment–China and Northeast Asia*. May 6, 2014. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1303145&Pubabbrev=CNA>.
- . “China–Armed Forces.” *Jane’s Sentinel Security Assessment–China and Northeast Asia*. April 22, 2014. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1303143&Pubabbrev=CNA>.
- . “China–Army.” *Jane’s Sentinel Security Assessment–China and Northeast Asia*. May 23, 2014. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1303144&Pubabbrev=CNA>.
- . “China–Navy.” *Jane’s Sentinel Security Assessment China and Northeast Asia*. May 23, 2014. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1303146&Pubabbrev=CNA>.
- . “India Defence Budget.” *Jane’s Defence Budgets*. March 7, 2014. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1327385&Pubabbrev=JDB>.
- . “India Launches ‘Thorough’ Audit of DRDO’s Effectiveness.” *Jane’s Defence Weekly*. January 24, 2007. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=News&ItemId=+++1156150&Pubabbrev=JDW>.
- . “India Urges DRDO and Private Firms to Work As a Team.” *Jane’s Defence Weekly*. January 14, 2008. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=News&ItemId=+++1175779&Pubabbrev=JDW>.
- . “India’s Defence Minister Serves Notice on DRDO.” *Jane’s Defence Industry*. February 19, 2007. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=News&ItemId=+++1136314&Pubabbrev=JDIN>.
- . “India–Air Force.” *Jane’s Sentinel Security Assessment–South Asia*. January 16, 2014. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1304835&Pubabbrev=SAS>.

- . “India–Armed Forces.” *Jane’s Sentinel Security Assessment–South Asia*. January 16, 2014. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1304832&Pubabbrev=SAS>.
- . “India–Army.” *Jane’s Sentinel Security Assessment–South Asia*. January 16, 2014. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1304834&Pubabbrev=SAS>.
- . “India–Navy.” *Jane’s Sentinel Security Assessment–South Asia*. February 24, 2014. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1304837&Pubabbrev=SAS>.
- . “Multilayered Chinese Integrated Air Defence System (IADS).” *Jane’s Strategic Weapon Systems*. March 17, 2013. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1705286&Pubabbrev=JSWS>.
- . “Pakistan’s Defence Budget.” *Jane’s Defence Budgets*. March 5, 2014. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1327400&Pubabbrev=JDB>.
- . “Pakistan–Air Force.” *Jane’s Sentinel Security Assessment–South Asia*. September 6, 2013. <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=Reference&ItemId=+++1304869&Pubabbrev=SAS>.
- Joshi, Shashank. “New Year, New Problem? Pakistan’s Tactical Nukes.” *The Diplomat*. January 2, 2013. <http://thediplomat.com/2013/01/pakistans-new-nuclear-problem/?allpages=yes>.
- . “Pakistan’s Tactical Nuclear Nightmare: Déjà vu?” *The Washington Quarterly* 36, no. 3 (Summer 2013): 159–172. Center for Strategic and International Studies. http://csis.org/files/publication/TWQ_13Summer_Joshi.pdf.
- Joshi, Yogesh. “China Rivalry Keeping India Out of Nuclear Suppliers Group.” *World Politics Review*. June 14, 2013. <http://www.worldpoliticsreview.com/articles/13020/china-rivalry-keeping-india-out-of-nuclear-suppliers-group>.
- Kamdar, Mira. “India: Richer, Poorer, Hotter, Armed.” *World Policy Journal* 25, no. 3 (Fall 2008): 95–107.
- Kampani, Gaurav. “India: The Challenges of Nuclear Operationalization and Strategic Stability.” In *Strategic Asia 2013–14: Asia in the Second Nuclear Age*, edited by Ashley J. Tellis, Abraham M. Denmark, and Travis Tanner, 98–128. Washington, DC: The National Bureau of Asian Research, 2013.

- Kanwal, Gurmeet. "IDSA Comment: India's Cold Start Doctrine and Strategic Stability." *Institute for Defence Studies and Analyses*. June 1, 2010. <http://idsa.in/node/5442/>.
- . "India, Pakistan and the Tactical Weapons: Implications of Hatf-9." *Institute of Peace and Conflict Studies*. <http://www.ipcs.org/article/nuclear/ipcs-debate-india-pakistan-and-tactical-nuclear-weapons-implications-of-4169.html>.
- Kapur, Ashok. *Pokhran and Beyond: India's Nuclear Behavior*. Oxford: Oxford University Press, 2001.
- Kazi, Reshmi. "India: A Responsible Nuclear Power." Nuclear—Articles #1749. *Institute of Peace and Conflict Studies*. May 19, 2005. <http://www.ipcs.org/article/nuclear/india-a-responsible-nuclear-power-1749.html>.
- Khan, Faraz. "Security Forces Retake PNS Mehran: 17-hour Battle of Nerves." *The Express Tribune*. May 24, 2011. <http://tribune.com.pk/story/174805/security-forces-retake-pns-mehran-17-hour-battle-of-nerves>.
- Khan, Khurshid. "Limited War Under the Nuclear Umbrella and its Implications for South Asia." *Stimson Institute*. May 1, 2005. <http://www.stimson.org/essays/limited-war-under-the-nuclear-umbrella-and-its-implications-for-south-asia/>.
- Kimball, Daryl. "The Nuclear Nonproliferation Treaty (NPT) at a Glance." *Arms Control Association*. <http://www.armscontrol.org/factsheets/nptfact/>.
- Kinsella, David, and Jugdep S. Chima. "Symbols of Statehood: Military Industrialization and Public Discourse in India." *Review of International Studies* 27, no. 3 (July 2001): 353–373.
- Krepon, Michael. "India, Pakistan and the Nuclear Race: Evaluating the Response." In *India, Pakistan and the Nuclear Race*, edited by Ruhee Neog, 13–14. Institute of Peace and Conflict Studies. July 2013. http://www.ipcs.org/pdf_file/issue/SR142-Debate1307-NSP-NuclearRace.pdf.
- . "Nuclear Race on the Subcontinent." *New York Times*, April 4, 2013.
- Krishnan, Ananth. "A 'Political Missile,' Say Chinese Media." *The Hindu*. April 19, 2012. <http://www.thehindu.com/news/national/a-political-missile-say-chinese-media/article3332404.ece>.
- Kristensen, Hans M. and Robert S. Norris. "Pakistan's Nuclear Forces, 2011." *Bulletin of Atomic Scientists* 67, no. 91 (2011): 91–99. DOI: 10.1177/0096340211413360.
- . "Chinese Nuclear Forces, 2011." *Bulletin of the Atomic Scientists* 67, no. 81 (2011): 81–87. DOI: 10.1177/0096340211426630.

- . “Chinese Nuclear Forces, 2013.” *Bulletin of the Atomic Scientists* 69, no. 79 (2013): 79–85. DOI: 10.1177/0096340213508632.
- . “Global Nuclear Weapons Inventories, 1945–2013.” *Bulletin of the Atomic Scientists* 69, no. 75 (2013): 75–81. DOI: 10.1177/0096340213501363.
- . “Indian Nuclear Forces, 2012.” *Bulletin of Atomic Scientists* 68, no. 96 (2012): 96–101. DOI: 10.1177/0096340212451431.
- Lal, Rollie. *Understanding China and India: Security Implications for the United States and the World*. Westport, CT: Praeger Security International, 2006.
- Lam, Willy. “Beijing’s Alarm Over New ‘U.S. Encirclement Conspiracy.’” *China Brief* 5, no. 8 (2005). *Jamestown Foundation*. http://www.jamestown.org/single/?tx_ttnews%5Btt_news%5D=3843#.U4RyYfldWiR.
- Lashmi, Rama, and Emily Wax. “India’s Government Wins Parliament Confidence Vote.” *Washington Post*. July 23, 2008. <http://www.washingtonpost.com/wp-dyn/content/article/2008/07/22/AR2008072200161.html>.
- Lele, Ajey, and Parveen Bhardwaj. “India’s Nuclear Triad: A Net Assessment.” IDSA Occasional Paper no. 31. *Institute for Defence Studies and Analysis*, April 2013.
- Lewis, Jeffrey. “China’s Nuclear Modernization: Surprise, Restraint, and Uncertainty.” In *Strategic Asia 2013–14: Asia in the Second Nuclear Age*, edited by Ashley J. Tellis, Abraham M. Denmark, and Travis Tanner, 66–96. Washington, DC: The National Bureau of Asian Research, 2013.
- Lodhi, Maleeha. “Nuclear Hypocrisy.” *The News*. July 17, 2012. <http://www.thenews.com.pk/Todays-News-9-120897-Nuclear-hypocrisy>.
- Malhotra, Jyoti. “How India’s Pride INS Arihant Was Built.” *The Business Standard*. August 12, 2013. http://www.business-standard.com/article/specials/how-india-s-pride-ins-arihant-was-built-113081100745_1.html.
- Malik, Mohan. “Nuclear Proliferation in Asia: The China Factor.” *Australian Journal of International Affairs* 53, no. 1 (1999): 31–41.
- . “The Stability of Nuclear Deterrence in South Asia: The Clash between State and Antistate Actors.” *Asian Affairs* 30, no. 3 (2003): 177–199.
- . *China and India: Great Power Rivals*. Boulder, CO: Lynne Rienner Publishers, 2011.

- Malik, Salma. "India, Pakistan and the Nuclear Race: Strengthening the Risk Reduction Measures." In *India, Pakistan and the Nuclear Race*, edited by Ruhee Neog, 11–12. Institute of Peace and Conflict Studies, 2013.
http://www.ipcs.org/pdf_file/issue/SR142-Debate1307-NSP-NuclearRace.pdf.
- Martin, Will. "India Has Big Bomb, Brags PM but Vajpayee Insists His Country's Aims Are Peaceful." *The Journal*, May 16, 1998.
- Mazza, Michael, and Dan Blumenthal. "China's Strategic Forces in the 21st Century: The People's Liberation Army's Changing Nuclear Doctrine and Force Posture." In *The Next Arms Race*, edited by Henry D. Sokolski, 83–109. Carlisle, PA: Strategic Studies Institute, 2012.
- Medcalf, Rory. "Grand Stakes: Australia's Future Between China and India." In *Asia Responds to its Rising Powers: China and India*, edited by Ashley J. Tellis, Travis Tanner, and Jessica Keough, 194–225. Washington, DC: The National Bureau of Asian Research, 2011.
- Mehta, Sureesh. "India's National Security Challenges." *Outlook India*. August 10, 2009.
<http://www.outlookindia.com/article.aspx?261738>.
- Menon, Jay. "India Flies Submarine-Launched Ballistic Missile." *Aviation Week*. January 29, 2013. <http://aviationweek.com/awin/india-flies-submarine-launched-ballistic-missile>.
- Menon, Raja. *A Nuclear Strategy for India*. New Delhi: Sage Publications, 2000.
- Menon, Shivshankar. "Official Says Nuclear Weapons Deters World Powers from Threatening India." *Press Trust of India News Agency, BBC Monitoring South Asia—Political*, August 21, 2012.
- Miglani, Sanjeev, and John Chalmers. "BJP Puts 'No First Use' Nuclear Policy in Doubt." Reuters. April 7, 2014. <http://in.reuters.com/article/2014/04/07/india-election-bjp-manifesto-idINDEEA3605820140407>.
- "Minister Says India's Defense Policy Not 'Aggressive.'" *Press Trust of India News Agency, BBC Monitoring South Asia—Political*. February 11, 2010.
- Ministry of External Affairs. New Delhi. "Joint Statement on India-Pakistan Expert Level Dialogue on Nuclear CBM's." December 28, 2012. <http://www.mea.gov.in/bilateral-documents.htm?dtl/21016/Joint+Statement+on+IndiaPakistan+Expert+Level+Dialogue+on+Nuclear+CBMs>.
- . "Joint Statement, India-Pakistan Expert-Level Talks on Nuclear CBMs." June 20, 2004. http://www.nti.org/media/pdfs/26_ea_india.pdf?_id=1316627913.

- Mohan, C. Raja. "Fernandes Unveils 'Limited War' Doctrine." *The Hindu*. January 25, 2000. <http://www.hindu.com/2000/01/25/stories/01250001.htm>.
- Mohanty, Deba R. "Defence Spending Trends in India." *Observer Research Foundation*. http://orfonline.org/cms/export/orfonline/modules/analysis/attachments/defence_1333106028570.pdf.
- Mukherjee, Rohan, and David M. Malone. "India and the UN Security Council: An Ambiguous Tale." *Economic and Political Weekly* 48, no. 29 (July 2013): 110–117. http://scholar.princeton.edu/rmukherj/files/Mukherjee_Malone_EPW.pdf.
- Mukunth, Vasudevan. "Improved Outlook for S&T in India after Union Budget '13?" *The Hindu*. June 4, 2013. <http://www.thehindu.com/opinion/blogs/blogs-the-copernican/article4462373.ece>.
- Nair, Pavan. "An Evaluation of India's Defence Expenditure." *Economic and Political Weekly* 44, no. 51 (December 19–25, 2009): 40–46.
- Narang, Vipin. "Five Myths About India's Nuclear Posture." *Washington Quarterly* 36, no. 3 (Summer 2013): 143–157.
- Narlikar, Amrita. "All That Glitters Is Not Gold: India's Rise to Power." *Third World Quarterly* 28, no. 5 (2007): 983–996.
- . "India Rising: Responsible to Whom?" *International Affairs* 89, no. 3 (2013): 595–614.
- . "Peculiar Chauvinism or Strategic Calculation? Explaining the Negotiating Strategy of a Rising India." *International Affairs* 82, no. 1 (2006): 59–76.
- NDTV. "Pak Going Beyond Degree of Deterrence: Army Chief." September 2, 2009. <http://www.ndtv.com/article/india/pak-going-beyond-degree-of-deterrence-army-chief-7929>.
- Nelson, Dean, and Tom Hussain. "Militants Attack Pakistan Nuclear Air Base." *The Telegraph*, August 16, 2012. <http://www.telegraph.co.uk/news/worldnews/asia/pakistan/9479041/Militants-attack-Pakistan-nuclear-air-base.html>.
- Nicoll, Alexander. "India Indicates Threat of War Has Diminished; Kashmiri Conflict Pakistan's President Says 'No Sane Individual' Would Use Nuclear Weapons Indian Defence Mini" *Financial Times*, June 3, 2002.
- Norris, Robert S., and Hans M. Kristensen. "Chinese Nuclear Forces, 2006." *Bulletin of the Atomic Scientists* 62, no. 60 (2006): 60–63. DOI: 10.2968/062003017.
- . "Chinese Nuclear Forces, 2008." *Bulletin of the Atomic Scientists* 64, no. 42 (2008): 42–45. DOI: 10.2968/064003009.

- . “Chinese Nuclear Forces, 2010.” *Bulletin of the Atomic Scientists* 66, no. 134 (2010): 134–141. DOI: 10.1177/0096340210387046.
- Norris, Robert S., and William M. Arkin. “Chinese Nuclear Forces, 1999.” *Bulletin of the Atomic Scientists* 55, no. 79 (1999): 79. DOI: 10.2968/055003023.
- Norris, Robert S., William M. Arkin, Hans M. Kristensen, and Joshua Handler. “India’s Nuclear Forces, 2002.” *Bulletin of the Atomic Scientists* 58, no. 70 (2002): 70–72. DOI: 10.2968/058002020.
- “NSA Said Quite the Opposite.” *The Pioneer*. November 11, 2011.
- Nuclear Threat Initiative. “Pakistani Army Chief Said to Oppose ‘No First Use’ Nuke Rule.” *Global Security Newswire*. May 9, 2011. <http://www.nti.org/gsn/article/pakistani-army-chief-said-to-oppose-no-first-use-nuke-rule/>.
- Ollapally, Deepa M. “Mixed Motives in India’s Search for Nuclear Status.” *Asian Survey* 41, no. 6 (November/December 2001): 925–942.
- Pal, Waheguru, Singh Sidhu, and Jing-dong Yuan. *China and India: Cooperation or Conflict?* Boulder, CO: Lynne Rienner Publishers, 2003.
- Panda, Ankit. “India Inches Closer to Credible Nuclear Triad with K-4 SLBM Test.” *The Diplomat*. May 13, 2014. <http://thediplomat.com/2014/05/india-inches-closer-to-credible-nuclear-triad-with-k-4-slbm-test/>.
- . “The Nuclear Problem in India-Japan Relations.” *The Diplomat*. October 31, 2013. <http://thediplomat.com/2013/10/the-nuclear-problem-in-india-japan-relations/>.
- Pandit, Rajat. “India Plans to Impart Power Punch to Jaguar Fighters.” *The Economic Times*. October 17, 2012. http://articles.economictimes.indiatimes.com/2012-10-17/news/34525680_1_jaguar-strike-fighters-stealth-fifth-generation-fighter-aircraft-rafale-fighters.
- Pant, Harsh V. “India’s Nuclear Doctrine and Command Structure: Implications for India and the World.” *Comparative Strategy* 24, no. 3 (2006): 277–293. DOI: 10.1080/01495930500197965.
- Perkovich, George. *India’s Nuclear Bomb: The Impact on Global Proliferation*. Berkeley, CA: University of California Press, 1999.
- Prakash, Arun. “Bridging Historical Nuclear Gaps: The View from India.” In *The China-India Nuclear Crossroads*, edited by Lora Saalman, 15–20. Washington, DC: Carnegie-Tsinghua Center for Global Policy, 2012.

- . “India’s Nuclear Deterrent: The More Things Change...” Policy report from S. Rajaratnam School of International Studies. *Nanyang Technological University, Singapore*. March 2014.
- Press Information Bureau. Government of India. “MoD Announces Major DRDO Restructuring Plan.” May 13, 2010. <http://pib.nic.in/newsite/erelease.aspx?relid=61808>.
- . “Modernisation of Fighter Planes SU-30.” August 18, 2010. <http://pib.nic.in/newsite/erelease.aspx?relid=64953>.
- Rachman, Gideon. “Welcome to the Nuclear Club, India.” *Financial Times*. September 23, 2008.
- Radhakrishnan, R. K. “Civil Nuclear Deal Talks Making Good Progress, Says Australian Envoy.” *The Hindu*. March 14, 2014. <http://www.thehindu.com/news/national/civil-nuclear-deal-talks-making-good-progress-says-australian-envoy/article5781885.ece>.
- Rajagopalan, Rajesh. “India: The Logic of Assured Retaliation.” In *The Long Shadow*, edited by Muthiah Alagappa, 188–214. Stanford: Stanford University Press, 2008.
- Rajaraman, R. “Battlefield Weapons and Missile Defense: Worrisome Developments in Nuclear South Asia.” *Bulletin of the Atomic Scientists* 70, no. 68 (2014): 68–74. DOI: 10.1177/0096340214523558.
- Rajghatta, Chidanand. “U.S. to Object to China-Pakistan Nuclear Deal.” *Times of India*. June 15, 2010. <http://timesofindia.indiatimes.com/world/pakistan/US-to-object-to-China-Pakistan-nuclear-deal/articleshow/6049782.cms>.
- Ramana, M. V. “Risks of a LOW Doctrine.” *Economic and Political Weekly* 38, no. 9 (March 1–7, 2003): 860–864.
- . “Scientists, Nuclear Weapons, and the Peace Movement.” *Economic and Political Weekly* 39, no. 46/47 (November 20–26, 2004): 5013–5016.
- . Excerpt from *The Power of Promise: Examining Nuclear Energy in India*. City of Westminster, London: Penguin Books, January 20, 2013. Quoted in “History of The Power of Promise: Examining Nuclear Energy in India.” February 22, 2013. <http://newsclick.in/india/history-power-promise-examining-nuclear-energy-india>.
- Rediff. “Govt Blames LeT for Parliament Attack, Asks Pak to Restrain Terrorist Outfits.” December 14, 2001. <http://www.rediff.com/news/2001/dec/14parl12.htm>.
- . “Terrorists Attack Parliament; Five Intruders, Six Cops Killed.” December 13, 2001. <http://www.rediff.com/news/2001/dec/13parl1.htm>.

- Rehman, Iskander. "Drowning Stability: The Perils of Naval Nuclearization and Brinkmanship in the Indian Ocean." *Naval War College Review* 65, no. 4 (Autumn 2012): 64–88. <https://www.usnwc.edu/getattachment/187a93e1-db4c-474e-9be8-038bb7a64edb/Drowning-Stability--The-Perils-of-Naval-Nucleariza>.
- Rhodes, Quinn J. "Limited War Under the Nuclear Umbrella." Master's thesis, Naval Postgraduate School, 2010. http://edocs.nps.edu/npspubs/scholarly/theses/2010/Jun/10Jun_Rhodes.pdf.
- RIA Novosti. "Russia Tests Upgraded MiG Fighter Jet for India." April 2, 2011. http://en.ria.ru/military_news/20110204/162455171.html.
- . "India Modifies Brahmos Missile With New Nav System." October 9, 2012. http://en.ria.ru/military_news/20121009/176500812.html.
- Saalmann, Lora. "Conclusion: Comparing the Comparable." In *The China-India Nuclear Crossroads*, edited by Lora Saalmann, 171–189. Washington, DC: Carnegie-Tsinghua Center for Global Policy, 2012.
- Sagan, Scott. "Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb." *International Security* 21, no. 3 (Winter 1996–1997): 54–86.
- Sagar, Ambuj. "India's Energy R and D Landscape: A Critical Assessment." *Economic and Political Weekly* 37, no. 38 (September 21–27, 2002): 3925–3934.
- Santhanam, K., and Ashok Parthasarathi. "Pokhran-II: An H-bomb Disaster." *Business Standard*. December 11, 2009. http://www.business-standard.com/article/opinion/k-santhanam-ashok-parthasarathi-pokhran-ii-an-h-bomb-disaster-109121100016_1.html.
- Saran, Shyam. "Is India's Nuclear Deterrent Credible." Presented at Indian Habitat Centre. New Delhi. *Arms Control Wonk*, April 24, 2013. <http://krepon.armscontrolwonk.com/files/2013/05/Final-Is-Indias-Nuclear-Deterrent-Credible-rev1-2-1-3.pdf>.
- . "Deterrence Is Not a Fantasy." *Indian Express*. October 3, 2013.
- Sasikumar, Karthika. "India's Emergence As a 'Responsible' Nuclear Power." *International Journal* 62, no. 4 (Autumn 2007): 825–844.
- Sessler, Andrew M., John M. Cornwall, Bob Dietz, Steve Fetter, Sherman Frankel, Richard L. Garwin, Kurt Gottfried, Lisbeth Gronlund, George N. Lewis, Theodore A. Postol, and David C. Wright. "Countermeasures: A Technical Evaluation of the Operational Effectiveness of the Planned U.S. National Missile Defense System." Union of Concerned Scientists. MIT Security Studies Program. April 2000. http://www.ucsusa.org/assets/documents/nwgs/cm_all.pdf.

- Shankar, Vijay. "India, Pakistan and the Nuclear Race: The Elephant and the Dilemma of Nuclear Force Planning." In *India, Pakistan and the Nuclear Race*, edited by Ruhee Neog, 5–6. Institute of Peace and Conflict Studies. July 2013. http://www.ipcs.org/pdf_file/issue/SR142-Debate1307-NSP-NuclearRace.pdf.
- Sharma, Dinesh C. "India's Space Odyssey—A Timeline." Last modified March 24, 2013. <http://indiatoday.intoday.in/story/india-space-odyssey-timeline-missile-programme-space-launch-vehicle-slv-satellite-launch-vehicle-agni-missiles/1/259195.html>.
- Sharma, Vidya S. "Pakistan's New Prime Minister Shows Extremism Wins Elections." East Asia Forum. Last modified June 28, 2013. <http://www.eastasiaforum.org/2013/06/28/pakistans-new-prime-minister-shows-extremism-wins-elections/>.
- Shukla, Ajai. "Advanced Agni-6 Missile with Multiple Warheads Likely by 2017," *The Business Standard*. May 8, 2013. http://www.business-standard.com/article/economy-policy/advanced-agni-6-missile-with-multiple-warheads-likely-by-2017-113050800034_1.html.
- . "Decentralisation Top Priority: New DRDO Chief." *Business Standard*. June 7, 2013. http://www.business-standard.com/article/economy-policy/decentralisation-top-priority-new-drdo-chief-113060700032_1.html.
- Simha, Rakesh Krishnan. "How the Su-30 MKI Is Changing the IAF's Combat Strategy." Russia and India Report. *Indrus*. January 5, 2014. http://indrus.in/blogs/2014/01/05/how_the_su-30_mki_is_changing_the_iafs_combat_strategy_32099.html.
- Singh, Ravinder Pal. "An Assessment of Indian Science and Technology and Implications for Military Research and Development." *Economic and Political Weekly* 35, no. 31 (July 29–August 4, 2000): 2762–2775.
- Sokolski, Henry D. "Overview." In *The Next Arms Race*, edited by Henry D. Sokolski, 1–42. Carlisle, PA: Strategic Studies Institute, 2012.
- Somasekhar, M. "Agni-V Gives India Long-Range Missile Strike Capability." *The Hindu*. April 19, 2012. <http://www.thehindubusinessline.com/economy/agniv-gives-india-longrange-missile-strike-capability/article3331062.ece>.
- Squassoni, Sharon. "The U.S.-Indian Deal and Its Impact," *Arms Control Association. Arms Control Today*. July/August 2010. http://www.armscontrol.org/act/2010_07-08/squassoni.
- State Department Archives. "Joint Statement by President George W. Bush and Prime Minister Manmohan Singh." White House Press Release. July 18, 2005. <http://2001-2009.state.gov/p/sca/rls/pr/2005/49763.htm>.

- Stockholm International Peace Research Institute. "World Nuclear Forces." SIPRI Yearbook 2013. June 2013. <http://www.sipri.org/yearbook/2013/06>.
- Tellis, Ashley. *Atoms for War? U.S.-Indian Civilian Nuclear Cooperation and India's Nuclear Arsenal*. Washington, DC: Carnegie Endowment for International Peace, 2006.
- . *India's Emerging Nuclear Posture*. Santa Monica, CA: RAND Corporation, 2001.
- . "The United States and Asia's Rising Giants." In *Strategic Asia 2011–12: Asia Responds to Its Rising Powers*, edited by Ashley J. Tellis, Travis Tanner, and Jessica Keough, 2–32. Washington, DC: The National Bureau of Asian Research, 2011.
- Times of India*. "Santhanam Wrong on Pokhran II N-Test." August 27, 2009. <http://www.timesnow.tv/Santhanam-wrong-on-Pokhran-II-N-test/articleshow/4325796.cms>.
- . "Agni V Successfully Test-fired." September 16, 2013. http://articles.timesofindia.indiatimes.com/2013-09-16/india/42112678_1_inter-continental-ballistic-missile-wheeler-island-agni-v.
- . "China Emerges as India's Top Trading Partner: Study." March 2, 2014. <http://timesofindia.indiatimes.com/business/india-business/China-emerges-as-Indias-top-trading-partner-Study/articleshow/31268526.cms>.
- . "Nuclear Submarine INS Arihant to Be Ready for Sea Trials Soon." January 21, 2014. <http://timesofindia.indiatimes.com/india/nuclear-submarine-ins-arihant-to-be-ready-for-sea-trials-soon/articleshow/29164845.cms>.
- Trading Economics. "China GDP." Accessed March 21, 2014. <http://www.tradingeconomics.com/china/gdp>.
- . "India GDP." Accessed March 21, 2014. <http://www.tradingeconomics.com/india/gdp>.
- . "Pakistan GDP." Last visited March 21, 2014. <http://www.tradingeconomics.com/pakistan/gdp>.
- Tur, Jatinder Kaur. "Shrinking Budget Worries DRDO Head." *The Times of India*. October 20, 2013. <http://timesofindia.indiatimes.com/city/hyderabad/Shrinking-budget-worries-DRDO-head/articleshow/24409185.cms>.
- United States Institute of Peace. "Memorandum of Understanding. The Lahore Declaration." February 23, 1999. http://www.usip.org/sites/default/files/file/resources/collections/peace_agreements/ip_lahore19990221.pdf.

- Unnithan, Sandeep. "The Secret 'K' Missile Family." *India Today*. November 20, 2010. <http://indiatoday.intoday.in/story/the-secret-k-missile-family/1/120488.html>.
- Vajpayee, A. B. "Nuclear Anxiety; Indian's Letter to Clinton on the Nuclear Testing." *New York Times*. May 13, 1998. <http://www.nytimes.com/1998/05/13/world/nuclear-anxiety-indian-s-letter-to-clinton-on-the-nuclear-testing.html>.
- Vanaik, Achin. "Unravelling the Self-Image of the Indian Bomb Lobby." *Economic and Political Weekly* 39, no. 46/47 (November 20–26, 2004): 5006–5012.
- Wagner, Alex. "Bush Waives Nuclear-Related Sanctions on India, Pakistan." *Arms Control Association*. October 2001. <https://www.armscontrol.org/print/933>.
- "Weapon That Has More Than Symbolic Value." *Jammu. Early Times*, May 6, 2013.
- Windrem, Robert. "U.S. Prepares for Worst-Case Scenario with Pakistan Nukes." National Broadcasting Company. August 3, 2011. <http://investigations.nbcnews.com/news/2011/08/03/7189919-us-prepares-for-worst-case-scenario-with-pakistan-nukes>.
- World Bank. "Gross Domestic Product 2012." April 9, 2014. <http://databank.worldbank.org/data/download/GDP.pdf>.
- Yi, Yang. "The View from China." In *The China-India Nuclear Crossroads*, edited by Lora Saalman, 21–24. Washington, DC: Carnegie-Tsinghua Center for Global Policy, 2012.
- Zee News. "Agni-V Missile Test Has Put India into Elite Club: BJP." April 19, 2012. http://zeenews.india.com/news/nation/agni-v-missile-test-has-put-india-into-elite-club-bjp_770693.html.
- . "Antony Congratulates Defence Scientists on INS Arihant." August 10, 2013. http://zeenews.india.com/news/nation/antony-congratulates-defence-scientists-on-ins-arihant_868120.html.
- Zhang, Ming. *China's Changing Nuclear Posture: Reactions to the South Asian Nuclear Tests*. Washington, DC: Carnegie Endowment for International Peace, 1999.
- Zook, Darren C. "A Culture of Deterrence: Nuclear Myths and Cultural Chauvinism in South Asia." *World Policy Journal* 17, no. 1 (Spring 2000): 39–46.

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California