



Nuclear Notes

Volume 4

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Sarah Weiner

CONTRIBUTING
AUTHORS

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Center for Strategic & International Studies
1616 Rhode Island Avenue, NW
Washington, DC 20036
202-887-0200 | www.csis.org

Rowman & Littlefield
4501 Forbes Boulevard
Lanham, MD 20706
301-459-3366 | www.rowman.com

Contents

Guiding the Alliance: U.S. Nuclear Assurance and Extended Deterrence in NATO	1
<i>Daria Azarjew</i>	
Proactive Preparation: Now Is the Time to Counter Iran with Credible Ballistic Missile Defense	10
<i>Jonathan Bergner</i>	
Gaming Nuclear War	19
<i>Paul Burton</i>	
A Two-Variable Proliferation Model: Implications for U.S. Policy toward Iran	26
<i>Saurabh Dutta Chowdhury</i>	
Tactical Nuclear Weapons and South Asian Crisis Stability	43
<i>Kyle Deming</i>	
Would Japan be Worse off Building the Bomb? An Analysis of International and Domestic Security Considerations	50
<i>Erika Suzuki and Igor Tregub</i>	
Why Does Russia Rebuff U.S. Offers? Understanding Russia's Nuclear Postures through Contending Views of Strategic Stability	58
<i>Ruxi Zhang</i>	

Guiding the Alliance: U.S. Nuclear Assurance and Extended Deterrence in NATO

*Daria Azarjew*¹

Introduction

Since the beginning of the Cold War, nuclear deterrence has been a central element of U.S. national security policy. The United States' nuclear guarantee became the foundation of its security strategy and that of the North Atlantic Treaty Organization (NATO), which was created to deter the Soviet Union and served as a core part of the alliance's victorious emergence from the Cold War. Just as many questioned the purpose of the alliance after the Cold War, many allies along with the United States currently debate the continued role of U.S. nuclear deterrence in Europe.

Despite a new era in which the “Russian Bear” no longer poses the threat it did during the Cold War, U.S. tactical nuclear weapons still remain in Europe. In the context of an evolving international security environment, the United States has the opportunity to transform its deterrence posture within NATO so that it could yield benefits for both the alliance and Russia—and, as a result, provide greater stability to the entire transatlantic community. In light of the changing role of nuclear weapons, the United States should maintain its nuclear presence in Europe for the reassurance of its allies while moving the core of its extended deterrence toward missile defense. In the shift toward missile defense, the United States should continue striving to reassure its European allies and strengthening the alliance. This strategy should be executed in cooperation with Russia wherever possible. If successful, NATO-Russia missile defense cooperation could become the heart of a wider extended deterrence construct that more effectively hedges against a broader range of emerging threats in an increasingly complex security environment.

1. Daria Azarjew is a research intern at the Project on Nuclear Issues at the Center for Strategic and International Studies (CSIS). The views expressed here are her own and do not necessarily reflect those of the Center for Strategic and International Studies or the Project on Nuclear Issues.

The Significance of Nuclear Deterrence and Its Changing Role

While the significance of the U.S. nuclear umbrella in NATO is still undeniable, its role has undoubtedly been reduced throughout the past two decades. In his 2009 Prague speech, President Barack Obama called for “the peace and security of a world without nuclear weapons.”² Obama’s commitment to “global zero” reflects the emerging movement that supports worldwide nuclear arms reductions and eventual elimination.³

The Obama administration’s *Nuclear Posture Review* of 2010 demonstrates a new stance on nuclear policy and extended deterrence. It states that the United States will not use nuclear weapons against nonnuclear member states of the Non-Proliferation Treaty (NPT), so long as they are meet their NPT obligations.⁴ Because of its record of NPT noncompliance, it is assumed that Iran would not benefit from this guarantee.⁵ Nonetheless, the widely recognized necessity to reinforce the nonproliferation regime, along with Washington’s pursuit of a progressive nuclear policy, have undoubtedly led to a reduced role for nuclear weapons in post–Cold War defense postures. Resultantly, the global zero movement presents the United States with a dilemma, as it also carries implications for both the deterrence and assurance aspects of U.S. security guarantees.⁶

With the end of the Cold War paradigm, allies are currently debating whether U.S. nuclear weapons should remain in Europe. Several European countries, such as Germany, Belgium, Norway, and the Netherlands, believe that the continued presence of U.S. nuclear weapons is no longer necessary and impedes the goal of nuclear disarmament.⁷ However, while the Soviet threat is gone and the role of nuclear weapons is being reduced, Eastern European countries such as Poland and the Baltics still feel exposed to a threat from their Eastern neighbor. These countries feel in need of a U.S. security guarantee now more than ever.⁸ Therefore, regardless of their actual contribution to deterring external threats, U.S. nuclear weapons in Europe still continue to play a key role in reassuring allies.

2. President Barack Obama, “Remarks By President Obama” (speech, Hradcany Square, Prague, Czech Republic, April 5, 2009), White House Office of the Press Secretary, http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered.

3. “Global Zero Statement on President Obama’s Meeting with President Putin,” Global Zero, June 17, 2013, <http://www.globalzero.org/press-media/press-releases/global-zero-statement-president-obama%E2%80%99s-meeting-president-putin>.

4. Office of the Secretary of Defense, *Nuclear Posture Review Report* (Washington, DC: U.S. Department of Defense, April 2010), <http://www.defense.gov/npr/docs/2010%20nuclear%20posture%20review%20report.pdf>.

5. “US extended deterrence has weakened,” *The Interpreter*, March 1, 2011, <http://www.lowyinterpreter.org/post/2011/03/01/US-extended-deterrence-has-weakened.aspx>.

6. Bruno Tertrais, “The Future of Extended Deterrence: A brainstorming paper,” *Perspectives on Extended Deterrence*, Recherches & Documents No. 3/2010 (Paris: Fondation Pour la Recherche Stratégique, March 2010), http://www.frstrategie.org/barreFRS/publications/rd/2010/RD_201003.pdf.

7. *Ibid.*, 22.

8. Heather A. Conley, “President Obama’s Return to Prague: An Opportunity to Reset,” CSIS, April 5, 2010, <http://csis.org/publication/president-obama%E2%80%99s-return-prague-opportunity-reset>.

A large part of extended deterrence is based on reassurance. The more credible U.S. deterrence is, the more assured U.S. allies feel, and therefore the less likely they are to pursue their own nuclear weapons. In effect, U.S. extended deterrence also plays a large role in nonproliferation. On the other hand, deploying U.S. nuclear weapons in Europe could increase the salience of nuclear weapons and the feeling of insecurity in neighboring countries, leading these countries to seek nuclear arms for themselves. Preventing proliferation among allies and rogue states are therefore goals sometimes at odds with each other. As a result, nuclear weapons should remain in Europe in order to reassure allies, but missile defense should be acquired to deter rogue states.

The immense nuclear arsenal inherited from the Cold War is no longer suited for dealing with several of today's threats, such as nuclear terrorism and proliferation. The emergence of nonstate actors has shown that nuclear deterrence is incapable of deterring all threats and holds no power over asymmetrical ones. The actions of North Korea, Iran, and Syria in the past decade have demonstrated that the United States has an imperfect strategy to deal with the proliferation of weapons of mass destruction. Rogue states such as Iran and North Korea cannot be depended upon to behave as rational actors, which consequently makes nuclear deterrence on its own insufficient to address the range of threats such states pose.

However, in the absence of substitute capabilities and policies to deter potential adversaries and bolster confidence in NATO's strength, forward-based nuclear weapons still remain the best available link between the United States and the still-effective U.S. security guarantee. In the last decade, NATO has reaffirmed three times its reliance on forward nuclear deployment.⁹ Therefore, despite the reduced role of nuclear weapons, nuclear deterrence is still important in NATO. Its primary purpose in the alliance is now more political than tactical, encompassing aspects of reassurance and burden-sharing.¹⁰ The removal of remaining U.S. nuclear weapons in Europe would likely have damaging consequences for the broader international perception of U.S. extended deterrence, as both allies and adversaries may perceive such a move as a weakening of U.S. security commitments. At present, U.S. security guarantees remain a major barrier to allied proliferation; the presence of these weapons in Europe anchors the credibility and effectiveness of U.S. extended deterrence. It should no longer be, however, the sole foundation of U.S. extended deterrence in Europe.

New Direction of U.S. Extended Deterrence in NATO: Toward Missile Defense

Taking into consideration the decreasing role of nuclear weapons, U.S. extended deterrence should refocus on missile defense as the core of its strategy toward its European allies. By

9. "Chicago NATO Summit Declaration," North Atlantic Treaty Organization, May 20, 2012, http://www.nato.int/cps/en/natolive/official_texts_87593.htm?mode=pressrelease.

10. George Perkovich, Malcolm Chalmers, Steven Pifer, Paul Schulte, and Jaclyn Tandler, *Looking Beyond the Chicago Summit: Nuclear Weapons in Europe and the Future of NATO* (Washington, DC: Carnegie Endowment for International Peace, April 2012), 9, http://carnegieendowment.org/files/beyond_chicago_summit.pdf.

establishing such a policy, the United States would create a form of extended deterrence that is adapted to the realities of the current security environment and is credible in the eyes of the international community.

While nuclear deterrence could fail to deter threats from rogue states and potentially irrational actors such as North Korea and Iran, U.S. extended deterrence in the form of missile defense has the potential to address such threats. Missile defense may not be a sufficient deterrent on its own, but when complemented with the real threat of deployed nuclear weapons, the two capabilities together are more than strong enough to deter an enemy. While traditional deterrence relies on imposing unacceptable costs on an adversary through retaliation, missile defense is a deterrent because of its ability to blunt an enemy's attack, denying the enemy the potential benefits of aggression. It can be seen as tailored deterrence against rogue states such as North Korea, whose nuclear and ballistic missile programs are of particular concern. Thus, by providing a deterrent that does not just rely on nuclear retaliation, but renders an initial attack impotent, missile defense creates a defensive shield able to neutralize both conventional and nuclear missile threats. This capability provides for a wider spectrum of deterrence, which can greatly affect an adversary's decision calculus and make the initiation of hostilities less likely. Obama's project of a ballistic missile defense system, the European Phased Adaptive Approach (EPAA), is part of the alliance's new "smart defense" initiative that is meant to prepare the alliance for the coming decade and beyond. It is based on the concept of "developing, acquiring and maintaining military capabilities to undertake the alliance's essential core tasks agreed in the new NATO strategic concept. That means pooling and sharing capabilities, setting priorities and coordinating efforts better."¹¹

The EPAA is the first step toward smart defense. In the words of NATO Secretary General Anders Fogh Rasmussen, it is also "the first step towards our long-term goal of providing full coverage and protection for all NATO European populations, territory and forces."¹² The new EPAA architecture is an altered approach to President George W. Bush's National Missile Defense Plan and consists of four phases. The new project focuses on medium-range threats to Europe from the Middle East and involves fielding sea-based interceptors deployed on Aegis cruisers and land-based interceptors in Poland and Romania to protect all NATO allies, including Turkey. The plan is being deployed in three main phases from 2011 to 2018.¹³ The fourth phase, however, which was to deploy more capable Standard Missile-3 IIB interceptors in Poland by 2022, was canceled in March 2013 for economic and strategic reasons.¹⁴ This adjustment in the EPAA will allow for resources to be shifted toward protecting against a North Korean threat.¹⁵

11. "Smart Defence," North Atlantic Treaty Organization, http://www.nato.int/cps/en/natolive/topics_84268.htm.

12. "Missile defense shield in place to protect Europe, NATO chief says," CNN, May 21, 2012, <http://www.cnn.com/2012/05/21/us/nato-missile-defense/index.html>.

13. "European Phased Adaptive Approach at a glance," Arms Control Association, May 2013, <http://www.armscontrol.org/factsheets/Phasedadaptiveapproach>.

14. Tom Z. Collina, "Pentagon Shifts Gears on Missile Defense," Arms Control Association, April 2013, http://www.armscontrol.org/act/2013_04/Pentagon-Shifts-Gears-on-Missile-Defense.

15. David Herszenhorn and Michael Gordon, "U.S. Cancels Part of Missile Defense that Russia Opposed,"

The first three phases of the EPAA are strategically necessary to enhance the extended deterrence of the United States and the security of the alliance. However, the ability of the upgraded interceptors of the fourth and final phase to target long-range intercontinental ballistic missiles (ICBMs) was overstepping; its realization would have unnecessarily agitated Russia. Russia perceived the final phase as a direct threat to the deterrence value of its strategic nuclear forces, a cornerstone of its defense policy given the slow reconstitution of its conventional military capability since the end of the Cold War.¹⁶ The cancellation of the final phase of the project was therefore also a removal of the biggest barrier in arms reduction talks with Russia.¹⁷

The Russia Factor

The nature of U.S. and NATO relations with Russia has been incredibly tumultuous from the beginning, considering the alliance's original purpose as a security instrument against the Soviet threat. When the Cold War ended and the Russian Bear no longer posed a direct threat to the alliance, the two entities were finally able to turn over a new leaf. They formally launched a relationship in 1997, consisting of a forum for mutual dialog and cooperation. Despite these defined pledges of goodwill, several tensions gradually increased. The relationship has gone through a turbulent period since Vladimir Putin came to power. Several factors have led to a collapse in U.S.-Russian relations, such as President George W. Bush's decision to abrogate the 1972 Anti-Ballistic Missile Treaty and to establish a third national missile defense site in Poland, U.S. support of Ukraine's and Georgia's colored revolutions, and the alliance's eastward enlargement toward Russia's former (perhaps also present) "sphere of influence." Indeed, although the United States promised in 1990 to refrain from expanding past Berlin, the alliance has continued its eastward expansion into countries such as Poland, Lithuania, Latvia, and Estonia.¹⁸ The western world's eastward crawling has caused Russia to feel menaced to such an extent that the alliance was cited as one of the Russian Federation's top security threats in its recent national security strategy documents.¹⁹

The alliance has therefore been a long-term source of insecurity for Russia, and plans for a European missile defense system even more so. While Obama did not alter the EPAA for Russia's sake, he made "a reset with Russia" one of his primary foreign policy objectives in 2009.²⁰

New York Times, March 16, 2013, http://www.nytimes.com/2013/03/17/world/europe/with-eye-on-north-korea-us-cancels-missile-defense-russia-opposed.html?_r=1&.

16. *Ibid.*

17. *Ibid.*

18. Uwe Klussmann, Matthias Schepp, and Klaus Wiegrefe, "NATO's Eastward Expansion: Did the West Break its Promise to Moscow?" *Spiegel Online International*, November 26, 2009, <http://www.spiegel.de/international/world/nato-s-eastward-expansion-did-the-west-break-its-promise-to-moscow-a-663315-2.html>.

19. Boleslaw Balcerowicz, "Narodowe polityki i strategie bezpieczeństwa," in *Bezpieczeństwo Międzynarodowe*, ed. Marek Pietras and Michał Chorosnicki (Warsaw: Scholar, 2012), 377–385.

20. Stephen F. Cohen, "Obama's Russia reset another lost opportunity," *The Nation*, June 1, 2011, <http://www.thenation.com/article/161063/obamas-russia-reset-another-lost-opportunity#>.

Initially Russia displayed reluctance to the new Strategic Arms Reduction Treaty (New START), hoping that this reticence would help extract a commitment from the Obama administration to entirely renounce the future construction of any anti-ballistic missile system in Europe.²¹ While the final phase of the EPAA agitated Russia the most, the entire missile defense project was viewed by Moscow as a direct threat. From Moscow's point of view, while the missile defense system may be intended to intercept short- and medium-range missiles from rogue states, the program can easily be expanded by future administrations to stop all missiles, regardless of their origin and type. This renders Russia's strategic deterrent dependent on the inclinations of future U.S. foreign policymakers. Obama, however, refused to include missile defense in the New START negotiations. This led Moscow to ultimately abandon its various demands as a pre-condition to signing the treaty, which led to a series of NATO-Russia summits devoted to reaching a consensus on missile defense as well as a renewal of NATO-Russian cooperation.

Ultimately, Russia responded favorably to Obama's goal of arms reductions, which pertained to another important strategic achievement for the United States, by facilitating the signing of New START on April 8, 2010.²² Beyond improving strategic relations between the United States and Russia, the agreement signals the U.S. commitment to the reduction of nuclear weapons to the global community.

The relations of Russia and NATO are codependent. Just as it is important for Russia to view engagement with NATO as an opportunity rather than a threat, it is imperative for NATO members to discard the Cold War perception of Russia and view it as a strategic partner with whom the transatlantic alliance shares important security interests. Since the establishment of the NATO-Russia Council in 2002, various efforts, such as the Vigilant Skies exercises, demonstrate the strategic importance of joint cooperation against new threats such as terrorism.²³ The long-standing cooperation through the council has been overshadowed by events such as the crisis in Syria and differences over the U.S. missile defense system. Nonetheless, the willingness of both sides to conduct such operations lays the groundwork for greater cooperation, which could lead to enhanced security and stability if further steps are taken.²⁴

Furthermore, steps taken by Russia to improve its wider security and political relationship with NATO could also lead to a situation in which the deployment of U.S. nuclear weapons in Europe will no longer be seen as necessary. The joint ability to respond to asymmetric threats such as terrorism is an opportunity for a new kind of extended deterrence, one which is much more necessary in today's security environment. In the long run,

21. Robert Singh, *Barack Obama's Post-American Foreign Policy: The Limits of Engagement* (New York: Bloomsbury Academic, 2012), 170.

22. New START replaced the Moscow Treaty of 2002 (SORT), which had been scheduled to run until the end of 2012. New START was the successor to START I, which expired in December of 2009. Under the New START, offensively deployed warheads are limited to 1,550, which is a 30 percent reduction from SORT's maximum allowable amount of 2,200. See "New START," U.S. Department of State, <http://www.state.gov/t/avc/newstart/>.

23. Vigilant Skies are live exercises under which the NATO-Russia Council's air traffic monitoring system (the Cooperative Airspace Initiative) will have readiness to detect and respond to hijacked plans.

24. Singh, *Obama's Foreign Policy*, 170.

the United States may see a situation in which Russia is no longer perceived as a possible enemy, but rather an ally against rogue states and potentially China. As a result, the inclusion of Russia in the European security perimeter would increase U.S. and NATO security, thus strengthening the extended deterrence of the United States.

Strengthening the Alliance

The ongoing U.S. rebalance to Asia, undertaken to better address new global challenges and multiple emerging powers in the region, has no doubt reduced the relative strategic importance of Europe in the perception of some NATO allies. Nevertheless, it does not mean that the value of the alliance has completely diminished. A perfect illustration of this is the debate about the missile defense system. Such a shield would protect the United States and Europe against rogue states like Iran and North Korea, and perhaps someday, if necessary, against China.²⁵ Europe's role as a first line of defense from rogue states in the context of an antimissile shield exemplifies that it still has substantial strategic value to the United States.²⁶ The United States should therefore strive toward strengthening the alliance, which still holds great political and strategic significance in today's world. After all, it is NATO partners who would most likely to be deployed abroad in the future to help enforce red lines declared by the United States.

There is a mutual indispensability between the United States and Europe that is not likely to change anytime soon. While Europe and the United States no longer have one common enemy to unite them, the transatlantic partners must unite in the face of new challenges in an uncertain and increasingly complex post-Cold War era. In its evolution as a platform for the United States to secure the world's heartland (Eurasia) and deter enemies, the alliance has evolved from a purely military entity into an alliance with great political and ideological significance.

The missile defense system proposed by Obama could also serve as a platform to deepen military integration and coordination within the alliance. From the perspective of the United States, NATO's new concept of smart defense is also a tool to reopen the matter of burden-sharing within the alliance. The idea of a more balanced form of burden-sharing has been postulated by the United States since the Cold War era, yet Washington's financial contribution has always been significantly greater than that of its European partners. The decline of defense budgets among NATO countries, including the United States, as well as the necessity of rebalancing to the Pacific only underscores that NATO allies must implement a more equitable and effective method of burden-sharing sooner rather than later. The U.S. pivot to the Asia-Pacific has been slowly cemented throughout a long-term process and is therefore neither a revolutionary reorientation nor a significant change in priorities. It does not signify a resignation of U.S. interest in Europe; rather, it simply constitutes a

25. Andrei Akulov, "Russia-USA: Reset Undone, What Next?," Strategic Culture Foundation, August 28, 2013, <http://www.strategic-culture.org/news/2013/08/28/russia-usa-reset-undone-what-next.html>.

26. Daria Azarjew, "NATO as an Instrument of American Security Strategy: Evolution from the Cold War into a New Global Era" (master's thesis, University of Warsaw, 2013), 67.

change in strategic accent, which is appropriately in tune with the trends of the shifting international system. However, in an era of declining resources and fiscal austerity in the face of a changing strategic landscape, the alliance's ability to implement smart defense and thereby maintain its military capability is of utmost importance.

Resultantly, missile defense is integral to NATO, as it is a critical hedge against uncertainty in the security environment. It will increase the alliance's deterrence potential and therefore decrease the risk of a nuclear weapons attack. While U.S. nuclear forces should remain in Europe in order to continue assuring all NATO members, missile defense should become a key pillar for NATO cohesion. In addition, such a system will also strengthen the alliance and transatlantic relations in general, serving as a kind of strategic compensation for the United States' redirection to the Pacific.²⁷

Conclusion

U.S. extended deterrence commitments toward the alliance remain a central pillar of international security. The beneficiaries of U.S. extended deterrence have shared security interests—above all, upholding the credibility of U.S. security guarantees and maintaining security and stability in the transatlantic region.

While the role of nuclear weapons in the alliance's deterrence posture has undoubtedly changed, NATO should continue to be a nuclear alliance as long as potential adversaries possess nuclear weapons. The removal of U.S. nuclear weapons from Europe would certainly cause a perceived erosion of U.S. extended deterrence commitments, which could have destabilizing consequences, such as the breakdown of the nuclear nonproliferation regime. Such erosion would be a major setback to the long-term objective of nuclear disarmament, especially in the face of emerging nuclear weapon states. Therefore, although U.S. nuclear weapons in Europe no longer play a large military role and should not be considered a core part of U.S. extended deterrence, their presence continues to carry a significant political role in reassuring allies.

As the security environment evolves and new threats emerge, the deterrence posture of the alliance should continue to evolve toward missile defense and cooperation with strategic partners such as Russia. While there are undoubtedly still many challenges ahead and differences to face between the United States, Russia, and NATO, their cooperation would undoubtedly yield strategic dividends for all sides. Missile defense complements U.S. forward-deployed nuclear weapons in reassuring allies and providing added deterrence where nuclear weapons alone do not deter rogue states. A combination of nuclear weapons and missile defense would then be an effective strategy to preserve U.S. credibility and extended deterrence. The combination of such efforts would help to ensure that NATO's posture of both nuclear and conventional capabilities remains appropriate for the modern

27. *Ibid.*, 69.

environment; one that is quite different from the one for which nuclear-sharing arrangements were created half a century ago.²⁸

Such a posture would allow NATO to be a source of stability for maintaining significant alliances and partnerships, while protecting both transatlantic and global security. The most important reassurances will be those that could both increase allied confidence and improve relations with Russia, involving joint exercises and perhaps shared missile defense. This also creates a chance for Europe to escape the Cold War paradigm and for Russia to become a strategic partner of the United States, the European Union, and NATO. Guiding the alliance in this new direction is a critical component in maintaining transatlantic security and stability, as well as U.S. extended deterrence.

28. George Perkovich et al., *Looking Beyond the Chicago Summit*, 37.

Proactive Preparation: Now Is the Time to Counter Iran with Credible Ballistic Missile Defense

*Jonathan Bergner*¹

The most contentious current nonproliferation debate is over whether, as many maintain, “Iran’s rapidly advancing nuclear program is one of the most acute national security challenges facing the United States.”² There is significant disagreement over all the key questions: which policy would best prevent Iranian acquisition of nuclear weapons (economic sanctions, military strike, regime change, etc.); whether Iranian nuclear weapons have a destabilizing effect in the region; and if a nuclear-armed Iran could be contained and deterred from abusing its new-found position in the Nuclear Club.

Unfortunately, much of the debate surrounding these questions consists of sheer assertion, both about how to stop Iran and about how a nuclear Iran might behave. As to the latter, for example, Colin Gray observes there is an inherent psychological—and therefore uncertain—element involved. He writes, “Deterrence is the condition that obtains *when someone decides* that he is deterred [emphasis mine].”³ In the midst of these uncertainties, what could the United States actually do to provide a means of neutralizing the Iranian threat?

There is a course of action that does not require resolving the above debates. This proposal rests on the assumption that Iran is in fact seeking nuclear weapons and that a nuclear-armed Iran would indeed present a serious geostrategic challenge to the United States. Whether or not the West is successful in preventing a nuclear-armed Iran, there are steps the United States can and should take to move beyond the academic and abstract

1. Jonathan Bergner received a master’s degree in security studies from Georgetown’s Walsh School of Foreign Service and is a frequent writer on nuclear issues and ballistic missile defense. He can be reached at jon.bergner@gmail.com.

2. Matthew Kroenig and Robert McNally, “Iranian Nukes and Global Oil,” *American Interest* VIII, no. 4 (March/April 2013): 41.

3. Colin Gray, “Gaining Compliance: The Theory of Deterrence and its Modern Application,” *Comparative Strategy* 29, no. 3 (2010): 278.

questions mentioned above. The international community may never know the answers to these questions until it is too late.

As a follow-on to Raj Pattani's excellent piece in the previous volume of *Nuclear Notes*, this article argues that the United States can and should field proven ballistic missile defense (BMD) technologies now, focusing on a flexible, layered system to protect both the homeland and key U.S. allies. Pattani argues that "unless the threat from adversaries evolves . . . the United States should not make significant investments in operationalizing new BMD systems for ICBMs [intercontinental ballistic missiles]."⁴ However, pursuing a robust missile shield now not only has the benefit of preparing the nation in the event of a nuclear Iran, but it also reduces both the perceived and actual utility of Iran pursuing nuclear weapons in the meantime.

The Growing Threat from Iran

The U.S. intelligence community's annual threat assessment released in March 2013 states that while it is unclear whether Iran will decide to build a nuclear weapon, "Iran has the scientific, technical, and industrial capacity to [do so] eventually."⁵ Patrick Disney argues that "Iran should be considered to have a weapons capability today" because it has the ability to produce the necessary fissile material, the knowledge to weaponize this material, and the means to deliver a nuclear device.⁶ Whether this weapons capability will remain latent seems then to be entirely an issue of political will.

This seems to leave the question of intent open. However, there are many reasons to suspect that developing weapons is precisely what Iran intends to do. As just one of the latest examples, the International Atomic Energy Agency report of August 2013 cited "extensive and significant activities which have taken place at the location within the Parchin site" that prevented the agency from providing credible assurance that all nuclear material in Iran is being used for peaceful purposes.⁷ While there is no clear smoking gun, "there is reasonable evidence of a clandestine program."⁸

In addition to its nuclear capability, "Iran has ambitious ballistic missile and space development programs and continues to attempt to increase the range, lethality, and accuracy of its ballistic missile force."⁹ As Pattani's article catalogues, Iran is already in

4. Raj Pattani, "Ballistic Missile Defense and the Iranian Threat," *Nuclear Notes* 3, no. 1 (September 2013): 64.

5. James Clapper, "Worldwide Threat Assessment of the US Intelligence Committee" (statement for the record before the Senate Select Intelligence Committee, March 12, 2013), 7.

6. Patrick Disney, "Deterring Iran's Nuclear Capability," in *Nuclear Scholars Initiative: A Collection of Papers from the 2012 Nuclear Scholars Initiative*, ed. John K. Warden (Washington, DC: CSIS, 2012), 149.

7. International Atomic Energy Agency, "Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran," report by the director general (August 28, 2013), 13–14, http://www.isisnucleariran.org/assets/pdf/Iran_DG_Report_-_gov2013-40.pdf.

8. Etel Solingen, *Nuclear Logistics* (Princeton, NJ: Princeton University Press, 2007), 165.

9. National Air and Space Intelligence Center (NASIC), *Ballistic & Cruise Missile Threat Report* (Wright Patterson Air Force Base, OH: NASIC, 2013), 31, <http://info.publicintelligence.net/NASIC-BallisticMissileThreat.pdf>.

possession of short-range missiles (such as the Fateh 110 and Shahabs 1 and 2) and medium-range ballistic missiles that can reach targets throughout the Middle East (Shahab 3 and the Sejil).¹⁰ The prolific Shahab missiles are road-mobile and would be capable of carrying chemical, biological, or nuclear warheads.¹¹

Currently, Tehran lacks an ICBM program, but Iran successfully launched three satellites into space in February 2009, June 2011, and February 2012 using the Safir space launch vehicle.¹² Multistage space launch vehicles can serve as test beds for developing long-range missiles; intermediate-range ballistic missiles and ICBMs share many similar technologies and processes inherent in a space launch program. With ranges in excess of 5,500 kilometers (km) and 10,000 km, Iran could threaten targets throughout Europe and the United States, respectively. According to experts at the Congressional Research Service, “it seems clear that Iran has a dedicated space launch effort and it is not simply a cover for ICBM development.”¹³ That said—and although it would face additional technical hurdles in order to produce ICBMs—Iran has demonstrated “significant progress in the exploitation of stage-separation technologies, which are critical to the development of longer-range ballistic missiles.”¹⁴

Debate over a Nuclear Iran

Some analysts argue that the United States should not be worried about a nuclear-armed Iran. Kenneth Waltz is perhaps the best-known of these nuclear Iran optimists, suggesting that Iranian acquisition of nuclear weapons “would probably be the best possible result: the one most likely to restore stability to the Middle East.”¹⁵ Contra Waltz, President Barack Obama offers a concise summary of the main concerns about a nuclear Iran:

The risks of an Iranian nuclear weapon falling into the hands of terrorist organizations are profound. It is almost certain that other players in the region would feel it necessary to get their own weapons. So now you have the prospect of a nuclear arms race in the most volatile region in the world, one that is rife with unstable governments and sectarian tensions. And it would also provide Iran the additional capability to sponsor and protect its proxies in carrying out terrorist attacks, because they are less fearful of retaliation.¹⁶

10. Pattani, “Ballistic Missile Defense and the Iranian Threat,” 64.

11. Nuclear Threat Initiative, “Iran: Missile,” July 2013, <http://www.nti.org/country-profiles/iran/delivery-systems/>.

12. Steven Hildreth, *Iran’s Ballistic Missile and Space Launch Programs* (Washington, DC: Congressional Research Service, December 2012), 39–43.

13. *Ibid.*, iii.

14. Nuclear Threat Initiative, “Iran: Overview,” July 2013, <http://www.nti.org/country-profiles/iran/>.

15. Kenneth Waltz, “Why Iran Should Get the Bomb: Nuclear Balancing Would Mean Stability,” *Foreign Affairs* 91, no. 4 (July–August 2012): 2.

16. President Barack Obama (interview with Jeffrey Goldberg), “Obama to Iran and Israel: ‘As President of the United States, I Don’t Bluff,’” *Atlantic*, March 2, 2012, <http://www.theatlantic.com/international/archive/2012/03/obama-to-iran-and-israel-as-president-of-the-united-states-i-dont-bluff/253875/>.

One does not have to believe in the inherent stabilizing power of nuclear weapons to think a nuclear Iran may be a manageable problem. For example, it is unclear “how exactly Iran will translate its nuclear capability into anything other than a central deterrent.”¹⁷ In this view, nuclear weapons would simply act to deter the United States from using its military power to topple the regime by complicating and increasing the cost of U.S. planning and intervention. It would not necessarily improve Iran’s ability to engage in coercive diplomacy, since presumably Iran would still be deterred by the threat of U.S. conventional and nuclear forces and would eschew regional or proxy adventurism.

But what if Iran does not act or react in traditional ways, or doubts the credibility of the United States and is therefore not deterred from a chosen course of action? While “the general theory of deterrence should apply eternally and universally,”¹⁸ most of what is known about deterrence stems from our experience in the Cold War. At its core, deterrence in practice is heavily dependent on perceptions of the parties involved. As Matthew Kroenig and Robert McNally note, “nearly all of the conditions that helped us avoid nuclear war during the latter half of the Cold War are absent from the Iran-Israel-U.S. nuclear balance.”¹⁹ It is not unreasonable to imagine that in a crisis, things could easily spiral out of control.

Further, a fundamental issue remains: “A nuclear Iran will have successfully crossed and circumvented every single red line the international community was willing to put in its tracks over a period of decades . . . why would nuclear Iran assume that the West would not continue capitulating in the face of Iranian intransigence?”²⁰ Additionally, although the ramifications of the Syrian chemical weapons agreement will not be fully known for some time, in the short-term the U.S. vacillation regarding red lines is not likely to help U.S. credibility in the context of Iran.

Meanwhile, the best means to prevent a nuclear-armed Iran remain unclear. Typically, the options considered are a military strike on Iranian nuclear facilities (by the United States alone, the United States in conjunction with Israel, or Israel with tacit U.S. approval) or a continuation of economic sanctions leading to a negotiated solution. Opponents of a military strike argue that it would make the situation worse by provoking a direct confrontation with Iran and/or others in the Middle East, causing a renewed commitment to accelerating the nuclear program in Tehran, or threatening the global supply of oil with the closure of the Strait of Hormuz. Additionally, a strike might not be able to fundamentally disable Iran’s nuclear capabilities, but only temporarily slow its progress toward a weapon.²¹

17. Alex Wilner, “Apocalypse Soon? Deterring Nuclear Iran and its Proxies,” *Comparative Strategy* 31, no. 1 (January/March 2012): 27.

18. Colin Gray, “Gaining Compliance: The Theory of Deterrence and its Modern Application,” *Comparative Strategy* 29, no. 3 (2010): 281.

19. Kroenig and McNally, “Iranian Nukes,” 46.

20. Wilner, “Apocalypse Soon,” 35.

21. Nicholas Kristof, “The False Debate Over Attacking Iran,” *New York Times*, March 24, 2012, <http://www.nytimes.com/2012/03/25/opinion/sunday/kristof-the-false-debate-about-attacking-iran.html>.

On the other hand, the dual approach of economic sanctions and diplomacy remains of questionable efficacy. As also seen with India and Pakistan, “sanctions only increase the costs of going nuclear; they do not reduce the ability of a determined government to get the bomb.”²² Indeed, it is arguable whether proponents of the sanctions route could come up with any empirical case in which this approach has deterred the development of nuclear weapons.

The Iranian nuclear dilemma then leaves us with a series of unanswered questions and unappealing policy options. However, there is a course of action that can be pursued that does not depend on definitively resolving these debates. In addition to preparing a workable defense from Iran’s growing ballistic missile capability, committing to a credible missile shield would have real impacts now, including powerfully signaling U.S. resolve and capability to enemies as well as allies, putting additional weight behind the U.S. negotiating position with Iran, and generally reducing the utility of Iranian nuclear weapons.

Building a Credible Missile Defense Shield

Using existing technology and continuing to improve existing systems, the United States could field a robust and credible defensive shield in the near term that secures the U.S. homeland and also protects deployed U.S. troops and allies. If the United States commits to focused investment, Washington can redirect time and resources that have been spent on yet unproven technologies. Expansion and improvement of the currently deployed Ground-based Midcourse Defense (GMD) system should be coupled with an expansion and evolution of the current Standard Missile 3 (SM-3) interceptors of the Aegis missile defense systems deployed on destroyers and ashore. Deployment of additional X-band radars to focus on tracking and discrimination functions, while leaving search and warning to the low-resolution radar systems, is also necessary to increase the reliability of both the Aegis and GMD systems. Add to that a recommitment to an updated European Phased Adaptive Approach (EPAA) to BMD, and Iran’s ability to threaten U.S. interests with ballistic missiles would be severely curtailed (thereby reducing the efficacy of developing a nuclear weapon).

Unfortunately, as skeptics are quick to point out, the history of ballistic missile defense systems and technology demonstrates that development can be haphazard and sporadic. An excellent example involves the interceptor originally planned for the fourth phase of the EPAA, the SM-3 Block IIB, whose deployment was canceled in March 2013. From the beginning, plans for the interceptor were not as rigorous as they could have been; as the Government Accountability Office has noted on several occasions, “the SM-3 Block IIB program did not conduct a formal analysis of alternatives prior to beginning technology development.”²³ As a result, the SM-3 Block IIB was always seen as a concept “still entirely

22. Scott Sagan, “How to Keep the Bomb From Iran,” *Foreign Affairs* 85, no. 5 (September/October 2006): 45.

23. Government Accountability Office, “Standard Missile-3 Block IIB Analysis of Alternatives” (letter to Rep. Mike Turner, February 11, 2013), 2, <http://www.gao.gov/assets/660/652079.pdf>.

on the drawing board . . . fundamental technical issues like its speed and acceleration, size, cost and even basing modes (i.e., land-based or sea-based) are not yet known or understood.”²⁴

Sure enough, after-the-fact analyses showed that a larger missile than originally planned (27 inches instead of 21 inches in diameter) would be required to achieve the necessary burnout velocity for the mission, and a larger missile design would have required additional development time and resources.²⁵ Even assuming the program was fully funded for the next 10 years, the United States would not have been able to field a single one of these interceptors until 2022 at the earliest. In the end, the Obama administration made the correct decision in canceling the planned deployment of the interceptor in March 2013.

Programs such as the SM-3 Block IIB breed skepticism about the feasibility or desirability of ballistic missile defense, with “little evidence either of serious cost-benefit analysis or of systems analysis and engineering before embarking on new initiatives.”²⁶ The Missile Defense Agency should not spend any more of its limited time and money on the IIB and, more generally, should move away from boost-phase missile defense systems. Rather, it should focus on investing in and evolving a key element of the current BMD systems: the SM-3 Block IAs deployed on Navy ships today and the SM-3 Block IBs that will soon be rolling off production lines and deployed. These variants of missiles have exceeded design requirements, they come in on time and on cost, and their performance has long been recognized and celebrated as reliably able to hit and destroy their targets.²⁷ In September 2013 three flight tests brought the total successful SM-3 intercepts to over 25. The final test in September was the fifth back-to-back intercept for the SM-3 Block IB.²⁸ That test demonstrated an increased level of operational sophistication and was the highest-altitude intercept by an SM-3 ever.

Three specific steps could be undertaken in the short term that would vastly enhance the functionality of U.S. missile defense systems. First, the United States should fully fund the planned EPAA deployment of SM-3s: 41 Aegis BMD-capable ships with 300 interceptors and Aegis Ashore sites in Poland and Romania.²⁹ As mentioned, these interceptors have demonstrated a better-than-expected functionality, which the United States can leverage for a variety of missions. Second, the United States should increase the number of

24. Mike Turner, “Letter to Defense Secretary Panetta,” March 26, 2012, <http://www.missiledefenseadvocacy.org/data/images/letter%20to%20panetta.pdf>.

25. National Research Council, *Making Sense of Ballistic Missile Defense: An Assessment of Concepts and Systems for U.S. Boost-Phase Missile Defense in Comparison to Other Alternatives* (Washington, DC: National Academies Press, 2012), 14.

26. *Ibid.*, 11.

27. Michele Flournoy and Ashton Carter, “The Way Forward on Missile Defense,” *Wall Street Journal*, June 17, 2010, <http://online.wsj.com/article/SB10001424052748704009804575308841425698702.html>.

28. Andrea Shalal-Esa, “Pentagon Test-Fires Two SM-3 Missiles on One Target,” Reuters, September 19, 2013, <http://www.reuters.com/article/2013/09/19/us-usa-military-missile-defense-idUSBRE98I0N420130919>.

29. Sandra Erwin, “Lockheed Martin Courts International Buyers for its Missile Defense Systems,” *National Defense Magazine*, September 10, 2013, <http://www.nationaldefensemagazine.org/blog/lists/posts/post.aspx?ID=1259>.

ground-based interceptors (GBIs) in Alaska and California (bringing the total to 44) and site and deploy East Coast GBIs to specifically counter Iran. Washington should also continue to test and improve the GMD systems. The National Research Council concluded that “[GBIs] and their support network of sensors . . . and communications, at an affordable cost and on a timeline consistent with expected threats, [can] be modified, emplaced, and employed to be far more effective for the homeland defense mission.”³⁰ Finally, the Missile Defense Agency should field the EPAA’s proposed suite of X-band radars and consider fielding additional units so the United States can observe missile threats over the longest possible time, ensuring what the National Research Council characterizes as “an adequate solution of the problem” of mid-course discrimination.”³¹

Investing in these programs would send a signal to Iran and any other country that might seek to threaten the United States with ballistic missiles. Further, regular testing of all U.S. ballistic missile systems is crucial to signaling confidence in the system and demonstrating that it works: “confidence in [missile] defense . . . can only be established by end-to-end operational tests.”³² The September 2013 SM-3 tests were a powerful demonstration of U.S. BMD capabilities. Even in the event of a failure to intercept (as the GMD system has now experienced three times in a row) regular testing drives corrections and improvements in the systems, which in the long-run improves confidence. A regularly tested system of sea- and land-based SM-3s, an enhanced GMD system, and additional radars with improved discrimination would provide a strong layered defense that affords an effective “look-shoot-look” capability, providing a reliable shield to stop an attack on the U.S. homeland.

Preparation for Tomorrow Can Benefit Today

While Pattani and others suggest that the United States can wait to make some of the above investments until “intelligence estimates shift or it otherwise becomes clear that Iran is developing nuclear weapons,” there are several real benefits to committing to a credible BMD architecture today.³³ The first and most obvious is that investments now are necessary to have a credible ballistic missile defense architecture in place that would be able to counter threats from a nuclear-armed Iran. In addition to being able to destroy an Iranian missile that has been launched, missile defenses would aid in U.S. attempts to deter Iranian aggression in the first place. These defenses need not be infallible; they just need to make “the expected costs of aggression high and the expected probability of achieving the benefits low.”³⁴

Being prepared in the near term to counter Iranian threats in the future would also help complicate Tehran’s current nuclear weapons decisionmaking calculus. Missile

30. National Research Council, *Making Sense of Ballistic Missile Defense*, 13.

31. *Ibid.*, 5-5.

32. *Ibid.*, 5-10.

33. Pattani, “Ballistic Missile Defense,” 65.

34. Colin Kahl, Raj Pattani, and Jacob Stokes, *If All Else Fails: The Challenges of Containing a Nuclear-Armed Iran* (Washington DC: Center for a New American Security, May 2013), 34, http://www.cnas.org/sites/default/files/publications-pdf/CNAS_IfAllElseFails.pdf.

defense calls into question Iran's most likely delivery system for a nuclear weapon, and decreasing the likelihood of a successful attack calls into question the viability of the potential threat of a nuclear strike. Proactive action on BMD today introduces uncertainty into Iran's planning as it considers the utility of building nuclear weapons or developing ICBMs. Patrick Disney argues, "The more the U.S. does to prepare for the day after Iran obtains a nuclear weapon, the greater Iran's incentive becomes to acquire a nuclear deterrent of its own."³⁵ However, a purely defensive BMD capability overcomes this problem. If the most obvious use for a nuclear weapon is no longer certain to be available, the costs of acquisition become less tenable.

Another benefit of making the investment in BMD is the ability to provide dynamic protection from multiple threats. Equipping additional naval vessels with SM-3s would allow the United States to assign these ships to a variety of missions. For example, one Aegis destroyer stationed in the Pacific to the west of Hawaii could defend the island chain from missiles launched from North Korea, Iran, or any other country.³⁶ There is also a realistic concern that a nuclear threat from Iran may not come from a long-range missile, but rather just off U.S. shores in the form of an electromagnetic pulse (EMP) attack utilizing a short-range ballistic missile launched from a freighter. Several Aegis ships would be able to provide extensive East Coast/Gulf Coast coverage and could do this while still performing other day-to-day operations.³⁷ In short, moving sea-based platforms to reflect current threat assessments, along with new Aegis Ashore sites, can prepare the United States for existing and emerging threats.

Additionally but importantly, investment in BMD and regular testing also has the benefit of serving as a powerful signal to allies in the Middle East and elsewhere, at a time when many may be in need of reassurance. It would strengthen U.S. extended deterrence "by mitigating the question of American resolve to risk trading Tampa for Tel Aviv or Raleigh for Riyadh in a potential nuclear exchange with Iran."³⁸ In this way, missile defense systems could help alleviate some of the concerns about a nuclear proliferation tipping point in the Middle East. In conjunction with upgrades to and investments in BMD systems by U.S. partners, a powerful message would be sent to Tehran that could help put strength behind efforts at a diplomatic settlement of Iran's nuclear program.

Conclusion

Creation of a robust, flexible, and regularly tested missile shield would serve to further U.S. goals, regardless of how analysts might come down on the standard and well-rehearsed debate over Iranian nuclear proliferation. This proactive course of action does not preclude any other option such as a military strike or the continuation of economic sanctions.

35. Disney, "Deterring Iran's Nuclear Capability," 148.

36. National Research Council, *Making Sense of Ballistic Missile Defense*, 18.

37. Henry Cooper and Robert Pfaltzgraff, *Countering the EMP Threat: The Role of Missile Defense* (Cambridge, MA: Institute for Foreign Policy Analysis, 2010), 6, <http://www.ifpa.org/pdf/IWGWhitePaper.pdf>.

38. Kahl et al., *If All Else Fails*, 35.

Indeed, it might make diplomatic negotiations a more effective tool. Policymakers should focus on the usefulness of BMD to help influence countries such as Iran on the cusp of a nuclear weapons capability.

None of this is to suggest that a strong investment in a ballistic missile shield will be the silver bullet that ensures Iran does not acquire nuclear weapons. Nor is it to suggest that there are not other avenues that might be explored. It is possible, for example, that the interim nuclear agreement with Iran signals a real interest in Tehran in pursuing a negotiated dismantling of Iran's nuclear program. But it is also possible that the United States will embrace an available diplomatic solution without adequate verification, allowing Iran to continue to pursue weapons in secret. The value of a BMD shield is that we do not have to answer such questions with certainty for the approach to benefit U.S. security.

Gaming Nuclear War

*Paul Burton*¹

Introduction

War gaming has been established as a key tool for military planning since the early nineteenth century. Over time, the techniques of the war game have been applied to strategic and, later, political facets of conflicts. Inevitably this extension began to be applied to problems of nuclear dynamics and the implications of other new developments in military technology. This application has been controversial, from criticism leveled at Herman Kahn for *Thinking about the Unthinkable*² to the 1983 movie *Wargames*,³ the idea of “playing games with nukes” has acquired a reputation for being inherently dangerous.

This paper looks at the development of the war game from its beginnings in Prussia through the work of the United States Naval War College and the development of political-military and strategic nuclear games. As a case study I will discuss the “Day After” exercises conducted during the 1990s by the RAND Corporation. From these studies I will seek to identify the strengths and pitfalls of the war game and ways in which these can be harnessed or overcome.

I offer an evaluation of the war game as a tool for looking at the factors that influence crisis and conflict management in a nuclear context. I identify the simple precepts which underpin good game design. The insights gained from studying such exercises can help generate a deeper understanding of the responses to confrontational and crisis situations, which can be used to promote strategic stability, as opposed to making nuclear conflict more likely.

1. Paul Burton is a nuclear security scientist at the UK Atomic Weapons Establishment (AWE). He graduated from Coventry Polytechnic in 1988 with a BSc (honors) in physical science. He has published extensively on military history and war gaming in the ancient and medieval world in the journal *Slingshot*. He is a chartered member of the Institute of Physics. © British Crown Owned Copyright [2013]/AWE. This document is of UK origin and contains proprietary information that is the property of the secretary of state for defence. It is furnished in confidence and may not be copied, used or disclosed in whole or in part without prior written consent of Defence Intellectual Property Rights DGDCDIPR-PL—Ministry of Defence, Abbey Wood, Bristol, BS34 8JH, England. This paper is the work of the author, and all opinions and views expressed are his own and do not necessarily represent those of AWE, MoD, HMG or any associated organization or stakeholder.

2. James Newman, “Book Review: Herman Kahn, *On Thermonuclear War*,” *Scientific American* CCIV, no. 3 (March 1961): 197–198, 200.

3. John Badham (director) and Harold Schneider (producer), *Wargames* (Metro-Goldwyn-Mayer, 1983).

War Gaming: What Is It Good For?⁴

A definition of the term is necessary before identifying the potential uses of war gaming as a tool. The terms *war game* and *simulation* are often used interchangeably;⁵ however, for the purposes of this paper *war game* (or *game*) refers to those situations in which human decisionmaking is incorporated into the process of play.⁶

In 1824 Baron Von Müffling, chief of staff for the Prussian army, witnessed the play of an early *kriegsspiel*⁷ and remarked, “This is not a game at all! It is training for war!”⁸ He recommended that the game be issued to all regiments and for officers to play every weekend. This insight identifies the first use for the war game: training. The game allows commanders to practice fighting battles and campaigns without the associated costs of deploying troops on maneuvers or fighting actual wars. Personnel can also learn aspects of command above their current rank, aiding their preparation for future promotion. The immersive nature of the gaming experience often reinforces lessons learned.⁹

The second application for war games is in the field of operational planning. Gaming was rapidly incorporated into the practice of the Prussian, and later German, army and may well have contributed to its superiority in strategic planning in the wars of 1866 and 1870–1871 against Austria and France. Gaming was a significant element in the development of the United States’ War Plan Orange. World War II’s Pacific war was fought out over a hundred times on the gaming floors of the Naval War College between 1920 and 1940, to the extent that Admiral Chester Nimitz could state that “the war unfolded exactly as predicted in naval war games.”¹⁰

Finally, games can be used as analytical tools to study aspects of warfare. This can allow human responses to be incorporated into examinations of the effects of various factors on both outcomes and their effects on decisionmakers. It is of course possible to combine any or all of these aspects within a single game.

Games with Frontiers, War without Tears¹¹

The Von Reisswitz *kriegsspiel* received an enthusiastic response from the Prussian High Command. For most of the nineteenth century, war gaming remained a largely Prussian pursuit, incorporating complexity as technological improvements, such as railways and

4. Edwin Starr, *War* (Detroit, MI: Gordy Records, 1970).

5. Philip Sabin, *Simulating War* (London: Continuum, 2012), 4–5.

6. Peter Perla, *Peter Perla’s The Art of Wargaming*, ed. John Curry (London: Lulu, 2012), 24.

7. Gen. D. Dannhauer, “Das Reisswitzsche Kriegsspiel von seinen Beginn bis zum Tode des Erfinders 1827” [The Reisswitz Wargame from the Beginning to the Death of Its Inventor, 1827], *Militair Wochenblatt*, 56 Berlin, 1827. Trans. William Leeson.

8. Perla, *The Art of Wargaming*, 37.

9. Herman Kahn and Irwin Mann, *War Gaming* (Santa Monica, CA: RAND, 1957), 10.

10. Edward S. Miller, *War Plan Orange* (Annapolis, MD: Naval Institute Press, 1991), 2.

11. Peter Gabriel, *Games Without Frontiers* (London: Charisma Records, 1980).

advanced weaponry, were integrated into the increasingly detailed tables from which the results of combat between units were calculated. This spurred the development of *free kriegspiel*,¹² in which results were determined by the judgment of umpires rather than by detailed calculations as a method of speeding up play. In the late nineteenth century the concept began to be taken seriously elsewhere. Leading this development was the U.S. Naval War College in Newport, Rhode Island. Beginning during the presidency of Alfred Thayer Mahan, war gaming was allowed to flourish under the direction of retired Navy Lieutenant William McCarty Little.¹³ Over time, games extended from ship duels and fleet actions to complex chart games that allowed whole wars to be played out. These games regularly saw the U.S. fleet sunk.¹⁴ Developments in doctrine and training later saw a leveling in the Anglo-American balance and led to the identification of the “all big gun” battleship as the future of capital ships, just as the British Royal Navy was launching HMS *Dreadnought*.¹⁵

As the twentieth century progressed, the idea of war gaming was popularized by such writers as H. G. Wells¹⁶ and Fletcher Pratt.¹⁷ The foundations of the hobby gaming community were laid, later to be developed by designers like James F. Dunnigan, founder of Simulations Publications Inc., and companies such as Avalon Hill and Victory Games.¹⁸ The relationship between “professional” and “hobby” gaming was strong during Pratt’s games of the 1930s, with many professional officers participating regularly.¹⁹ However, since that time the relationship has suffered from a perceived lack of seriousness on the part of hobbyists, despite many designers producing games for the Department of Defense and the unofficial use of commercial products by some professionals.²⁰

Let’s Play “Global Thermonuclear War”²¹

As military technology developed, the latest innovations were incorporated into official gaming models, particularly in the large scale political-military games. This development has not been as well documented as games of the earlier periods. There are a number of reasons for this. First, security issues were paramount and there was great concern that game results could provide significant information to enemies on likely actions in the event of a conflict or crisis.²² Second, there was concern over games’ potential harm to relations with key allies. For example, if the territory of an allied nation such as West Germany were regularly ravaged by simulated nuclear attack, then the player might question the value of maintaining the alliance in the real world.²³

12. Sabin, *Simulating War*, 31.

13. Perla, *The Art of Wargaming*, 70–76.

14. Thomas B. Allen, *War Games* (New York: Heinemann, 1987), 121.

15. Perla, *The Art of Wargaming*, 74.

16. Herbert George Wells, *Little Wars* (London: Palmer, 1913).

17. Fletcher Pratt, *Fletcher Pratt’s Naval War Game* (New York: Harrison-Hilton, 1940).

18. Allen, *War Games*, 3–114.

19. *Ibid.*, 124–125.

20. *Ibid.*, 101–109.

21. Badham and Schneider, *Wargames*.

22. Sabin, *Simulating War*, 33.

23. Allen, *War Games*, 8.

Other factors had more of a moralist edge to them. Academic opinion has long negatively viewed gaming, although this skepticism is slowly breaking down.²⁴ One criticism leveled at Kahn²⁵ charged that analyzing nuclear war should be “unthinkable.” This repugnance, and the associated opinion that gaming activities encourage the view that nuclear war is both conceivable and “winnable,” were exacerbated by the very concept of playing “games” with nuclear weapons. Reinforcement of this idea was provided by the film *Wargames*,²⁶ which may have encouraged the Pentagon to change the name of the department responsible for these activities from the Studies, Analysis and Gaming Agency (SAGA) to the Joint Analysis Directorate (JAD), removing any mention of games.²⁷ The hobby community has shown limited interest in the nuclear aspects of conflict, with competitive players having no desire to see a skillfully achieved victory wiped out by their opponent pushing “the button.” Tactical nuclear weapon use has been explored in games,²⁸ while the “Nuclear War” card game²⁹ is purely comic in its intent. More recent games have utilized the nuclear dimension as a penalty mechanism to encourage caution in players so as to discourage uncontrollable escalation.³⁰ Going to “defense readiness condition 1” (DEFCON 1) means the immediate end of the game (and civilization as we know it).³¹

The Day After

The Day After series of exercises is unusual in that it has been reported in very great detail³² and examined a number of potential situations in which nuclear weapons might be used. The purpose of the exercises was to use a war game format to draw out strands of thinking related to a given crisis scenario that had resulted in some form of nuclear weapon use, ranging from demonstration to significant nuclear strikes. This clearly places the exercise in the analytical game category. The games were single-sided seminars, played by teams drawn from various areas of the U.S. military and political and academic communities.³³ The exercise was preprogrammed in three phases. The “Day Of” examined emerging crises in various parts of the world and U.S. responses to events. The Day After continued as the crisis escalated to some form of nuclear weapon use and examined options for the United States. The final step, the Day Before, brought participants back from the near future of the scenarios to examine policy options that could prevent or mitigate crises of the type just played through.

The exercise was fully reported with open access, enabling the method and its conclusions to be studied by the public. The goal, to identify issues and gain a sense of

24. Sabin, *Simulating War*, 5.

25. Herman Kahn, *Thinking about the Unthinkable* (London: Weidenfeld & Nicolson, 1962), 18–21.

26. Badham and Schneider, *Wargames*.

27. Allen, *War Games*, 7.

28. James F. Dunnigan, *Würzburg* (New York: Simulations Publications, 1975).

29. Douglas Malewicki, *Nuclear War* (Scottsdale, AZ: Flying Buffalo, 1965), <http://www.flyingbuffalo.com/nucwar.htm>.

30. Kerry Anderson, *Cuban Missile Crisis* (Alberta, Canada: Microgame Design Group, 2002).

31. Ananda Gupta and Jason Matthews, *Twilight Struggle* (Hanford, CA: GMT Games, 2005/2009).

32. Marc Dean Millot, Roger Molander, and Peter A Wilson, *The Day After Study: Nuclear Proliferation in the Post–Cold War World*, volumes 1–3 (Santa Monica, CA: RAND, 1993).

33. *Ibid.*, volume 1, 24.

the alternative strategies likely to be considered in the Washington policy community,³⁴ informed the design process and resulted in a method and scenario set that explored a number of clearly defined problems. It can therefore be considered a good example of a game, in that it had a clear understanding of its objectives and was designed accordingly. It also follows prolific game designer and founder of Simulations Publications Inc. James F. Dunnigan's first axiom of game design, "keep it simple."³⁵

Is This a Game or Is It Real?³⁶

Although it is clear that a war game is not the same as a real war, it can still provide a reflection of reality provided a number of areas are considered.³⁷ Sound game design relies on good operational analysis.³⁸ If the underlying model is flawed, then any game built on that model will be similarly flawed. Some potential pitfalls are described here.

The "passive antagonist" is a problem sometimes encountered in umpire-controlled games. A classic example of this is recorded by Kahn.³⁹ He describes a situation in which a game relating to a probable nuclear weapon accident was run twice. In both cases the U.S. president in the game blamed Soviet sabotage, but one set of players reinforced the statement by ordering a nuclear strike on a remote Soviet nuclear installation. This team was judged to have "won" the propaganda battle, though no Soviet response to this attack was adjudicated by the umpires.

A different, potentially more distorting, phenomenon is the "stereotypical" antagonist. This involves players adopting approaches and attitudes based more on propaganda and prejudice than sound analysis. This will produce distortion in red team play and similarly distorted learning as a result. Examples of this type of behavior were reported in interviews conducted by Thomas Allen for his study of military gaming practice⁴⁰ and in the early Newport Global Games, the world-scale political-military games run annually by the United States Naval War College in Newport, Rhode Island. The counter to this problem, identified by the Naval War College, is sound analysis and careful red team selection.⁴¹

The final antagonist related problem is "mirroring," in which hostile forces are assumed to act in the same manner as the player(s).⁴² This is a different issue than the stereotyped antagonist, but can generate similar problems in play and analysis.

34. Ibid., volume 1, 5.

35. James F. Dunnigan, *The Complete Wargames Handbook* (New York: William Morrow, 1980), 235–236.

36. Badham and Schneider, *Wargames*.

37. Sabin, *Simulating War*, 4.

38. Herman Kahn and Irwin Mann, *Operational Research: Ten Common Pitfalls* (Santa Monica, CA: RAND, 1957).

39. Kahn, *Thinking about the Unthinkable*, 159–162.

40. Allen, *War Games*, 40.

41. Bud Hay and Bob Gile, *Global War Game: The First Five Years* (Newport, RI: Naval War College, 1993), 14–15.

42. Allen, *War Games*, 319.

Other problems arise at the control level in game play. This is where umpire activity determines game play and predetermined outcomes become important, or the umpires intervene to “eliminate dullness” from a game.⁴³ Occasionally, umpires over-control teams or provide false information to drive preferred outcomes, for example, by providing teams with false reports of missile launches by their opponents.⁴⁴ The result is an outcome that may fit the intent of the exercise but distorts the data obtained by generating false player reactions. In the case of a nuclear crisis scenario, the unwillingness of teams to use nuclear weapons is a very important observation. Tricking them into launching in order to fulfill an exercise goal undermines the analysis of the game and produces false learning experiences.⁴⁵

One variant of this issue occurs when umpires overrule the outcomes of rule-based games. A famous example of this is a Japanese Midway game in which the presiding admiral changed the outcome of an attack by land-based aircraft, saving two aircraft carriers from destruction.⁴⁶ In this case, the specific judgment reflected events that had been encountered in the real battle;⁴⁷ when Midway based B-17s failed to hit any targets. However, the saving of the vessels may have blinded planners to the greater threat of a U.S. carrier group attacking from the flank of the Japanese fleet while its aircraft were conducting their attacks on Midway.

The final potential source of inaccuracies is within the game rules themselves. Any rigid rule set embodies a number of statistical models and assumptions. As far as possible these will be based on operational research and past conflicts. However, they can introduce distortions. Before the Arab-Israeli conflict of 1967, models tended to result in defeat of smaller Israeli forces, results which subsequent history proved to be inaccurate.⁴⁸ Models were revised as a result, and games focused on how effective to make the opposing forces while still allowing some freedom of action to Arab players.

Playing the Unthinkable?

Given the difficulties and moral conundrums involved, should we really be playing games with nuclear weapons? Kahn’s defenses against charges of thinking about the unthinkable⁴⁹ clearly apply here. Identifying factors that drive players to nuclear escalation can help to prevent such eventualities. If nothing else, gaming provides an insight into one’s own decisionmaking processes; this, in itself, is half of the key to avoiding defeat.⁵⁰ Playing games can also draw out useful observations, such as that of Admiral Matome Ugaki when

43. Kahn and Mann, *War Gaming*, 12.

44. Allen, *War Games*, 179, 315.

45. Albert A. Nofi, “Some Lessons from History about Wargaming and Exercises,” in Perla, *The Art of Wargaming*, 294.

46. Allen, *War Games*, 128.

47. Perla, *The Art of Wargaming*, 56–57.

48. Allen, *War Games*, 106.

49. Kahn, *Thinking about the Unthinkable*, 17–22.

50. Sun Tzu, *The Art of War*, trans. Samuel B Griffith (Oxford: Oxford University Press, 1971), 85 (‘Estimates’ Verse 5).

overseeing the aforementioned Midway game. Admiral Ugaki identified the intervention of a U.S. carrier group as representing a severe threat,⁵¹ but operational planners failed to act on this observation with profound consequences for the Japanese navy.

In addition to the benefits of game outputs the development of game rules and scenarios also provides opportunities for research that can be of benefit in developing an understanding of conflict processes.⁵² When the design of a game is embarked upon, it is important that the development team is aware of the objectives of the exercise, that these lead the design of the game, and that the process is supported by good operational analysis to identify the factors that will influence game outcomes (such as physical, technological, political, and psychological effects). It is also important to identify the composition of the various teams, both for players and umpires, in order to provide a wide range of opinions and expertise. This should minimize the effects of groupthink⁵³ or shared ideologies in the conduct of the game. From this point on, the role of the control team should be to facilitate player actions and analyze how and why certain decisions are reached and not to attempt to influence game play, even if players deviate significantly from the intended direction.

Finally, the general reticence to discuss the subject of war games needs to be overcome for a number of reasons:

- To identify any weaknesses in game design and conduct in order to avoid needlessly repeating them.
- To share analytical opportunities more widely. Games, particularly when run multiple times, offer a rich seam of data that could be mined to identify variations and patterns in player reactions.
- To introduce the concept to disciplines outside the gaming community. This will broaden knowledge of, and participation in, games and allow a wider range of analysis to be fed back into the gaming process.

In conclusion, although there are some inherent unrealities in the development and play of war games,⁵⁴ and designers and umpires must exercise care when constructing games, Baron Von Müffling's observation remains valid nearly two centuries later.

51. Perla, *The Art of Wargaming*, 56–7.

52. Kahn and Mann, *War Gaming*, 4–7; Sabin, *Simulating War*, 31–46; and Philip Sabin, “Ancient Military Wisdom and the Forgotten Context of Pre-Gunpowder Battle” (paper presented at The Classical Legacy in Warfare Spring Conference, Lady Margaret Hall, Oxford, May 5, 2007), <http://www.bcmh.org.uk/archive/conferences/2007ConferenceClassicalLegacy.pdf>.

53. William H. Whyte, “Groupthink,” *Fortune*, March 1952, 114–117.

54. Kahn and Mann, *War Gaming*, 14.

A Two-Variable Proliferation Model: Implications for U.S. Policy toward Iran

*Saurabh Dutta Chowdhury*¹

Introduction

Will recent efforts at slowing down Iran’s nuclear program through the targeted assassination of Iranian nuclear scientists, cyberwarfare, and economic pressure on Iran have a long-term impact on the program? History suggests that targeted killings of scientists, cyberwarfare, and sanctions have a mixed record in rolling back proliferation. In some cases it has had the unintended consequence of emboldening the target state in its nuclear quest; nuclear capitulation has also been observed in other cases. Success stories, such as the rollback of the Syrian and Iraqi nuclear program through precision strikes, suggest such actions work in some cases. However, coercion in the form of sanctions has failed to make India and Pakistan roll back their nuclear programs, illustrating the limitations of such policies in other cases. On the other hand, positive inducements have reportedly worked in making Belarus, Ukraine, and Libya give up nuclear weapons but have failed in the case of North Korea. This study analyzes the effectiveness of cooperation versus coercion-based nonproliferation strategies under varying domestic circumstances of the target country. It uses two comparable case studies—India and Egypt—to build a two-variable model of proliferation and apply the model to the Iran case under varying but likely scenarios.

Existing Literature on Regime Type

ECONOMIC ORIENTATION VERSUS PROLIFERATION RISK

Etel Solingen² has introduced a proliferation framework based on the hypothesis that inward-oriented democracies or autocracies are more likely to proliferate than globally oriented nations. According to Solingen’s³ hypothesis, the world can be divided into four categories of proliferation risk, as defined above in Table 1.

1. Saurabh Dutta Chowdhury is a PhD student in the Defense Studies Department at King’s College.

2. Etel Solingen, *Regional Orders at Century’s Dawn: Global and Domestic Influences on Grand Strategy* (Princeton, NJ: Princeton University Press, 1998).

3. *Ibid.*

Table 1. Categorization of Countries Based on the Solingen Framework

	<i>Autocracy</i>	<i>Democracy</i>	<i>Proliferation Risk</i>
Inward Orientation	North Korea	Israel	Higher
	Pakistan post-1971	India pre-1970s	
	China pre-1979	Iran post-1979	
	USSR	France in 1950s	
	Egypt under Nasser	Brazil, Mexico, and Argentina pre-1980s	
Global Orientation	Taiwan	Sweden	Lower
	South Korea	Switzerland	
	Turkey	South Africa post-1994	
	Chile	Ukraine post-1991	
	Iran pre-1979	Australia, Brazil, Mexico, and Argentina post-1980s	
	Pakistan pre-1971		
	China post-1979		
	Indonesia under Suharto		
	Egypt under Sadat and Mubarak		

Note: USSR, United Soviet Socialist Republics.

Source: Categorization was done based on information from Etel Solingen, *Regional Orders at Century's Dawn: Global and Domestic Influences on Grand Strategy* (Princeton, NJ: Princeton University Press, 1998).

NON-PROLIFERATION TREATY (NPT) AS A DETERRENT TO PROLIFERATION BASED ON REGIME TYPE

In 1963 National Intelligence Estimate 4–63 and a Robert McNamara Department of Defense report predicted that eight countries could develop nuclear weapons by 1973: China, India, Sweden, Australia, Israel, South Africa, Japan, and West Germany.⁴ Egypt was considered to have “moderate to high” motivation and a capability to acquire nuclear weapons later in the 1970s, and Argentina, Brazil, Romania, Bulgaria, Hungary, and Yugoslavia were all feared to be able to develop the bomb by the 1980s.⁵ Scott Sagan argues that the role of the NPT and the threat of ensuing sanctions changed the calculus of “liberalizing” states and thus prevented them from going nuclear.⁶ Sagan highlights the increasing gap between nuclear-capable versus actual nuclear states as support for the effectiveness of the norm-based NPT regime in preventing proliferation.

DEMOCRACIES DON'T CHEAT ON NPT COMMITMENTS, BUT AUTOCRACIES DO

Scott Sagan notes that democracies and autocracies are seen to be similar in their proliferation behavior; if anything, democracies are found to be slightly more likely to go nuclear than

4. Scott Sagan, “Causes of Nuclear Weapons Proliferation,” *Annual Review of Political Science* 14 (June 2011): 225–244.

5. Ibid.

6. Ibid.

nondemocracies. Dong-Joon Jo and Eric Gartzke⁷ find that regime type makes no difference in whether a government initiates a nuclear weapons program. Sagan finds that democracies are more likely than nondemocracies to acquire nuclear weapons once they create a program.⁸ Democratic countries have certainly pursued and acquired nuclear weapons, but the new quantitative literature has ignored the important observation that no democratic nonnuclear weapon state (NNWS), as defined by the NPT, has cheated on its commitments under the NPT. In all past cases, democracies that started nuclear weapons programs either abandoned or completed their programs before the NPT came into force, or they did not join the NPT at all. This fact clearly shows that democracies have behaved differently with respect to nuclear weapons proliferation. Democracies have both successfully developed nuclear weapons and started but then abandoned nuclear programs, but no democratic NNWS has ever started a covert nuclear weapons program after its government ratified the NPT.

Gaps in the Existing Literature

While Sagan's theory of the influence of the NPT regime and Solingen's theory of the influence of economic orientation of regime type explain the behavior of Switzerland, Sweden, Italy, West Germany, Brazil (post-military regime collapse), South Africa (which changed from an inward autocracy to an outward democracy postapartheid), Romania, Ukraine, Kazakhstan (which changed from an inward autocracy to an outward democracy/autocracy postcommunism collapse), and Australia, they do not account for the reversal of inward autocracies such as Libya, Belarus, and Algeria. Sagan categorized Iran as a case that started a nuclear weapons program under the Shah in the 1970s, followed by reversal in the early 1980s with the Islamic revolution, followed by a subsequent restart in the late 1980s. How does one explain Iran's multiple starts based on Solingen's framework of regime type? Based on both regime type (Sagan) and economic integration (Solingen) models, how can one explain the Indian nuclear tests separated by over 24 years and executed by two different democratically elected governments with different economic integration models?

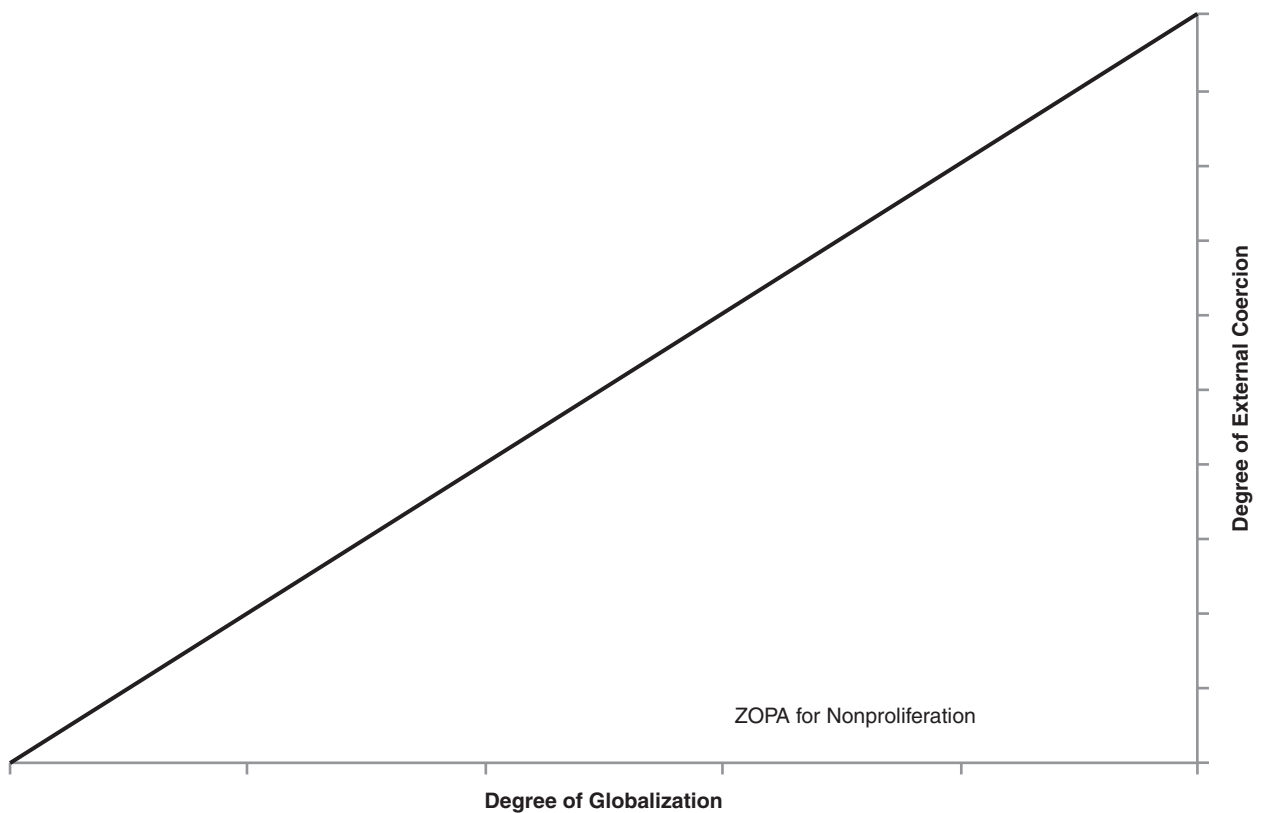
Two-Variable Zone of Possible Agreement Model for Nonproliferation

One of the shortcomings of both Sagan's and Solingen's theories is that they specify a single variable only, assuming that the outcome is entirely determined by the actions of the proliferating nation. In reality the causes of proliferation are multifaceted. While regime type and domestic/bureaucratic politics in the proliferating nation play a key role in determining the ultimate outcome, this study argues these are not the only significant variables. Another key factor is the degree of diplomatic, economic, and military coercion and cooperation between the suspected proliferating nation and the global community of nations.

7. Dong-Joon Jo and Eric Gartzke, "Determinants of Nuclear Weapons Proliferation," *Journal of Conflict Resolution* 51, no. 1 (2007): 167-194.

8. Sagan, "Causes of Nuclear Weapons Proliferation."

Figure 1. Two-Variable Zone of Possible Agreement (ZOPA) Model for Nonproliferation for Autocracies



Zone of Possible Agreement being the area to the right of the line between challenger and defender of the Global Nonproliferation Regime as applied to autocracies.

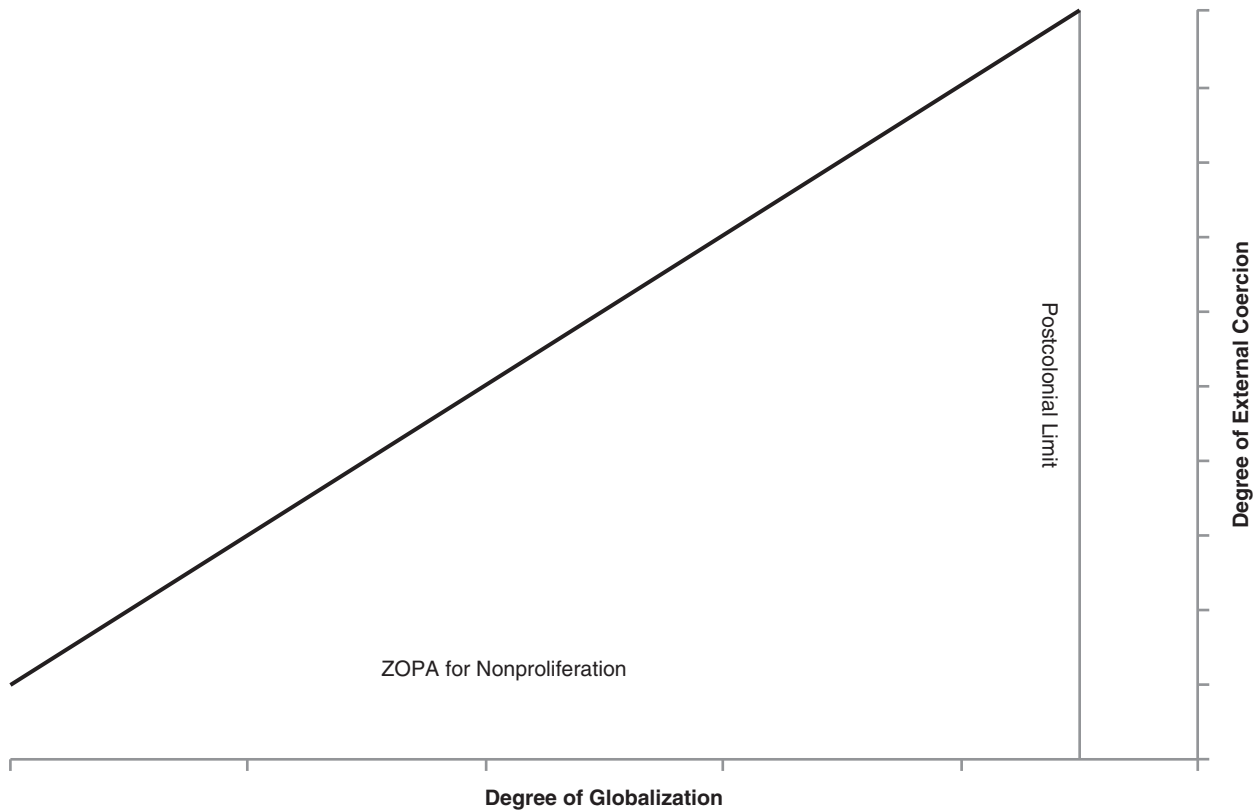
Solingen⁹ observes that autocracies react to sanctions differently than democracies but he does not elaborate further.

Expanding on the above theories of Solingen and Sagan, this study proposes a two-variable zone of possible agreement (ZOPA) model for nonproliferation with different ZOPA sets for democracies and autocracies. This addition will explain the inconsistencies between the Sagan and Solingen models and the Iranian case that spans multiple Iranian regimes.

The assertion of the Solingen framework is that autocracies react differently to sanctions than do democracies. To create a two-variable ZOPA model for nonproliferation based on regime type—assuming all other factors such as geopolitical threats to be constant—this differentiated response to sanctions is coupled with the observation that inward-looking postcolonial democracies have a greater propensity to launch nuclear programs. In the ZOPA model, democracies are hypothesized to be more receptive to cooperative overtures from the West, irrespective of global economic orientation as illustrated in Figures 1 and 2.

9. Etel Solingen, *Sanctions, Statecraft and Nuclear Nonproliferation* (Cambridge: Cambridge University Press, 2012). Solingen observes that autocracies react to sanctions differently than democracies but does not elaborate further.

Figure 2. Two-Variable Zone of Possible Agreement (ZOPA) Model for Nonproliferation for Postcolonial Democracies



Zone of Possible Agreement being the area to the right of the line between challenger and defender of the Global Nonproliferation Regime as applied to democracies bounded by the postcolonial limit.

Moreover, the model in Figure 2 is adjusted with a modified boundary for postcolonial states irrespective of the degree of cooperation offered by partner states in the West. The model hypothesizes a smaller zone of agreement window for nonproliferation negotiations for postcolonial states versus other nations. This is because, as Joshua Forest writes, “In most countries that experienced . . . direct colonial rule, nationalism emerged as a political and intellectual movement embraced by a broad spectrum of social elites. Nationalist leaders . . . shared a common interest in extricating the nation from colonial rule and in establishing an independent nation-state with a distinct, unified national identity.”¹⁰ In these countries nuclear weapons fit the postcolonial nationalist narrative by serving as a symbol of strategic autonomy. Therefore, the zone of possible agreement on nuclear nonproliferation for these states is more limited than others, as illustrated in Figure 2.

Understanding the effect of the second variable (y axis in Figures 1 and 2)—degree of coercion or cooperation—is relevant because often this is the only tool policymakers in the

10. Joshua Forest, “Nationalism in Post-colonial States,” in *After Independence*, ed. Lowell W. Barrington (Ann Arbor, MI: University of Michigan Press, 2006), 33.

United States have at their disposal. James K. Sebenius and Michael K. Singh¹¹ introduced a ZOPA framework, but it only applies in the context of the present-day Iranian regime, looking at nuclear negotiation possibilities with present-day Iran without extending the model to various different regime type scenarios.

The Iranian Case¹²

Iran's interest in nuclear energy dates back to the 1950s under Shah Mohammed Reza Pahlavi. The nuclear program had become quite ambitious by the 1970s and included plans for the construction of 20 nuclear power reactors, research reactors, a uranium enrichment facility, and a plant for reprocessing spent fuel—all planned under the ambit of a pro-Western outward-oriented autocracy that had signed and ratified the NPT by 1970. This case defies the Solingen model but is in agreement with Sagan's contention about autocracies and their propensity to cheat on nuclear nonproliferation obligations. In the 1970s the Shah was discussing partnership agreements for the supply of nuclear technologies and materials with West Germany, France, South Africa, Argentina, and others. Iran also offered a loan to France for the construction of an enrichment plant by Eurodif. However, with the regime change following the Islamic Revolution in 1979, the nuclear agreements with West Germany and Eurodif were canceled for financial reasons.

However, by 1984, amidst the Iran-Iraq War, fresh efforts were made by the Islamic Republic to engage non-Western partners—namely India and China—in nuclear cooperation without much success. The world has been grappling with the possibility of a nuclear-armed Iran since 2002, when the National Council of Resistance of Iran, a dissident Iranian group, revealed two enrichment facilities in Natanz and a heavy water research reactor in Arak. These hitherto undisclosed facilities illustrated the magnitude of the new Iranian program. Procurement of nuclear materials from China and extensive contacts with the clandestine network of A.Q. Khan (father of the Pakistani bomb) have also come to light. Since the early part of the last decade, Iran has been involved in a cat-and-mouse game with the International Atomic Energy Agency (IAEA), E3 countries (the United Kingdom, Germany, and France), and European Union (EU) negotiators under threat of United Nations (UN) Security Council-backed actions. These negotiations resulted in the 2004 Paris Agreement in which the E3/EU recognized Iran's right to peaceful nuclear exploration under the NPT, and Iran agreed to cooperate with the IAEA. Iran signed the IAEA Additional Protocol in December 2003 but did not ratify it. However, the election of hardliner President Mahmoud Ahmadinejad resulted in the cessation of the E3/EU talks and stopped implementation of the Additional Protocol, causing Iran to be referred to the IAEA Board of Governors. The Ahmadinejad period resulted in a belligerent confrontation during the negotiations between Iran and the P5 (the five permanent members of the UN Security Council who are also the five nuclear weapon states recognized by the NPT).

11. James K. Sebenius and Michael K. Singh, "Is a Nuclear Deal with Iran Possible? An Analytical Framework for the Iran Nuclear Negotiations," *International Security* 37, no. 3 (Winter 2012): 52–91.

12. Gaukhar Mukhtazova and William C. Potter, eds., *Forecasting Nuclear Proliferation in the 21st Century, Volume 2* (Stanford, CA: Stanford University Press, 2012), 42–46.

Table 2. Iranian Orientation and Western Degree of Coercion

<i>Degree of Coercion</i> (1 low, 10 high)	<i>Degree of Global Orientation</i> (1 low, 10 high)	<i>Iran Regime</i>	<i>Triggers</i>
1	9	Shah in 1970s	Eurodif
2	1	Khomeini in late 1970s	Hostage crisis
3	4	Rafsanjani/Khatemi in 1990s	Opening under Clinton leading to P5+1 agreement in 2003
7	2	Ahmadinejad since 2005	Discovery of Natanz facility; Khomeini regime; disagreement with IAEA

Note: IAEA, International Atomic Energy Agency; P5+1, the five permanent members of the UN Security Council, who represent the five nuclear weapon states recognized by the Non-Proliferation Treaty (NPT), plus Germany.

The political-historical information was coded into degree of coercion (y axis on Figures 1 and 2) and degree of global orientation (x axis) using the autocracy model based on a scale of 1 (low) to 10 (high) for each axis. The findings are summarized in Table 2 and Figures 3 and 4. The coding is relative and based on publically-available analysis. For example, it is assumed that the Shah of Iran valued Western economic relationships as manifested by the degree of ease for multinationals to operate in Iran during his regime. Therefore on the count of global orientation his regime is scored a 9 out of 10 whereas the violent overthrow and subsequent installation of the Ayatollah Ruhollah Khomeini regime amidst the hostage crisis is rated as a 1 out of 10 in global orientation based on actions of the regime. Similarly, the severity of sanctions has been used to code the degree of Western coercion. For example, there were no sanctions during the Shah’s regime, hence coercion is coded low, as a 1 out of 10. Whereas many sanctions existed against Iran during Ahmadinejad’s regime so its coercion factor is coded higher, a 7 out of 10.

In this study Iran is analyzed as both a democracy and autocracy, as there is little consensus on the degree of democracy available to the Iranian public since the Islamic Revolution. However, actual history seems to better reflect with the two-variable democratic regime version of the ZOPA model for nonproliferation, rather than the autocratic model.¹³

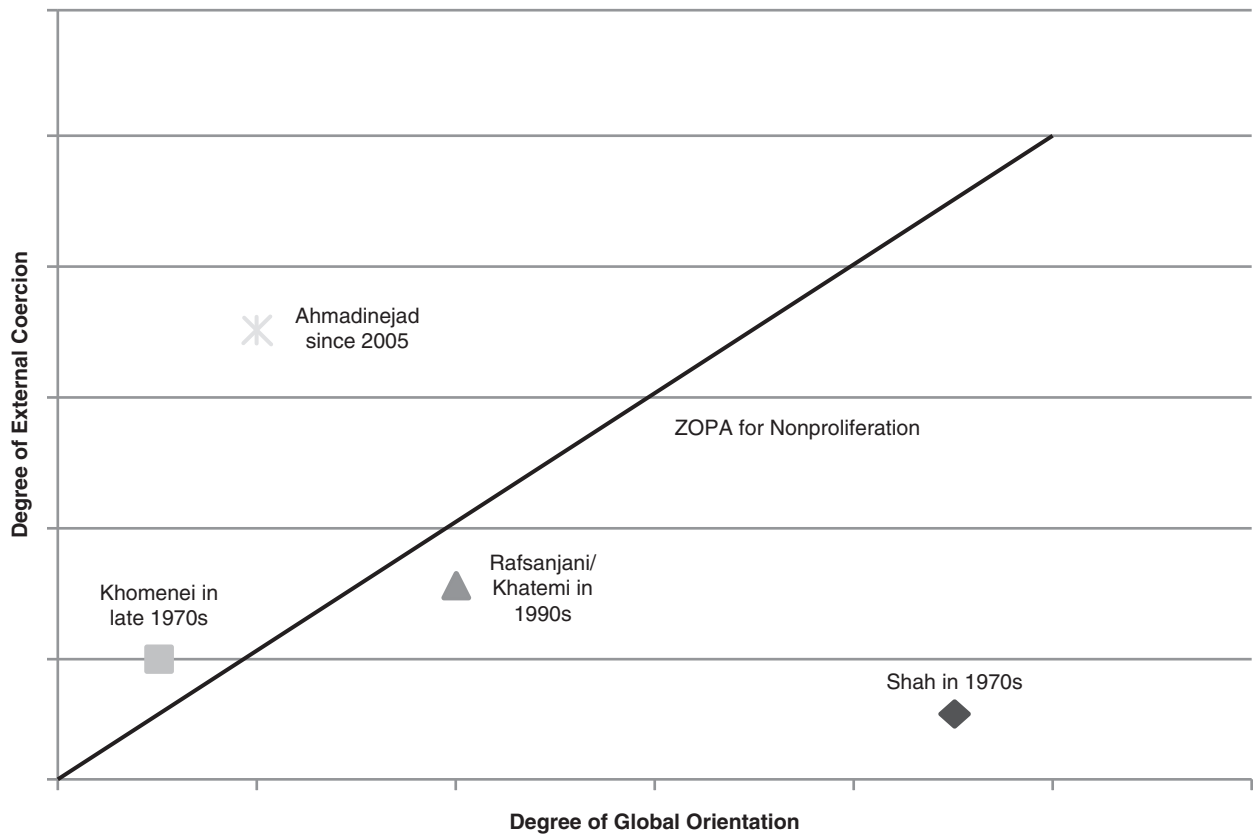
Other Cases to Test the Two-Variable ZOPA Model for Nonproliferation

INWARD DEMOCRACY: INDIA

Indian nuclear behavior since achieving latency shows periods when India reversed course, albeit partially. The Indian nuclear program began in earnest right after

13. Arash Karami, “Khamenei ‘Not Opposed’ to Diplomacy, Flexibility,” *Al-Monitor*, September 17, 2013, <http://iranpulse.al-monitor.com/index.php/2013/09/2834/khamenei-not-opposed-to-diplomacy-flexibility/>.

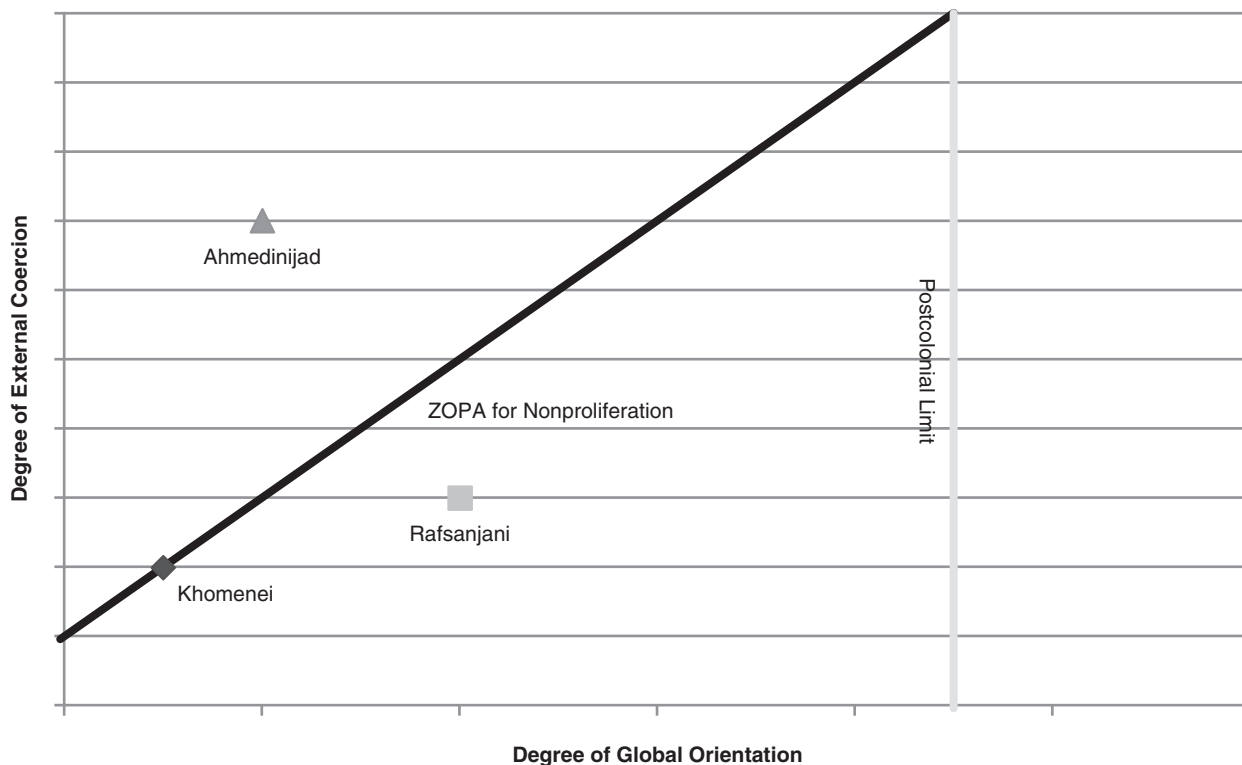
Figure 3. Two-Variable Zone of Possible Agreement (ZOPA) Model for Nonproliferation for Autocracies Applied to Iran



Above model with actual data at various periods.

independence with a civilian nuclear energy project to showcase postcolonial science under the leadership of Homi Bhaba and the patronage of Jawaharlal Nehru. However, after the Chinese nuclear tests, the program started taking a military orientation (although not always), as deduced from the analysis of the causes driving nine inflection points in nuclear testing decisionmaking since latency. The circuitous sequence of events since commissioning of the Trombay reprocessing plant in 1965 is illustrated in Figure 5, based on the coding of events displayed in Table 3. The coding is relative and based on publically available analysis. For example, it is assumed that the post liberalization governments such as Manmohan Singh's valued western economic relationships; these were manifested by the degree of ease for multinationals to operate in India during his regime. Therefore global orientation is scored a high value of 9 out of 10. Conversely, the Indira Gandhi government between 1967 and 1977 nationalized banks, declared a state of emergency and signed a peace treaty with the Soviet Union, thus demonstrating low propensity to be oriented to the West. Hence global orientation score for this regime is a low 1 out of 10. Sanctions imposed against India following 1974 nuclear tests and the isolation of India at the 1995 NPT conference making the NPT permanent, followed by isolation as a result of the Comprehensive Nuclear Test Ban Treaty (CTBT), are coded as cases of high degree of global coercion against India, being scored between 6 and 8 (out of 10) depending on the

Figure 4. Two-Variable Zone of Possible Agreement (ZOPA) Model for Nonproliferation for Democracies Applied to Iran

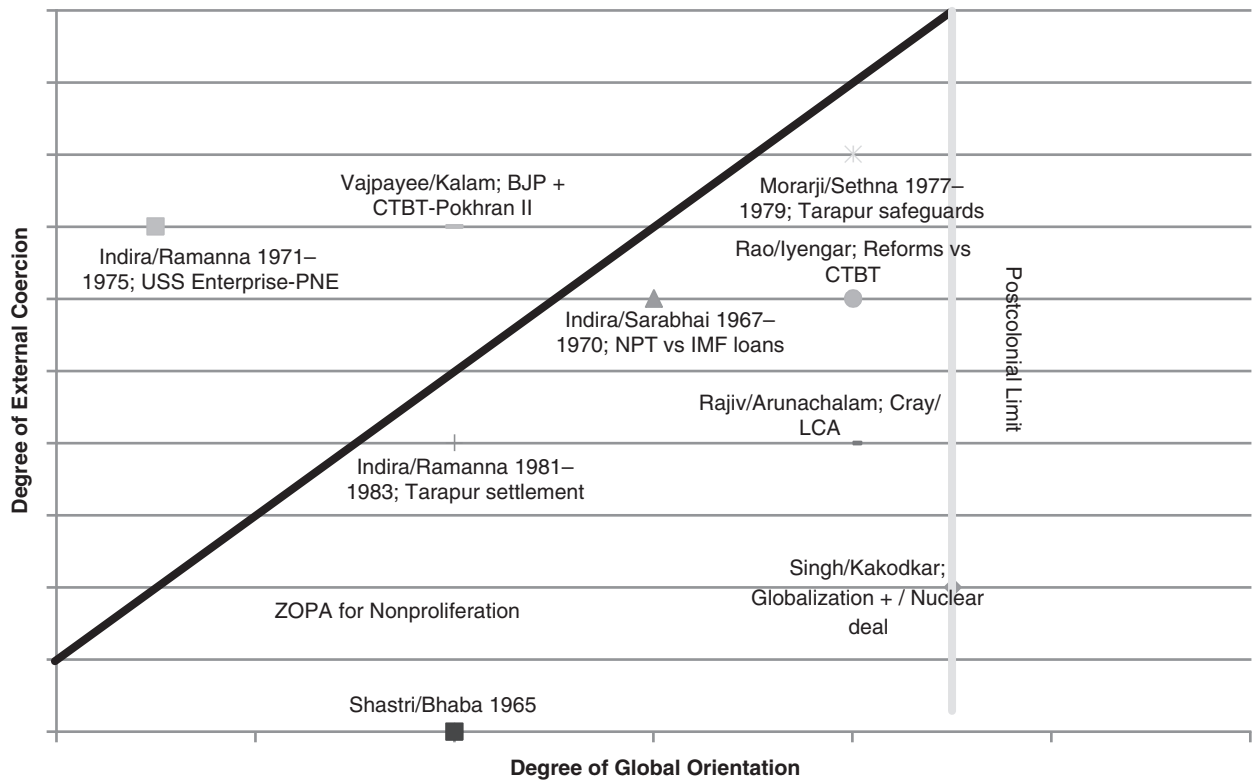


Above model with actual data at various periods.

time period. On the other hand Nuclear Suppliers Group waiver and acceptance of India as a partner in global nuclear commerce following the Indo-U.S. civil nuclear deal is treated as low coercion, hence scored 2 out of 10. Acceptance of India as a NSG member is not realized, therefore the score is not yet 0.

The factors that made India reverse or accelerate its nuclear program depended on which bureaucratic group had the upper hand in exercising institutional power, which in turn was influenced by U.S. diplomatic interaction with India. In terms of Indian bureaucratic politics, at certain times the political establishment prevailed over the scientific establishment's push for nuclear testing; at other times the political bureaucracy was unable to resist the scientific push for testing; and at still other times it resisted testing but allowed the scientific enclave to continue other nuclear- or missile-related activity. In terms of U.S. diplomatic interactions with India, at certain times U.S. interaction with India was not influenced by the U.S. nonproliferation stakeholders, resulting in a U.S. nuclear policy that was accommodating toward India. At other times U.S. interaction with India was more influenced by the U.S. nonproliferation interests, resulting in a more confrontational U.S. nuclear policy toward India. Figure 5 summarizes the various gyrations in Indian nuclear testing decisionmaking under various domestic leadership teams of the political and the scientific establishment amidst external influences of coercion and cooperation. This

Figure 5. Two-Variable Zone of Possible Agreement (ZOPA) Model for Nonproliferation for Democracies Applied to India



Above model with actual data at various periods.

Note: BJP, Bharatiya Janata Party-Hindu Nationalist Party. Leadership categorized as “Opposition Nationalist” by Jacques Hymans; CTBT, Comprehensive Nuclear Test Ban; IMF, International Monetary Fund; LCA, Light Combat Aircraft; NPT, Non-Proliferation Treaty; PNE, Peaceful Nuclear Explosion.

study assumes India to be an inward democracy moving outward during the period in question.

The empirical analyses show that security-centric orientation, leadership type,¹⁴ economic orientation,¹⁵ domestic politics, or prestige motivations by themselves do not explain the timing of the Indian nuclear testing decisions. Correlation analysis against the facts from the cases finds that the missing elements for the Indian case can be explained by the interaction of India’s bureaucratic politics¹⁶ and U.S. diplomatic interactions with

14. Jaques Hymans, *The Psychology of Nuclear Proliferation: Identity, Emotions and Foreign Policy* (Cambridge: Cambridge University Press, 2006).

15. Etel Solingen, *The Domestic Sources of Nuclear Postures: Influencing “Fence-Sitters” in the Post-Cold War Era*, IGCC Policy Paper 8 (San Diego, CA: Institute on Global Conflict and Cooperation, October 1994), <http://igcc.ucsd.edu/assets/001/501216.pdf>.

16. In terms of Indian bureaucratic politics, at certain times, the political establishment prevailed over the scientific establishment’s push for nuclear testing; at other times it was unable to resist the scientific push for testing; at still other times it resisted the scientific push for testing but allowed the scientific enclave to continue other nuclear or missile-related activity.

Table 3. Indian Orientation and Western Degree of Coercion since 1965 (year of latency)

<i>Degree of Coercion (1 low, 10 high)</i>	<i>Degree of Global Orientation (1 low, 10 high)</i>	<i>Regime (Political/Scientific)</i>	<i>Triggers</i>
0	4	Shastri/Bhabha (1965)	Chinese tests at Lap Nor in 1964 Parliamentary debates 1964 Bhabha's speech on All India Radio
7	1	Indira/Ramanna (1970–1974)	Isolated at NPT on right to PNE USS <i>Enterprise</i> in Bay of Bengal 1971 Peaceful nuclear explosion of 1974
6	5	Indira/Sarabhai (1967–1970)	Bhabha's death; currency devaluation
8	8	Morarji/Sethna (1977–1979)	Symington Act
4	4	Indira/Ramanna (1981–1983)	Tarapur settlement: France as supplier Summit with Reagan Launch of IGMP missile program
4	8	Rajiv/Arunachalam (1984–1987)	Access to Cray and GE engines Summit with Reagan
6	8	Rao/Iyengar (1992–1996)	Isolation at CTBT Economic reforms/IMF loans Pressure to stop Agni missile tests
7	4	Vajpayee/Kalam (1998–1999)	Opposition nationalist ideology Isolation at CTBT Pokhran tests of 1998
2	9	Singh/Kakodkar (2005–2008)	Preceding Singh-Talbot talks Indo-U.S. civil nuclear deal

Note: CTBT, Comprehensive Nuclear Test Ban; GE, General Electric; IGMP, Integrated Guided Missile Program; IMF, International Monetary Fund; NPT, Non-Proliferation Treaty; PNE, Peaceful Nuclear Explosion.

India.¹⁷ Another finding of this study is the decoupling in the timing of nuclear tests and other nuclear-related technology demonstrators in the Indian context. This behavior can be explained if one treats nuclear testing and nuclear weapons programs as two distinct costly signals.¹⁸

17. In terms of U.S. diplomatic interactions with India, at certain times, U.S. interaction with India was not influenced by a U.S. nonproliferation lobby, resulting in U.S. nuclear policy being accommodating toward India. At other times U.S. interaction with India was more influenced by a U.S. nonproliferation lobby, resulting in U.S. nuclear policy toward India being confrontational.

18. James Fearon, "Signaling Foreign Policy Interests: Tying Hands Versus Sinking Costs," *Journal of Conflict Resolution* 41, no. 1 (1997): 68–90.

The trajectory of India's nuclear weapons program seemed to be dictated by the progress of nuclear weapons programs in China and Pakistan, as demonstrated by the timing of the launch of the Study of Nuclear Explosions for Peaceful Purposes research in 1965 and a weaponization drive in the late 1980s in reaction to the Pakistani bomb.¹⁹ This manifestation of strategy driven by realism treats investment in nuclear technology as a sunk cost only alterable if geostrategic realities change. Whereas the trajectory of testing decisions of 1974 and 1998 are driven by domestic audience cost-constrained bargaining at NPT and CTBT against atomic apartheid and permanent second-class status. Therefore, aspects of the Indian nuclear program, such as the development of enrichment and reprocessing capability and a triad of delivery vehicles and other related technologies, may be time-bound manifestations of grand strategy resulting from sunk costs to explain the decoupling phenomenon. This explains why the Indian nuclear testing decisions can be explained within the framework of a two-variable ZOPA model for nonproliferation, but the timing of missile delivery tests or development of nuclear submarines cannot be.

INWARD AUTOCRACY: EGYPT²⁰

The Egyptian nuclear program was launched in 1954 under the patronage of Gamal Abdel Nasser. Egypt acquired its first nuclear reactor from the Soviet Union in 1961. The Soviets controlled the disposal of this small nuclear research reactor's spent fuel, which was not capable of producing a significant amount of weapons-grade material. Egyptian nuclear ambitions were discarded following its 1967 military defeat at the hands of Israel. Egypt signed the NPT in 1968 but delayed ratification, presumably because the government had evidence that Israel had embarked on a nuclear weapons program. Subsequently, Egypt lost many of its nuclear experts; they had traveled abroad to seek work opportunities. Some immigrated to Canada, and others joined the Iraqi nuclear program. The Nasser regime could be categorized as an inward-oriented autocracy with a strong postcolonial legacy, making it the most likely regime to pursue an Egyptian weapons program, matching some observed data from Sagan.²¹ However, internal bureaucratic politics thwarted Egypt's nuclear program. Events are illustrated in Figure 6, based on the coding of events displayed in Table 4.

After the advent of an outward-oriented autocracy, Egypt took the initiative to propose a Middle East nuclear weapons free zone and join the NPT.²² Since the 2011 Egyptian

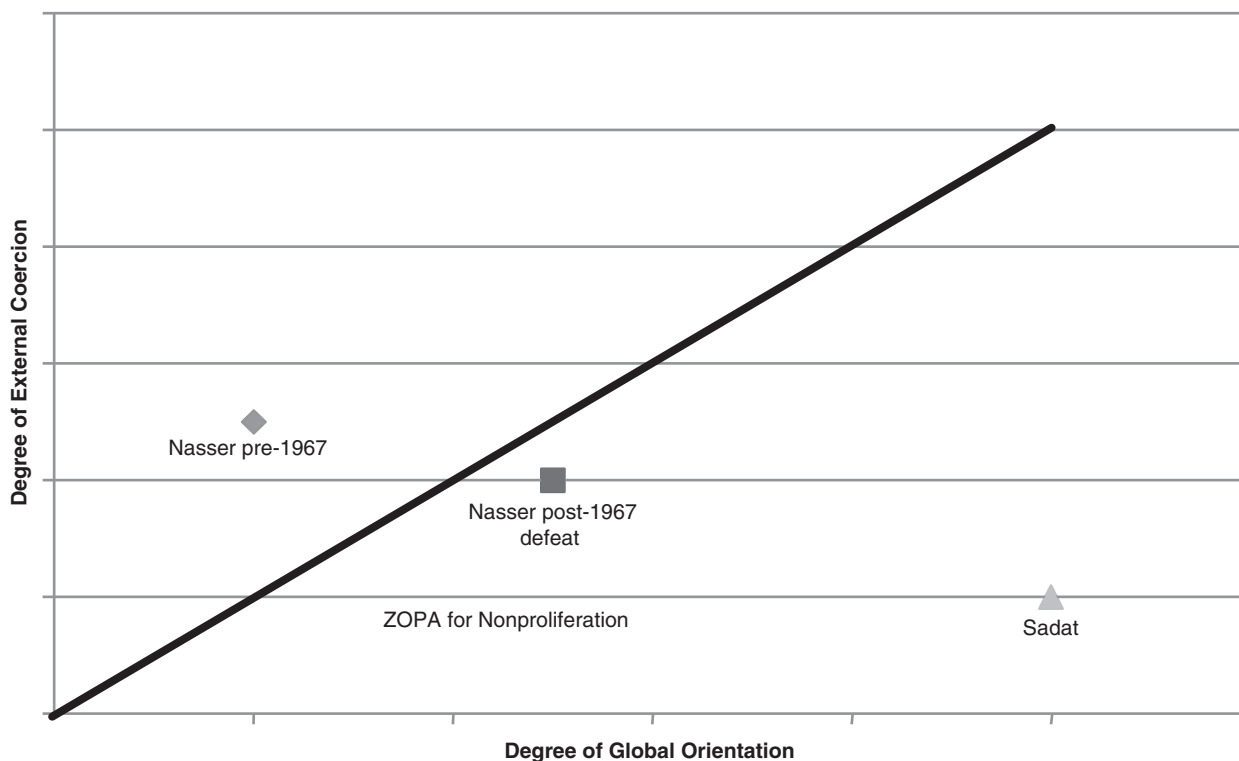
19. George Perkovich, *India's Nuclear Bomb: The Impact on Global Proliferation* (Berkeley: University of California Press, 1998), 84.

20. Federation of American Scientists, "Egypt: Nuclear Weapons Program," May 30, 2012, <https://www.fas.org/nuke/guide/egypt/nuke/index.html>.

21. Scott Sagan, "Nuclear Latency and Nuclear Proliferation," in *Forecasting Nuclear Proliferation in the 21st Century: The Role of Theory, Volume 1*, ed. William C. Potter and Gaukhar Mukhatzhanova (Stanford, CA: Stanford University Press, 2010). Another potential political constraint on nuclear weapons programs can be the rivalries for power between different leaders in potential proliferators. In Egypt in the 1960s, for example, Gamal Abdel Nasser started a nuclear weapons program but did not give it high priority or a large budget, in part because the head of the nuclear program was a strong ally of Nasser's chief rival, Abdel Hakim Amer.

22. Federation of American Scientists, "Egypt: Nuclear Weapons Program."

Figure 6. Two-Variable Zone of Possible Agreement (ZOPA) Model for Nonproliferation for Autocracies Applied to Egypt



Above model with actual data at various periods.

Table 4. Egyptian Regime Orientation and Western Degree of Coercion

<i>Degree of Coercion</i> (1 low, 10 high)	<i>Degree of Global Orientation</i> (1 low, 10 high)	<i>Regime + Trigger</i>
5	2	Nasser pre-1967
4	5	Nasser post-1967 defeat
2	10	Sadat

Revolution, various claims have been made that with Hosni Mubarak out of power, a future Egyptian government could change the current stance against pursuing nuclear weapons. The Muslim Brotherhood, Egypt’s oldest Islamic organization and one of the few political parties that opposed the Mubarak regime, has remained silent for many years on the issue of nuclear weapons. However, when in power between 2012 and 2013 the Mohammed Morsi–led Muslim Brotherhood government made no known efforts to pursue nuclear weapons. This was likely due to financial constraints as well as Egypt’s leading position in the movement for a nuclear weapons free zone in the Middle East. With the reinstatement of a military dictatorship opposing the Brotherhood in early 2013, it is safe to categorize the present regime as an outward-oriented autocracy, the least likely to pursue nuclear weapons ambitions.

OTHER CASES

The cases of Israel, Pakistan, and North Korea are less relevant to the Iran case, as there is no enduring rivalry with a nuclear-armed adversary in the case of Iran. In contrast, Israel maintains a rivalry with Egypt and Syria, at times under the Soviet nuclear umbrella, Pakistan with nuclear-armed India, and North Korea with South Korea and Japan—both under the U.S. nuclear umbrella. Therefore, I conclude that the Iranian national psyche is dictated by a postcolonial, anti-imperialist narrative rather than an enduring rivalry with a nuclear-armed adversary. Thus, the Israeli, Pakistani, and North Korean cases are not covered in this study because these cases do not help explain Iranian nuclear behavior.

Possible Outcomes for the Iranian Case Based on the ZOPA Model for Nonproliferation

It becomes imperative to decide if the current regime in Iran is a democracy or autocracy before one can venture to predict possible nuclear behavior outcomes based on the ZOPA model under different coercion/cooperation scenarios. Is the current regime in Iran an inward-looking democracy or autocracy? There is considerable debate on how to categorize Iran, so both scenarios are considered. Note, however, that this study is weighted with the assumption that present-day Iran is an inward-looking democracy. This is based on the series of publicized elections held since the Islamic Revolution, even though they have been controversial in nature. This makes Iran closer to India pre-1990s with an inward postcolonial orientation. Therefore, lessons from the Indian cases are borrowed for three out of the four scenarios; the last scenario is more akin to the post-Nasser Egypt case.

SCENARIO 1: OUTWARD TRENDING DEMOCRATIC REGIME WITH MORE EXTERNAL COERCION

Even if there is a change in orientation of the newly elected Iranian government led by Hassan Rouhani, much like there was a government change in India in the late 1960s, this would at best result in a nuclear truce. In the end, however, Tehran would behave in a similar way as Indira Gandhi and Vikram Sarabhai did during 1966–1970. This is because political and scientific leaders in both countries are pulled by historical glory factors. Many policy elites in modern inheritors of old civilizations (such as Iran and India, as well as China, Egypt, and Turkey) with adequate technical manpower resources have viewed the nuclear bomb as a shortcut to regain past glory. Therefore, based on the Indian experience, we can predict poor chances for an Iranian rollback of its nuclear program in response to more sanctions. In fact, there may be further hardening of stance in Tehran emboldening the hardliners in future elections as was the case in India in the 1974–1998 time period. The increased space gained by the outward movement of the Iranian government will be negated by space shrunk due to increased coercion on the other axis of the two-variable ZOPA model for nonproliferation.

SCENARIO 2: OUTWARD TRENDING DEMOCRATIC REGIME WITH LESS EXTERNAL COERCION

A capping of the nuclear program in return for easing sanctions, similar to the Indian decision to follow a de facto test ban following the Indo-U.S. nuclear deal, may be possible. This may be worth investigating, as the ability for Iran to sell oil in return for capping its nuclear program may be sold as a win-win situation, just as the Indo-U.S. civilian nuclear deal was by both sides. Moreover, such a stance may let the United States appeal to Iran's sense of exceptionalism. A move for universal nuclear disarmament may be the best pressure to isolate the "rogue" from "exceptional." Indian acceptance of the convention on the prohibition of chemical weapons while resisting CTBT may be a good example to predict how Iran may behave if Global Zero becomes a reality.²³ Maybe Iran will do the same if the world truly unites and declares nuclear weapons universally illegal. Movement on the Comprehensive Nuclear Test Ban Treaty and a nuclear weapons free zone in the Middle East involving Israel may help, but any Israeli nuclear test will definitely negatively impact such a scenario. This is a desirable scenario; as per the two-variable ZOPA model for nonproliferation, it would generate a larger window to reach an agreement on both the x and y axes.

SCENARIO 3: INWARD TRENDING DEMOCRATIC REGIME OF HARDLINERS UNDER MORE COERCION

This scenario would be a return to the impasse under Ahmadinejad, resulting in more confrontation. It could lead to an Iranian move to leave the NPT regime, as North Korea did. This will be one of the most counterproductive outcomes from the standpoint of regional stability. Other powers in the Middle East such as Saudi Arabia, Turkey, and Egypt may follow suit, resulting in a domino effect. This scenario has been the status quo for the last decade. Further coercion by the United States or Israel via cyberattack and targeted strikes against scientists will further exacerbate the situation according to the ZOPA model for nonproliferation. Other possible forms of external coercion may include the global community's failure to stop a nuclear-armed Israel and possibly Saudi Arabia from countering Tehran via deterrence. Experiences from South Asia have shown the dangers of such instability,²⁴ as evident from the Kargil and other subsequent regional crises.

SCENARIO 4: REGIME CHANGE VIA AN OUTWARD MOVING AUTOCRACY AND MORE COOPERATION

The only regime that may thoroughly restrain Iran's quest for nuclear technology would be a despotic nondemocratic, pro-U.S. military regime in Iran, which is unlikely. However, history shows that this is not a stable solution to the Iranian nuclear issue. If the new regime is an autocracy it may have the propensity to cheat while the United States looks the

23. India did come clean and declare its hitherto unknown chemical weapons program in 1997, and New Delhi agreed to dismantle the chemical weapons when their use became a universal taboo.

24. Paul Kapur and Sumit Ganguly, *India, Pakistan and the Bomb: Debating Nuclear Stability in South Asia* (New York: Columbia University Press, 2010).

other way. Or if it is a democratic but pro-Western regime, Iran would still need to overcome nationalist bias in a postcolonial environment. It is true that pro-Western, nondemocratic regimes in Turkey and Egypt put cold water on nuclear hopes by deliberately depriving their nations of a credible nuclear infrastructure by accepting the NPT bargain, in part because they did not have to face elections in which nuclear restraint could be politicized. For example in the late 1970s India's Prime Minister Morarji Desai was unable to curtail and dismantle the nuclear infrastructure or even agree on safeguards vis-à-vis fuel transfer to Tarapur in 1979. Desai was driven by the Gandhian values of nonviolence all his life and was a leading opponent of the Indian strategic nuclear program. However, even someone with his impeccable antinuclear and pro-U.S. reputation was unable and unwilling to roll back the Indian nuclear program under pressure from the Carter administration. The nuclear infrastructure had already been built up in the nation and was in the hands of a powerful scientific bureaucracy.²⁵ Rolling back a built-up infrastructure that was equated with historical civilizational prestige was politically very difficult for India's leaders, and the same prestige-based logic applies to Tehran. This may explain why even the pro-U.S. Shah had considered seriously the building of a nuclear infrastructure in Iran. This is evident from his investment in European nuclear reprocessing initiatives.

Conclusion

Successful outcome of nonproliferation measures assume a known model²⁶ to predict how to dissuade "would be" proliferators, but Tanya Ogilvey-White²⁷ points out that the field is still plagued by ambiguities and inconsistencies about the demand side models of proliferation. According to her, these models are often based on the dynamics of proliferation in the declared nuclear weapons states but may not be relevant to current proliferation challenges. Moreover, both the realist and idealist models assume the causes of nuclear test decisions and the initiation of deployment of nuclear weapons to be the same. Empirical evidence from the Indian case described above suggests that in some cases nuclear testing decisions may be explained by a different dynamic than nuclear weapons programs. One may be explained by audience cost-constrained crisis bargaining while the other may be a manifestation of grand strategy driven by sunk costs. In this paper, it is assumed that present-day Iran is an inward looking postcolonial democracy, as India was during the 1970s, making the application of the ZOPA framework applicable to the Iranian case. Iranian leaders may have been boxed into a corner under domestic audience pressure whereby they can never roll back a nuclear program constrained by public opinion. Therefore, the only face saving room for them to agree to any concessions has to be balanced by public displays of concessions from the West as depicted by the two-variable ZOPA model for nonproliferation. The nuclear negotiations with Iran are now governed by crisis-bargaining rules dominated by audience cost on both sides.

25. Perkovich, *India's Nuclear Bomb*, 210.

26. Scott Sagan, "Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb," *International Security* 21, no. 3 (Winter 1996/1997): 54–86.

27. Tanya Ogilvey-White, "Is there a Theory of Nuclear Proliferation? An Analysis of the Contemporary Debate," *Nonproliferation Review* 4, no. 1 (Fall 1996): 44–53.

However, subsequent to the end of negotiations there will be a need for some follow-up quiet diplomacy to alter the strategic balance vis-à-vis Iran to make it worthwhile for Iran to adjust overall nuclear direction without the pressure of audience cost in light of the changing strategic reality driven by realist security paradigms. This hope is based on the observation by Fearon that public memories are short, and it is easier to accept sunk costs and move on rather than compromise during crisis bargaining constrained by audience cost.²⁸

28. Fearon, "Signaling Foreign Policy Interests."

Tactical Nuclear Weapons and South Asian Crisis Stability

*Kyle Deming*¹

Introduction

Since 2011, when Pakistan successfully tested its Nasr nuclear-capable short-range ballistic missile, regional security analysts have focused on the possible implications of Islamabad's choice to integrate nuclear weapons into warfighting. The development of accurate short-range delivery vehicles and miniaturized low-yield warheads, as well as statements by military and civilian officials,² indicate that Pakistan is pursuing a tactical nuclear weapon (TNW) capability. The adoption of substrategic arms marks a significant departure from defensively oriented strategic weapons and is designed to deter a superior Indian conventional force. This article will discuss the costs and benefits (in terms of regional crisis stability) of incorporating TNWs into Pakistan's warfighting plans.

Ardent supporters of Pakistan's new deterrence posture claim that the weapons will contribute to South Asian stability by reducing the risk of conventional aggression and strategic escalation. Its critics urge that the weapons provide no means for reducing conflict frequency, but open a number of different possibilities for catastrophic deterrence failure in the case of an accident or miscalculation. The reality likely lies in between these two poles: Pakistan's TNW deployment will, to some extent, reduce the risk of Indian conventional incursions, but the unpredictable risks generated in crises also represent a serious shortfall in the deterrence efficacy of the weapons. On balance, the escalation dangers created by TNWs are significant enough to outweigh their marginal gains in terms of conventional conflict prevention or termination.

Tactical versus Strategic

No universally accepted definition exists to differentiate between tactical and strategic nuclear weapons. During the Cold War, the Soviet Union and the United States defined

1. Kyle Deming is a research intern at the Project on Nuclear Issues at the Center for Strategic and International Studies. The views expressed here are his own and do not necessarily reflect those of the Center for Strategic and International Studies or the Project on Nuclear Issues.

2. Inter Services Public Relations, "Press Release," April 19, 2011, http://www.ispr.gov.pk/front/main.asp?o=t-press_release&id=1721&search=1.

strategic and nonstrategic weapons inconsistently, depending on which treaty or agreement was at stake.³ Even after-the-fact distinctions are not so easy, and an exact, comprehensive threshold for weapon yield or range has not been agreed upon to settle the debate.

In context, however, “tactical” nuclear weapons can be defined roughly by their role in military policy. For example, when compared to U.S. or Russian missiles, India’s weapons lack strategic range (the most recently tested medium-range missile, the Agni V, reaches 3,400 miles, or about as far as Beijing).⁴ In the context of regional geography, however, they serve a strategic purpose: threatening destruction of major Pakistani population centers and military assets.⁵ All types of nuclear weapons are intended, at least in part, to deter conflict; Pakistan’s newest efforts, however, represent an attempt to acquire a battlefield-usable weapon, a distinctly tactical mission. Based on statements since the Hatf-9 (Nasr) tests, Pakistan has been developing low-yield nuclear warheads to counter Indian conventional strikes.^{6,7}

Generally speaking, nuclear weapons contribute to conflict prevention by raising the cost of war to unacceptable levels. With a reduced yield and shorter range, however, TNWs impose relatively lower perceived costs on both sides. This makes TNWs seem more usable, which may be useful in establishing deterrence. TNWs, at least in theory, seem more suitable for Pakistan to impose punishing costs on an Indian military force without damaging its own territory or personnel.

Justification for Pakistan’s TNWs

If statements by Pakistani officials are any indication, tactical nuclear capabilities are designed for both deterrence and, as required, battlefield deployment. From Pakistan’s perspective, the ideal scenario is to prevent future Indian conventional aggression in two ways: by deterring conventional conflicts, or, if necessary, fending off an Indian incursion without triggering a massive strategic-level nuclear response.⁸

First, by lowering the perceived threshold for usability, TNWs may be able to deter Indian conventional incursions and willingness to pursue political claims to disputed territories. Deterrence credibility rests on the understanding that the deterring party would, if the circumstances left no other resort, carry out its threat to launch its weapons and risk

3. Alexander Pikayev, “Tactical Nuclear Weapons,” International Commission on Nuclear Non-proliferation and Disarmament, n.d., http://www.icnnd.org/Documents/Pikayev_Tactical_Nuclear_Weapons.pdf.

4. Jatindra Dash, “India tests Agni-V missile with range as far as Beijing,” Reuters, September 15, 2013, <http://in.reuters.com/article/2013/09/15/india-missile-agniv-china-drdo-idINDEE98E02K20130915>.

5. Pikayev, “Tactical Nuclear Weapons.”

6. “Pakistani Tactical Nuclear Arms Intended for ‘Limited War,’ Expert Says,” Global Security Newswire, May 4, 2012, <http://www.nti.org/gsn/article/pakistani-tactical-nuclear-arms-intended-limited-war-expert-says/>.

7. “Pakistan test fires nuclear-capable missile,” Agence France Press, April 18, 2011, <http://www.google.com/hostednews/afp/article/ALeqM5gQrdg0hzHTiYVFW00x6jux-k4mcg?docId=CNG.66ef27570de-555c667474aeeac411e32.551>.

8. Syed Adnan Bukhari, “Role of Tactical Nukes,” *Pakistan Observer*, September 25, 2013, <http://pakobserver.net/detailnews.asp?id=219027>.

what followed. Islamabad's arsenal would serve little purpose if New Delhi concluded India could provoke Pakistan without fear of nuclear reprisal.

A more nuanced version of the argument holds that TNWs provide a solution to the stability-instability paradox. This phenomenon describes the conventional aggression that may emerge from the confidence that a nuclear threshold will never be reached (for example, the outbreak of multiple conflicts over Kashmir).⁹ By signaling that conventional conflict will no longer be accepted, TNWs could reduce the number of (and casualties incurred in) low-intensity wars. A lower threshold for earning nuclear reprisal signals that Pakistan is no longer willing to allow superior Indian numbers and conventional strength to give New Delhi the upper hand in future encounters.

Concern over Indian military buildup and its implications run deep in Pakistani popular sentiment, Pakistan's military, and academia.¹⁰ The idea that India would pursue hegemonic dominance and occupation of Pakistan under the right circumstances is taken quite seriously. Under this view, the acquisition of a usable deterrent is a high priority. Even if the risks of invasion are low, the resolve demonstrated by the deployment of TNWs could reduce the likelihood of India initiating border skirmishes to test Islamabad's force strength.

Second, Pakistani officials claim—and certainly, if the weapons are deployed, have to assume—that the weapons are functional, effective, and sufficiently devastating to India that they would terminate conflict without escalating to the strategic level.¹¹ While the use of a nuclear weapon in war has not occurred since the end of World War II, some military doctrine holds that TNWs occupy a lower rung on the escalation ladder than strategic weapons—that is, that they are distinct enough in yield and application that they do not necessarily mandate a strategic response. In response to Pakistani use of TNWs, India would need to decide whether to retaliate with strategic nuclear weapons, a decision that would ensure Pakistan's own full response and massive destruction on both sides. Pakistan's use of TNWs would represent a wager that India would be unwilling to continue the conflict.

Responses to Pakistan's Claims

The benefits offered by TNW deployment, however, may be somewhat oversold. Even if TNWs make a substantial impact in theory, their overall contribution to bilateral stability would likely be relatively small, for two reasons.

First, the probability of a large-scale Indian conventional invasion is not very high. Despite Pakistan's claims about trends in Indian wargaming and doctrine, New Delhi is focused on other goals. India is unlikely to sacrifice economic growth and aspirations for

9. Michael Krepon, "The Stability-Instability Paradox, Misperception, and Escalation Control in South Asia," Stimson Center, <http://www.stimson.org/images/uploads/research-pdfs/ESCONTROLCHAPTER1.pdf>.

10. Peter R. Lavoy, *Pakistan's Strategic Culture* (Washington, DC: Science Applications International Corporation (SAIC), 2006), 9, <http://www.fas.org/irp/agency/dod/dtra/pakistan.pdf>.

11. Bukhari, "Role of Tactical Nukes."

world power status for an extraordinarily risky invasion that will earn India overwhelming international condemnation with little strategic benefit.¹²

Second, Pakistan's strategic weapons make a significant contribution by themselves to averting conventional conflict and deterring Indian action. Since Pakistan's nuclear test in 1998, India and Pakistan have fought contained conflicts over Kashmir and exchanged fire over the line of control. However, despite substantive military advantages in these skirmishes, India has held back from intentional massive escalation. TNWs may, at best, offer Pakistan operational flexibility or bargaining power to hold its territorial claims. But their additional benefit over strategic weapons in this respect is questionable.¹³

In addition, the distinction between different steps on the escalation ladder may not be as unambiguous as Pakistan hopes. Statements by Indian officials in response to Islamabad's TNW capabilities indicate that employing even a tiny nuclear warhead would be met with an overwhelming Indian response.¹⁴ For example, a member of the Indian National Security Advisory Board noted, "A limited nuclear war is a contradiction in terms. Any nuclear exchange, once initiated, would swiftly and inexorably escalate to the strategic level."¹⁵ These statements should, of course, be interpreted with the understanding that India intends to send its own deterrence signals with the hope of never needing to follow through. Not insignificantly, however, it also represents a public statement investing India's credibility in a massive retaliation effort.

In this sense, the lower threshold for TNW usability becomes particularly problematic. Any possibility that the weapons are authorized for use in a conventional conflict unnecessarily introduces a potential existential risk. In short, the relative gains offered by brandishing TNWs may be negated by the low probability that they could actually be used without prompting India into massive strategic escalation.

TNWs and Crisis Instability

Beyond the debatable efficacy of TNWs for deterring conventional conflict, TNWs pose several other risks to South Asian stability. First, the possibility of a commitment trap¹⁶

12. Myra McDonald, "Despite rising India-Pakistan tensions, little planning for the next big crisis," Reuters, August 12, 2013, <http://blogs.reuters.com/pakistan/2013/08/12/despite-rising-india-pakistan-tensions-little-planning-for-the-next-big-crisis/>.

13. Michael Krepon, "Tac Nukes in South Asia," *Arms Control Wonk*, April 18, 2012, <http://krepon.armscontrolwonk.com/archive/3419/tac-nukes-in-south-asia>.

14. Aditi Malhotra, "Pakistan's flirtations with Tactical Nuclear Weapons," *Scholar Warrior* (August 2012): 76–81.

15. Indrani Bagchi, "Strike by even a midget nuke will invite massive response, India warns Pak," *Times of India*, April 30, 2013, http://articles.timesofindia.indiatimes.com/2013-04-30/india/38928972_1_pakistan-shyam-saran-india.

16. Scott Sagan, "The Commitment Trap: Why the United States Should Not Use Nuclear Threats to Deter Biological and Chemical Weapons Attack," *International Security* 24, no. 4 (Spring 2000): 85–115. The *commitment trap* term was used by Dr. Sagan in the context of U.S. nuclear threats in the first Gulf War, but the broader concept of credibility investment as a factor in nuclear decisionmaking applies across other regions and circumstances as well.

imperils whatever gains in stability TNWs might establish. Pakistan's ambiguous doctrinal posture leaves open the possibility of nuclear retaliation to an Indian nonnuclear attack. The explication of nuclear threats becomes problematic if India intentionally or unintentionally takes an action that Pakistan had declared as potentially meriting nuclear retaliation. Pakistan would be faced with a difficult choice: carry out the threat, potentially leading to a large nuclear exchange, or back down from the threat, costing Islamabad precious deterrence credibility. The potential loss of credibility may become a compelling factor in favor of escalation,¹⁷ in the minds of Pakistani policymakers. This complication becomes particularly problematic in South Asian battlefield settings. If, at one juncture in a future conflict, Pakistan failed to follow through on its threats to use a TNW, India may interpret it as a permanent signal of unwillingness to escalate—regardless of whether or not this is the case.¹⁸ The potential for confused or misinterpreted signals would represent a significant danger in a conflict on the precipice of strategic weapons use.

TNWs also introduce unique command and control challenges. The short decision times and inevitable volatility involved in battlefield encounters make constant communication necessary but extremely difficult to maintain, particularly with TNWs that need to be forward deployed in order to reach military targets.¹⁹ Military commanders in charge of nuclear weapons may find themselves surrounded, without communication, and with few ways to ensure the survivability of their forces. High-level decisionmaking requirements on strategic weapons may not apply to TNWs, depending on the degree of predelegation.²⁰ This significantly increases the risk of an unauthorized, underauthorized, or miscalculated launch and, with it, the chances for escalation.

The introduction of new nuclear force types may also unfavorably influence proliferation and deterrence trends beyond South Asia. While India has not indicated it will develop TNWs in response to Pakistan—and, given its conventional superiority and minimum deterrence posture, New Delhi may not have an operational need for them—encouraging other emerging nuclear powers like North Korea or future proliferators to adopt tactical capabilities would create a destabilizing trend. Replicating the South Asian situation elsewhere, with weaker states seeking a highly usable nuclear response to conventionally stronger rivals, may exacerbate the dangers of proliferation and negate many of the stabilizing effects of nuclear weapons.

None of these scenarios should be interpreted as an argument that nuclear exchange in South Asia is inevitable or even probable, at least for now. India and Pakistan have, so far, performed commendably in avoiding conflict escalation since their reciprocal nuclear tests in 1998 despite their close proximity and historical rivalry.²¹ Still, significant changes to

17. Sagan, "The Commitment Trap."

18. Michael Krepon, Zaid Haider, and Charles Thornton, "Are Tactical Nuclear Weapons Needed in South Asia?" in *Escalation Control and the Nuclear Option in South Asia*, ed. Michael Krepon, Rodney W. Jones, and Zaid Haider (Washington, DC: Stimson Center, 2004), 127.

19. Krepon, "Tac Nukes in South Asia."

20. Shahank Joshi, "Pakistan's Tactical Nuclear Nightmare: Déjà Vu?" *Washington Quarterly* 36, no. 3 (Summer 2013): 165, http://csis.org/files/publication/TWQ_13Summer_Joshi.pdf.

21. *Ibid.*, 159.

declaratory policy or new sources of tension constantly threaten the subcontinent's fragile stability. Under a best-case scenario, Islamabad's decision to pursue TNWs may marginally decrease the likelihood of Indian conventional aggression. The unacceptable risk posed by TNW employment and the probability of ensuing escalation in the case of future conflict, however, decisively tilts the analysis against the deployment of Pakistani TNWs.

Policy Remedies: United States, India, Pakistan

The likelihood that Pakistan could be persuaded to reverse its doctrinal choices and renounce the use of TNWs is low. The sunk cost of technological development, resistance in the domestic political environment, and the reluctance to sacrifice invested credibility renders a near-term turnaround improbable. Proposals to mutually repudiate the deployment of TNWs²² have likewise missed their window of opportunity, given that India would have little relevant leverage on the issue.

U.S. nuclear policymakers should remain realistic about the role the United States can play in South Asian conflict resolution and prevention. Silver-bullet responses to decades-old territorial disputes and corresponding military doctrine are unlikely to emerge, both because TNWs are a symptom of complex security dilemmas and because the United States is not particularly well-trusted in Pakistan.²³ For example, convincing Pakistan to adopt something similar to a minimum deterrence or nuclear no first use (NFU) posture would likely lack credibility, given the United States' historic reluctance to adopt an NFU of its own.

For the time being, the United States should encourage constructive engagement and, where possible, facilitate discussions on nuclear risk reduction measures between India and Pakistan. Creating "Track II" (unofficial, nongovernmental) dialogues centered on the TNW issue may offer means to circumvent some of the domestic pressure faced by military and political officials in both countries. It may also open channels for communication that allow Islamabad and New Delhi to gradually defuse bilateral tensions.²⁴ Military-to-military contacts or nuclear science working groups involving India, Pakistan, and the United States may also help build trust between the three parties, albeit slowly. Finally, encouraging the increased use of communication hotlines based on the U.S.-Russian experience may help with the time-sensitive crisis pressures created by TNW deployment.

India has an essential role to play in reducing Pakistan's regional threat perception. Taking substantive steps to resolve the Kashmir issue would represent the most significant and useful breakthrough, but domestic political concerns and historical intransigence may

22. Gaurev Rajen, "Tactical Nuclear Weapons in South Asia: The Need to Disavow Development and Deployment," CWC Review Conference, 2002, 1. <http://www.isn.ethz.ch/Digital-Library/Publications/Detail/?ots591=0c54e3b3-1e9c-be1e-2c24-a6a8c7060233&lng=en&id=55150>.

23. Raza Habib Raja, "Understanding Pakistani Mistrust of the United States," *Huffington Post*, June 1, 2011, http://www.huffingtonpost.com/raza-habib-raja/understanding-pakistani-m_1_b_869719.html.

24. "Confidence-Building and Nuclear Risk-Reduction Measures in South Asia," Stimson Center, n.d., <http://www.stimson.org/research-pages/confidence-building-measures-in-south-asia/>.

prevent meaningful progress from either side.²⁵ Cooperation on areas of mutual interest, such as the advancement of peaceful nuclear power or the prevention of nuclear materials theft by terrorists, could form the foundation for a positive relationship.²⁶

Pakistan, meanwhile, should work to strengthen its second-strike capabilities and survivability measures. This may, over time, reduce its reliance on an aggressive nuclear posture by ensuring Pakistan could not be overtaken by rapid Indian conventional advances or a counterforce nuclear strike. Clarifying statements to reduce ambiguity, perhaps by establishing a more explicit declaratory policy, likely would benefit Pakistan more than the current strategy of leaving India to decipher signals on its own.

25. "Not by single summits alone," *Hindu*, October 2, 2013, <http://www.thehindu.com/opinion/editorial/not-by-single-summits-alone/article5190519.ece>.

26. Arian L. Prezenger, "Securing Nuclear Capabilities in India and Pakistan: Reducing the Terrorist and Proliferation Risks," *Nonproliferation Review* 10, no. 1 (Spring 2003): 131, <http://cns.miis.edu/npr/pdfs/101prege.pdf>.

Would Japan Be Worse off Building the Bomb? An Analysis of International and Domestic Security Considerations

*Erika Suzuki and Igor Tregub*¹

Introduction

As the first and only country to experience the effects of a nuclear weapon, Japan has remained steadfast in its commitment to nonproliferation and the promotion of nuclear research for peaceful civilian purposes. However, as a result of evolving regional security conditions over the past few decades—most prominently the acquisition of nuclear capabilities by China and North Korea—some Japanese lawmakers and leaders are shifting away from the traditional hard-line position against nuclear weapons. Despite this shift an analysis of three motivational models applied to Japan, as well as the regional, strategic, and international implications associated with each model, reveal the unlikelihood of acquisition of nuclear weapons or development of a nuclear capability by Japan. In order to maintain a strategic alliance and quell fears of Japanese nuclear breakout, the United States should work with Japan to develop its own deterrent capability within the U.S. nuclear umbrella.

During World War II, Japan sought to develop a nuclear weapons capability under the domestic program F-Go.² However, the program made little progress before the United

1. Erika Suzuki is assistant director of the Nuclear Policy Working Group under the Nuclear Science and Security Consortium at the University of California, Berkeley. Igor Tregub is a nuclear safety oversight engineer at the National Nuclear Security Administration at Livermore, California. He participated in the preparation of this report in his private capacity. *Acknowledgments:* This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0000979. *Disclaimer:* This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

2. Steven Aftergood and Jonathan Garbose, “Nuclear Weapons Program (Japan),” *Federation of American Scientists*, June 1, 2012, <http://www.fas.org/nuke/guide/japan/nuke/>.

States dropped nuclear weapons on Hiroshima and Nagasaki, forcing Japan to surrender in 1945. Following the atomic bombings, Japan adopted a pacifist constitution characterized by Article 9, which “prohibits Japan from possessing military power other than the minimum necessary to defend the nation.”³ Nuclear weapons are not explicitly banned in the Japanese Constitution. Rather, Prime Minister Eisaku Sato’s Three Non-Nuclear Principles in 1967 and his subsequent Four Pillars of Nuclear Policy in 1968 are the closest the Japanese government has come to issuing a ban on nuclear weapons.⁴ The Three Non-Nuclear Principles reflect the Japanese government’s unofficial commitment to no possession, no production, and no introduction of nuclear weapons on Japanese soil.⁵ Prime Minister Sato then incorporated the principles into one of the Four Pillars of Nuclear Policy a year later. The Four Pillars officially solidified Japanese reliance on the U.S. nuclear security umbrella as the crux of Japanese national security policy. The pillars included: “1) promoting nuclear power for peaceful purposes, 2) promoting global nuclear disarmament, . . . 3) relying on the [U.S.] deterrent for protection from ‘the international nuclear threat’” and 4) the Three Principles.⁶ Although the Three Principles and the Four Pillars were never officially adopted into law, they continue to guide Japanese nuclear and national security policy decades later. Today Japan is threatened by continuing aggression by neighboring nuclear powers China and North Korea, and it struggles to develop a national self-defense policy under a pacifist constitution and the U.S. nuclear umbrella.

Several recent signs indicate Japan may be pulling away from its traditional nonnuclear policy. These include Japan’s refusal to sign the nuclear treaty joint statement at the second session of the Preparatory Committee for the 2015 Treaty on the Non-Proliferation of Nuclear Weapons (NPT) Review Conference, ongoing policy reforms following the rise of Prime Minister Shinzo Abe’s nationalist administration, and the proposed Rokkasho reprocessing plant. The Rokkasho plant, which is still undergoing post-Fukushima safety upgrades, has faced both domestic and foreign opposition as it has the capability to produce nine tons of weapons-grade plutonium in a single year.⁷ Further, once the facility is able to operate at full capacity, it will have the capability to produce enough plutonium to build 2,000 nuclear weapons.⁸ Although the Japanese government maintains that the facility will only be used to recycle nuclear fuel in adherence to the national energy policy, the United States continues to express concern over the possibility the facility could spark a regional nuclear-fuel technology arms race or lay the foundation for a Japanese nuclear weapons capability.⁹

3. “Abe playing with fire by reinterpreting pacifist Article 9,” *Asahi Shimbun*, September 17, 2013, <http://ajw.asahi.com/article/views/editorial/AJ201309170035>.

4. James L. Schoff, “Changing Perceptions of Extended Deterrence in Japan,” in *Strategy in the Second Nuclear Age: Power, Ambition, and the Ultimate Weapon*, ed. Toshi Yoshihara and James R. Holmes (Washington, DC: Georgetown University Press, 2012), 104.

5. *Ibid.*

6. *Ibid.*

7. John Hofilena, “US objects to Japan’s plans for Rokkasho nuclear reprocessing,” *Japan Daily Press*, May 2, 2013, <http://japandailypress.com/us-objects-to-japans-plans-for-rokkasho-nuclear-reprocessing-0228152/>.

8. *Ibid.*

9. Jay Solomon and Miho Inada, “Japan’s Nuclear Plan Unsettles U.S.,” *Wall Street Journal*, May 1, 2013, <http://online.wsj.com/article/SB10001424127887324582004578456943867189804.html>.

Moreover, Japan's refusal to sign an international document taking a stance against nuclear weapons may also signify Tokyo's reluctance to take nuclear weapons completely off the table. The statement, presented in late April 2013 at the second session of the Preparatory Committee for the 2015 NPT Review Conference, is one of several similar international statements that either call for the elimination of all nuclear weapons or call for making nuclear weapons illegal. Japan has steadfastly refused to sign any of the statements on the grounds that their wording contradicts "Japan's policy of reliance on the U.S. nuclear umbrella for national security purposes."¹⁰ The meaning of this resistance is ambiguous; while some may argue that this refusal signifies a future intent to pursue nuclear weapons for defense, the move may also represent a reiteration of Japan's traditional reliance on the U.S. nuclear umbrella.

Recently, Prime Minister Abe unveiled his idea of "proactive pacifism," or the right to collective self-defense, which would enable Japan to come to the aid of an ally.¹¹ Subsequently, his administration is seeking a reinterpretation of Article 9 in the Japanese constitution within the next year to allow for the development of a collective self-defense system to address contemporary security concerns.¹² Under the current interpretation, Japan is prohibited from using military force to reconcile regional disputes.¹³ While it is unclear whether the provision could be reinterpreted and reignite debate over Japan's ability to use force, doing so would likely introduce the question of whether Japan should include a nuclear deterrent in its defense portfolio. Additionally, international leaders may be concerned that Japan's attempts to develop a military force for collective self-defense will serve as a precursor to the development of a Japanese nuclear defense capability.

Motivations for Acquiring a Nuclear Weapons Capability

A simplistic—but widely accepted—theory of proliferation holds that "states will seek to develop nuclear weapons when they face a significant military threat to their security that cannot be met through alternative means; if they do not face such threats, they will willingly remain non-nuclear states."¹⁴ However, three models, developed by nuclear expert Scott Sagan, offer alternative, interlinked explanations for a state's motivations to acquire nuclear weapons, namely, security, international prestige, and domestic politics.¹⁵ These models can be applied to regional and domestic considerations related to Japan's national security.

10. Yasushi Saito, "Japan refuses to sign international document describing nuclear weapons as inhumane," *Asahi Shimbun*, April 25, 2013, http://ajw.asahi.com/article/behind_news/politics/AJ201304250108.

11. Noriyuki Suzuki, "Abe uses U.N. stage to push more proactive security role," *Japan Times*, September 28, 2013, <http://www.japantimes.co.jp/news/2013/09/28/national/abe-uses-u-n-stage-to-push-more-proactive-security-role/>.

12. Faith Aquino, "PM Abe agrees to postpone proposal to grant Japan with collective defense," *Japan Daily Press*, September 25, 2013, <http://japandailynews.com/pm-abe-agrees-to-postpone-proposal-to-grant-japan-with-collective-self-defense-2536576/>.

13. *Ibid.*

14. Scott D. Sagan, "Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb," *International Security* 21, no. 3 (Winter 1996/1997): 54.

15. *Ibid.*, 55.

MOTIVATIONAL MODEL 1: SECURITY

According to Sagan's security model, "states build nuclear weapons to increase national security against foreign threats, especially nuclear threats."¹⁶ Regional disputes with China, as well as ongoing threats from a nuclear North Korea, could spur Japanese leaders to take advantage of Japan's latent nuclear capability to develop nuclear weapons. Tensions continue to escalate over ownership of the Senkaku Islands (known as the Daiyou Islands to China), which were nationalized by Japan in 2012.¹⁷ The islands, rich in valuable natural resources, have taken on significant geopolitical importance as nationalist administrations in both states face off in the sea around the islands and on the fringes of Japanese airspace.¹⁸

Though China is a nuclear power, the greatest nuclear threat currently facing Japan is North Korea. Following several months of intense nuclear saber-rattling by North Korea and a nuclear test in the spring of 2013, Japan deployed Patriot Advanced Capability-3 (PAC-3) missile interceptors as part of its missile defense system around the capital.¹⁹ The unpredictable and volatile nature of the actions of the North Korean regime makes it difficult for Japanese and global leaders to accurately gauge the credibility of Pyongyang's threats. Recently, Japan, the United States, and five other states gathered at the inaugural North East Asia Defense and Security Forum to engage in multilateral discussions for the first time regarding the North Korean nuclear threat.²⁰

Japan's pursuit of a nuclear capability would be incredibly risky, as doing so would have significant ramifications for global and regional security and stability. Toppling the regional domino could spark a nuclear technology arms race in which states such as South Korea and Taiwan similarly attempt to gain parity with or a comparative advantage to North Korea and China. Destabilization of security conditions in the region could lead to conflict or war, as the United States and China would likely attempt to contain the situation. Any attempt to pursue nuclear weapons capability will also likely evoke a strong response from Washington, as active pursuit of a nuclear capability would signify weakness of the U.S. nuclear umbrella and potentially cause a domino effect as other states under U.S. protection seek to develop domestic nuclear defense systems. In response, the Obama administration could threaten to remove Japan from under the U.S. nuclear umbrella, leaving Japanese nuclear facilities vulnerable to preemptive missile strikes by China or North Korea.

This is likely one of the strongest reasons that the Japanese government will not pursue a nuclear weapons capability, as the unpredictability of North Korea's actions and continuing Chinese naval aggression make the protection that the U.S. nuclear umbrella provides

16. Ibid.

17. Hannah Beech/Naha, "Angry Skies: Japanese Jets Scramble as Tensions with China Escalate," *Time*, September 18, 2013, <http://world.time.com/2013/09/18/angry-skies-japanese-jets-scramble-as-tensions-with-china-escalate/>.

18. Ibid.

19. "Japan deploys missile-defense batteries," CNN, April 9, 2013, <http://www.cnn.com/2013/04/08/world/japan-north-korea/index.html>.

20. Catherine McGrath, "North Korea nuclear threat key concern at historic North East Asia Defence and Security Forum," ABC Australia, September 25, 2013, <http://www.abc.net.au/news/2013-09-25/north-korea-nuclear-threat-on-agenda-for-historic-forum/4980222>.

more important than ever. The credibility of the U.S. nuclear umbrella and the absence of a serious, direct threat have mitigated potential security concerns for decades.²¹ In 2013, for the first time, the United States opened up its nuclear facilities to Japanese officials to reassure them of the continuity and robustness of the U.S. nuclear umbrella.²² This unprecedented move underscores the closeness of the U.S.-Japan relationship. Due to continued assurances by the United States, and an estimate that it would take three to five years²³ for Japan to develop nuclear weapons, it is unlikely that Japan would risk losing U.S. support anytime soon.²⁴

MOTIVATIONAL MODEL 2: INTERNATIONAL PRESTIGE

The international prestige model asserts that states tie their power status and identity in the international community to ownership of nuclear weapons.²⁵ In the 1960s and 1970s, during the advent of the buildup of nuclear weapons capabilities within some countries, there was a certain halo of exclusivity around the joining of a “nuclear club.”²⁶

This perception of exclusivity has arguably changed over time due to the shifting of geopolitical sands and spheres of influence following the breakup of the Soviet Union in the early 1990s. While there are yet some states—particularly North Korea and Iran—whose leadership may view the possession of nuclear weapons as an element of international prestige, the case for nuclear capability is drastically diluted in the part of Asia that Japan occupies, which falls under the U.S. sphere of protection.²⁷

Other characteristics have manifested themselves as more potent indicators of international prestige in this part of Asia.²⁸ Not the least of them is the honor of hosting the Olympics Games. Japan recently won the right to host the 2020 Summer Olympics in Tokyo and is beginning to make preparations toward welcoming a world audience to its gates. Attempts to develop a nuclear capability may, in fact, run the risk of tarnishing this prestige, and Japan’s leadership would do well to consider the economic and political impacts of being embroiled in nuclear controversy. Though different in genesis and impact, the decision of the United States in 1980 to boycott the Soviet Union’s Olympic Games in protest of Moscow’s decision to invade Afghanistan was arguably a blow to the legitimacy of that year’s

21. Schoff, “Changing Perceptions of Extended Deterrence in Japan,” 102.

22. Yoshihiro Makino, “Roberts: Japan shown U.S. military facilities to confirm ‘nuclear umbrella,’” *Asahi Shimbun*, July 31, 2013, http://ajw.asahi.com/article/behind_news/politics/AJ201307310073.

23. This estimate is based upon number estimates given in a Japanese internal government report in 2006 that concluded Japan would not be able to arm itself overnight. The report asserted it would take “three to five years and ¥200 to ¥300 billion” to develop nuclear weapons. McGrath, “North Korea nuclear threat.”

24. “Nuclear arms card for Japan,” *Japan Times*, April 29, 2013, <http://www.japantimes.co.jp/opinion/2013/04/29/commentary/nuclear-arms-card-for-japan/#.UkSk-mRARhR>.

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

26. Kathleen Sutcliffe, “The Growing Nuclear Club,” Council on Foreign Relations, November 17, 2006, <http://www.cfr.org/proliferation/growing-nuclear-club/p12050>.

27. Toshi Yoshihara and James R. Holmes, “Thinking About the Unthinkable: Tokyo’s Nuclear Option,” *Naval War College Review* 62, no. 3 (Summer 2009): 65–66, <http://www.usnwc.edu/getattachment/f1dc7a03-fab4-4a5b-9be2-f8c3e5baf430/Thinking-about-the-Unthinkable—Tokyo-s-Nuclear-Op.aspx>.

28. Robert Potter, “Prestige and Naval Power: A Look at India and China,” *e-International Relations*, August 21, 2012, <http://www.e-ir.info/2012/08/21/prestige-and-naval-power-a-look-at-india-and-china/>.

games, as was the decision of various Eastern bloc states to “return the favor” during the 1984 Summer Olympics in Los Angeles.²⁹

Furthermore, Japan is still roiling from bad international press in the wake of Fukushima, one of the highest-impact nuclear accidents of all time.³⁰ The optics of attempting to double down in support of nuclear production—not just of energy, but of weapons—would likely receive a critical reception among Japan’s international allies from a nuclear security and safety standpoint. The impacts of such a decision would be swift and unforgiving, amounting to a net loss in prestige. Japan’s economic standing in the world—considered a model of resiliency in the post–World War II era—may precipitously and, perhaps irreversibly, decline if the state lost the support of key trade allies (including that of the United States and other members of its nuclear umbrella). Iran provides a notable demonstration of what could happen. While too early to tell, steep sanctions imposed by the United States and its allies may force Iran to rethink of its nuclear portfolio.³¹

MOTIVATIONAL MODEL 3: DOMESTIC POLITICS

The domestic politics model focuses on domestic actors who may promote or dissuade governments from pursuing nuclear proliferation. These actors may include the state’s nuclear energy establishment, important units within the state’s military, and pro-nuclear politicians, political parties, or pockets of public support.³²

A small, albeit vocal, percentage of Japan’s legislative body and the public support the buildup of nuclear capability. Most notably, the former governor of Tokyo, Shintaro Ishihara, has stated that “Japan should absolutely possess nuclear weapons,” citing China and North Korea as threats.³³ Though Prime Minister Abe recently vowed to continue promoting global nuclear disarmament in the hopes of eliminating all nuclear weapons, his strong, nationalist rhetoric has some Japanese officials, such as the mayor of Hiroshima, concerned that Abe will use his post to pursue a Japanese nuclear deterrent.³⁴

A sizeable portion of Japan’s population, however, is distrustful and wary of any nuclear capability, particularly in the wake of the 2011 Fukushima nuclear accident and the

29. Howard A Tyner, “U.S. Olympic boycott of 1980 led to Soviet decision of 1984,” *Chicago Tribune*, May 9, 1984.

30. Kiyoshi Takenaka and James Topham, “Fukushima Nuclear Crisis Escalates to Worst Level in 2 Years,” Reuters, August 21, 2013, http://www.huffingtonpost.com/2013/08/21/fukushima-nuclear-crisis_n_3788796.html.

31. Ed Pilkington, “Iran Prepared to Negotiate Aspects of Nuclear Program, Foreign Minister Says,” *The Guardian*, September 29, 2013, <http://www.theguardian.com/world/2013/sep/29/iran-open-nuclear-negotiations-javad-zarif>.

32. Yonatan Beker, “Nuclear Proliferation and Iran: Thoughts about the Bomb,” *Israel Journal of Foreign Affairs* 3, no. 2 (2008): 32, http://israelcfr.com/documents/issue6_iran.pdf.

33. Takashi Hirowaka, “Ishihara Quits as Tokyo Governor to Form New Political Party,” Bloomberg, October 25, 2012, <http://www.bloomberg.com/news/2012-10-25/ishihara-resigns-as-tokyo-governor-to-form-new-political-party.html>.

34. “Hiroshima mayor skeptical of Abe atomic arms vow,” *Japan Times*, August 6, 2013, <http://www.japantimes.co.jp/news/2013/08/06/national/abe-vows-pursuit-of-world-free-of-nuclear-arms-hiroshima-mayor-skeptical/#.UkmYumRARhQ>.

inability of the Japanese government and government-funded operator Tokyo Electric Power Company to contain the still-leaking radioactive matter from the damaged nuclear plant.³⁵ For this reason, the state's nuclear energy establishment and elements of Japan's military are also not considered credible sources by a majority of the public when it comes to nuclear research. The former appears to be preoccupied in attempting to restart Japan's nuclear reactors, only 4 percent of which are operational more than two years after the Fukushima accident.³⁶

The simple acquisition of nuclear weapons under the purview of the U.S.-backed nuclear umbrella³⁷ is also not presently feasible. Previously described international considerations would bar Japan from pursuing this option because it would violate one of the Three Non-Nuclear Principles, namely the ban on the introduction of nuclear weapons on Japanese soil. Furthermore, it is unlikely that Japanese citizens would support a government that brings nuclear weapons onto Japanese soil. Doing so would be a symbolic affront to the *hibakusha* (survivors of the atomic bombs dropped on Hiroshima and Nagasaki) and evoke a painful chapter in the state's collective memory that many would like to forget.³⁸ Even prior to Fukushima, less than 20 percent of Japan's population, when different random samples were polled over the course of three years, registered support for a Japanese nuclear deterrent.³⁹

Any efforts to build up a nuclear stockpile or nuclear know-how—whether in an attempt to distract from the overwhelming shame that Fukushima brought upon the Japanese government, to boost morale, or to appeal to nationalism in the wake of unprecedented North Korea aggression—would likely be counteracted by a national pushback. Such a development may well lead to an end to the governing coalition and the very careers of the politicians advocating for Japanese nuclear rearmament.

Conclusion

It is unlikely that Japan will acquire nuclear weapons in the near future, but evolving security conditions could force the development of a credible deterrent. Disintegration or weakening of the U.S. nuclear umbrella (whether perceived or real), coupled with deteriorating security conditions in the region as a result of continued North Korean and Chinese

35. "Nuclear Power in Japan," World Nuclear Association, September 27, 2013, <http://www.world-nuclear.org/info/Country-Profiles/Countries-G-N/Japan/#.UkmNt2RVS9o>.

36. Risa Maeda and Aaron Sheldrick, "Japan takes first step to a permanent reactor shutdown after Fukushima," Reuters, May 15, 2013, <http://www.reuters.com/article/2013/05/15/us-japan-nuclear-faultline-idUSBRE94E0CH20130515>.

37. Similar to the arrangement that the United States has with some of its European allies through the North Atlantic Treaty Organization (NATO), for example, Patriot missiles placed in Turkey to protect against threats in the Middle East.

38. Ryan Masaaki Yokota, "'No More Hibakusha' Takes on New Meaning after 3/11," *Japan Times*, August 7, 2013, <http://www.japantimes.co.jp/opinion/2013/08/07/commentary/no-more-hibakusha-takes-on-new-meaning-after-311/#.UkmQdmRVS9o>.

39. Takashi Yokota, "Why Japan Won't Acquire Nuclear Weapons," *Newsweek*, June 12, 2009, <http://www.thedailybeast.com/newsweek/2009/06/12/the-n-word.html>.

aggression, would serve as a catalyst for Japan's active pursuit of a nuclear weapons capability.

Alternatives to nuclear weapons that may have a similar, if less of a deterrent effect—including developing a conventional weapons capability, or actively maintaining a nuclear breakout capability that could utilize Japan's current plutonium stockpile—would face vigorous domestic and international opposition. Rather, Japan should pursue regional stability and national security through continued diplomatic efforts and closer collaboration with the United States. This would retain Japan's nonnuclear identity and honor its commitment to global nonproliferation while still ensuring its security. Japan should continue to support multilateral discussions through the North East Asia Defense and Security Forum, as well as facilitate bilateral discussions with South Korea and the United States to assess the region's security needs.

Furthermore, the U.S.-Japan relationship will also likely continue to evolve into one characterized by greater Japanese involvement in Northeast Asian security. Despite the U.S. military pivot in 2010, which shifted the majority of U.S. military resources to the Pacific region to respond to changes in the global security architecture, rapidly growing threats from North Korea are thrusting Japan into the middle of the military foray.⁴⁰ The best strategy for preventing a Japanese nuclear breakout while addressing regional security demands would be to deepen the U.S. partnership with Japanese government and military officials. Fostering a stronger partnership between the two nations will facilitate efforts to shore up the existing defense systems and reiterate assurances of the robustness of the U.S. nuclear umbrella.

40. Robert Ross, "The Problem with the Pivot," *Foreign Affairs* (November/December 2012), <http://www.foreignaffairs.com/articles/138211/robert-s-ross/the-problem-with-the-pivot>.

Why Does Russia Rebuff U.S. Offers? Understanding Russia's Nuclear Postures through Contending Views of Strategic Stability

*Ruxi Zhang*¹

Since the New Strategic Arms Reduction Treaty (New START) entered into force in February 2011, U.S. initiatives to pursue further bilateral reduction in nuclear arsenals have been met with Russian obstructions. Washington policymakers are irritated by Moscow strategic planners' persistent call to include a number of issues beyond the scope of deployed strategic nuclear forces, such as the missile defense buildup in Europe and the possession of U.S. tactical nuclear weapons (TNW) in North Atlantic Treaty Organization (NATO) states. The most elusive issue, however, has been Kremlin officials' justification for the inclusion of nonstrategic nuclear arms, namely a need for strategic stability. As the State Duma's ratification statement of the New START says,

[Q]uestions concerning potential reductions and limitations of non-strategic nuclear arms must be considered in a complex of other problems of arms control, including deployment of a ballistic missile defense system, plans for creation and deployment of strategic delivery vehicles armed with non-nuclear weapons, [and] a risk of space militarization, as well as existing quantitative and qualitative disparity in conventional arms, on the basis of necessity to maintain strategic stability and strict observance of a principle of equal and indivisible security for all.²

A concept whose origins date back to the 1950s—when the Cold War rivals began to develop their first nuclear arsenals—strategic stability and its core ideas have evolved

1. Ruxi Zhang is a senior at Macalester College. In the summer of 2013 she worked as a research intern with the CSIS Proliferation Prevention Program.

2. Boris Gryzlov, "On the attitude of the State Duma of the Federal Assembly of the Russian Federation on questions of reductions and limitations of strategic offensive arms" (text of the statement to the resolution of the State Duma concerning the ratification of New START), trans. Anatoly Diakov, Eugene Miasnikov, and Timur Kadyshchev, January 25, 2011, http://www.armscontrol.org/act/2011_05/Miasnikov#4.

over time. During the Cold War, strategic stalemate rested on the doctrine of mutually assured destruction (MAD), which implies the reluctance of both sides to initiate offensive nuclear warfare because of their inability to prevent retaliations.³ While this principle is still considered axiomatic by security experts inside and outside the U.S. government, due to changes in the post-Soviet security environment, Russian strategic thinkers have adopted a different approach to strategic stability in order to protect Russia's core interests. In order to understand Russia's seemingly impertinent demands, U.S. policymakers should apply the traditional understanding of strategic stability, which focuses on Russia's concern for future nuclear disparity, in tandem with a new view, which stresses the centrality of national interests in Russia's strategic thinking. Progress on bilateral arms reduction will be possible only after the United States acquiesces to the Russian request to erase the rigid lines between different nuclear issues.

Two Views of Strategic Stability

The traditional view of strategic stability, still held by virtually all U.S. strategic thinkers and most Russian policymakers, interprets strategic stability as parity between two nuclear states that eliminates the incentives to initiate nuclear aggression. Another prominent stream of understanding among the Russians is what Matthew Rojansky defines as the anti-bullying view, one that perceives strategic stability as a tool for blocking attempts by the United States and NATO to jeopardize Russia's core interests.⁴ Unlike the traditional view, which emphasizes numerical and qualitative parity of nuclear arsenals, the anti-bullying view is not based on precise nuclear parity between Russia and the United States, despite the indispensable role of such equality in reassuring Russia's sense of security.⁵ Instead, this view suggests that Russia's nuclear forces must serve to prevent conventional military, political, and economic encroachment of the West in Russia's geopolitical periphery.⁶

Although the traditional interpretation remains predominant, any attempt to justify Russia's post-Soviet nuclear postures without mentioning the anti-bullying view offers insufficient explanatory power. In the post-Cold War context, the Russian establishment is marked by fears of U.S. and NATO expansions. Previously, this unprecedented, accentuating threat was never an immediate source of concern for Soviet leaders whose Warsaw Pact military formation was large enough to confront its Western adversaries. A headstrong pursuit of nuclear parity, a centerpiece of the traditional view of strategic stability, would be meaningless without an endeavor to reverse the perceived existential crisis created by NATO's adventurism, given NATO's potential enlargement into Russia's "near abroad." The

3. Michael S. Gerson, "The Origins of Strategic Stability: The United States and the Threat of Surprise Attack," in *Strategic Stability: Contending Interpretations*, ed. Elbridge Colby and Michael Gerson (Carlisle, PA: Strategic Studies Institute, 2013), 7.

4. Matthew Rojansky, "Russia and Strategic Stability," in *Strategic Stability: Contending Interpretations*, ed. Elbridge Colby and Michael Gerson (Carlisle, PA: Strategic Studies Institute, 2013), 295–342.

5. *Ibid.*, 310.

6. *Ibid.*, 309.

crisis has been exacerbated by the deterioration in Russia's conventional military power over the past two decades. In addition to resource limits, demographic decline will reduce the number of draft-eligible Russian males in 2017 to one-half the number available in 2006.⁷ In reality, no serious Russian strategic observers believe that a nuclear war is imminent; the traditional definition of strategic stability based on the concept of nuclear parity is therefore more relevant to Russia's long-term thinking. When considering short-term motives, however, the traditional view has to defer to the theorization of strategic stability as a means to protect Russia's vital interests.

Ballistic Missile Defense

One of the most formidable obstacles in further arms reduction between the United States and Russia comes from Russia's insistence that the United States either abolishes its missile defense plans in Europe or integrates Russia into a trilateral joint missile defense system. On June 18, 2013, President Barack Obama proffered to negotiate "cuts with Russia to move beyond Cold War nuclear postures."⁸ However, his Russian counterpart, speaking in St. Petersburg almost at the same time, reiterated his disappointment over the ongoing development of the missile defense program by the United States and NATO.⁹ As Deputy Prime Minister Dmitry Rogozin starkly put, he refuses to take Obama's idea of strategic nuclear weapons reductions seriously "when the United States is building up its ability to intercept these strategic nuclear weapons."¹⁰ Instead, President Vladimir Putin proposed a joint missile defense program. As he claimed at the end of the 2012 Group of 20 summit in Mexico, the missile defense issue could only be solved when "Russia, Europe and [the United States] were equal participants of this process."¹¹

The keyword in Russian officials' accusation of the U.S. missile defense buildup is strategic stability. At a United Nations (UN) General Assembly convention, Foreign Minister Sergei Lavrov argued that unless the U.S. government offers "solid legal guarantees," the missile defense plan would upset the strategic nuclear balance.¹² The State Duma also underscores the centrality of strategic stability in New START; as Eugene Miasnikov suggests, the treaty's preamble stipulates Russia's rights to withdraw if the U.S.

7. Steven Pifer, "Shaping a Security Community: addressing emerging global challenges. Developing a new approach to conventional arms control?" (paper presented at the annual meeting for OSCE [Organization for Security and Cooperation in Europe] Security Days, Session II, Vienna, Austria, June 25, 2012), <http://www.osce.org/sg/91625>.

8. Peter Nicolas and William Boston, "Obama's Nuclear Proffer Gets Russian Rebuff," *Wall Street Journal*, June 19, 2013, <http://online.wsj.com/article/SB10001424127887323893504578555123840682206.html>.

9. Alexei Anishchuk, "Russia signals nuclear arms cuts will not come easy," Reuters, June 19, 2013, <http://mobile.reuters.com/article/worldNews/idUSBRE95I0ZP20130619?feedType=RSS&feedName=worldNews>.

10. Roberta Rampton and Stephen Brown, "Obama challenges Russia to agree to deeper nuclear weapon cuts," Reuters, June 19, 2013, <http://www.reuters.com/article/2013/06/20/us-obama-berlin-nuclear-idUSBRE95J01K20130620>.

11. Paul Eckert, "U.S.-Russia joint missile defense is only way forward: Putin," Reuters, June 19, 2012, <http://www.reuters.com/article/2012/06/20/us-russia-usa-missile-idUSBRE85J03O20120620>.

12. Associated Press, "Lavrov Calls for Missile Defense Guarantees," *Moscow Times*, September 28, 2011, <http://www.themoscowtimes.com/news/article/lavrov-calls-for-missile-defense-guarantees/444431.html>.

deployment of missile defenses becomes capable of undermining Russia's strategic nuclear weapons.^{13,14}

The traditional view would imply that Russia's emphasis on strategic stability aims for a balance between offensive and defensive nuclear forces. This view would reaffirm the literal connotation of Russian officials' arguments, that their opposition to the U.S.-NATO defense shield stems from the fear that the Western missile defense technology would undermine Russia's offensive nuclear capability.¹⁵ This view has its merits in the long run, when the U.S. missile defense shield reaches maturity. As Vladimir Dvorkin argues, ballistic missile defense systems can increase the risk of a disarming strike by protecting the country that initiates the action from incoming retaliatory missiles and warheads.¹⁶ Dmitri Trenin adds that the failure of the United States to offer "formal assurances and an insight into the system's parameters . . . raises Moscow's suspicions."¹⁷ As the Russian strategic observers testify above, the State Duma's strategic stability rhetoric voices the concern that the U.S. missile defense plans might devalue Russia's own strategic arsenal.

However, the traditional view does not justify the exigency in Russia's demand for the immediate end of the U.S.-NATO missile defense program. As early as 2007, Putin compared President George W. Bush's plan to build a missile defense shield in Europe to the Cuban missile crisis of 1962.¹⁸ Despite its diplomatic utility, Putin's analogy is unwarranted, because the defense shield is nowhere close to pushing the Cold War foes to the verge of war. There is still no real missile defense architecture in Europe even to this day.¹⁹ Former Russian president Dmitry Medvedev stated that the U.S.-NATO missile defense program would weaken Russia's nuclear deterrent capability "in some 6 to 8 years' time."²⁰ Such estimation belies the shrewdness of the Russian intelligence personnel. They could not have overestimated the real combat ability of the Standard Missile 3 (SM-3) that "has only been tested under non-combat conditions," in which "objects that could possibly confuse the SM-3 kill vehicle" have been eliminated.²¹ As Mikhail Tsypkin acknowledges, the

13. Eugene Miasnikov, Anatoly Diakov, and Timur Kadyshev, "Reductions After New START: Obstacles and Opportunities," *Arms Control Today*, May 2011, http://www.armscontrol.org/act/2011_05/Miasnikov.

14. "Duma adopts bill on ratification of New START," *Russia Today*, January 25, 2011, <http://rt.com/politics/adopt-bill-new-start/>.

15. Rojansky, "Russia and Strategic Stability," 304–308.

16. Vladimir Dvorkin, "Deterrence and Strategic Stability," in *Nuclear Reset: Arms Reductions and Nonproliferation*, ed. Alexei Arbatov and Vladimir Dvorkin (Moscow: Carnegie Moscow Center, 2012), 33.

17. Dmitri Trenin, in Jonathan Marcus, "Nato's missile defense shield 'up and running,'" BBC, May 19, 2012, <http://www.bbc.co.uk/news/world-europe-18093664>.

18. Ian Traynor, "Putin: US risks new Cuban missile crisis," *The Guardian*, October 26, 2007, <http://www.theguardian.com/world/2007/oct/27/usa.russia>.

19. Thomas Moore, cited in Bill Gertz, "Putin's power play: Russia builds up missile systems, seeks to limit U.S. defenses," *Washington Times*, May 16, 2013, <http://www.washingtontimes.com/news/2013/may/16/putins-power-play-russia-building-missile-systems-/?page=all>.

20. Dmitry Medvedev, "Zayavlenie Prezidenta v svyazi s situatsiey kotoraya slozhilas' vokrug sistemy PRO stran NATO v Yevrope" [Statement in connection with the situation concerning the NATO countries' missile defence system in Europe], President of the Russia Federation, November 23, 2011, <http://kremlin.ru/news/13637>.

21. Theodore Postol, cited in Marcus, "Nato's missile defense shield 'up and running.'"

Russian expert community is well aware that “deployment of a truly capable U.S. BMD system is a matter of a relatively distant future.”²² It is worth considering what has prompted Russia’s fear of a threat that is far from imminent.

The anti-bullying view provides a more credible explanation for the Russian protest against the European defense shield. According to this view, Russia’s use of strategic stability rhetoric epitomizes its attempts to block Western infringement on its vital interests.²³ What worries Russia the most is the installation of SM-3 interceptor sites in Romania and Poland in 2015 and 2018, respectively.²⁴ Whereas it might take years for nuclear technology to mature, the westward conversion of swaying post-Soviet states can happen any time. The eastward expansion of NATO has triggered imminent threats of Ukraine and Georgia’s accession to the alliance, as well as Sweden and Finland’s potential NATO memberships, which would mark the completion of encirclement on Russia’s European border. The sequence of Russian initiatives since President Putin’s condemnation of the U.S.-NATO missile defense program in June 2013—Putin’s official visit to Ukraine to commemorate the 1,025th anniversary of the first baptism in July²⁵ and Medvedev’s effort to dissuade Georgia from its pursuit of NATO membership in an interview in August²⁶—reflects Russia’s painstaking efforts to reverse the European engulfment of its last Western borderlands. Moscow’s intensifying terror over Kiev’s defection to the alliance was evident as Putin heightened the pressure on Ukraine to join his “Eurasian customs union” in early September.²⁷ The urgency to reclaim Russia’s privileged sphere of influence is enshrined in its 2010 Military Doctrine. The “move [of] the military infrastructure of NATO member countries closer to the borders of the Russian Federation” was designated as the first and foremost concern, preceding all other considerations listed under the category of “external military dangers.”²⁸

Tactical Nuclear Weapons

Another obstacle to the U.S. initiative to pursue further nuclear reductions is Russia’s protest against the U.S. tactical nuclear weapons staged in Europe. Russian leaders, such as

22. Mikhail Tsympkin, “Russian politics, policy-making and American missile defense,” *International Affairs* 85 (2009): 795.

23. Rojansky, “Russia and Strategic Stability,” 309.

24. The White House Office of the Press Secretary, “Fact Sheet on U.S. Missile Defense Policy: A ‘Phased, Adaptive Approach’ for Missile Defense in Europe,” September 17, 2009, http://www.whitehouse.gov/the_press_office/FACT-SHEET-US-Missile-Defense-Policy-A-Phased-Adaptive-Approach-for-Missile-Defense-in-Europe.

25. Habibe Ozdal, “Hot autumn in Russia-Ukraine relations,” *Turkish Weekly*, September 14, 2013, <http://www.turkishweekly.net/columnist/3792/-hot-autumn-in-russia-ukraine-relations.html>.

26. Giorgi Lomsadze, “Russia’s Medvedev Makes Nuclear Point to Demotivate Georgia’s NATO Cravings,” Eurasianet Blog: Tamada Tales, August 7, 2013, <http://www.eurasianet.org/node/67359>.

27. Andrew Witthoef, “Russia Tries to Turn Ukraine East,” *National Interest*, September 9, 2013, <http://nationalinterest.org/commentary/russia-tries-turn-ukraine-east-9014>.

28. “The Military Doctrine of the Russian Federation,” The Kremlin, February 5, 2010, http://www.kremlin.ru/ref_notes/461. Available online in English: “Text of newly-approved Russian military doctrine,” Carnegie Endowment for International Peace, http://carnegieendowment.org/files/2010russia_military_doctrine.pdf. Among other provisions, this strategic planning document outlines eight main external military dangers, starting with “the desire to endow the force potential of the North Atlantic Treaty Organization . . . with global functions carried out in violation of the norms of international law and to move the military infrastructure of NATO member countries closer to the borders of the Russian Federation, including by expanding the bloc.”

when they argue the illegality of the U.S.-NATO missile defense system, did not miss any opportunity to stress the critical role of strategic stability. In March 2011, shortly after New START went into force, U.S. national security adviser Tom Donilon indicated that the next bilateral agreement “should include both non-deployed and nonstrategic nuclear weapons.”²⁹ Former Russian deputy prime minister Sergei Ivanov responded that Moscow was willing to talk about tactical nuclear weapons only when this issue is discussed within “the framework of a comprehensive approach to strategic stability.”³⁰ To Deputy Defense Minister Anatoly Antonov, the withdrawal of U.S. nuclear weapons from NATO countries “would not be enough. There is also military industrial and technological infrastructure [that] . . . should be destroyed.”³¹

Russia’s precondition does not seem readily acceptable to the United States without sacrificing U.S. interests. The principle U.S. motive in the reduction of tactical weapons lies in the disparity between Russian and U.S. tactical stockpiles. Steven Pifer estimates that Russia has 2,000 deployed nonstrategic nuclear warheads, while the United States only possesses 500 nonstrategic weapons, of which 200 are in Europe ready for allies’ use.³² The Russian proposal is contradictory to U.S. military interests, as reiterated in the 2010 *Nuclear Posture Review*, that the maintenance of NATO cohesion and reassurance of allies both require the presence of U.S. TNWs in Europe.³³

The traditional view, which emphasizes the centrality of strategic parity in nuclear arsenals, might explain Russia’s concern that tactical nuclear weapons in Europe constitute a destabilizing factor for long-term strategic balance. Given the proximity of the TNW establishment in Europe, Moscow has always perceived it as adding “over 10 [percent] to the New START accountable limits.”³⁴ Such conviction has also contributed to Russia’s reluctance to reduce its own tactical nuclear weapons. While a New START II proposal to reduce nuclear warheads—deployed and nondeployed, strategic and tactical, active and reserve—of both sides under the same ceiling has been circulating in Washington, it does not seem attractive to Moscow.³⁵ Since this plan does not require the removal of U.S.

29. Tom Donilon, “The Prague Agenda: The Road Ahead” (remarks delivered at the Carnegie International Nuclear Policy Conference, Washington, DC, March 29, 2011), <http://iipdigital.usembassy.gov/st/english/texttrans/2011/03/20110330120145su5.553401e-02.html#axzz2h0MMGxAh>.

30. Sergei Ivanov, quoted in “RF gotova obsuzhdat’ ogranicheniya razmeshcheniya yadernogo oruzhiya Ivanov” [Russian Federation ready to discuss limits on the deployment of nuclear weapons-Ivanov], *RIA Novosti*, February 5, 2011, <http://ria.ru/politics/20110205/330734769.html>.

31. “U.S. tactical nuclear weapons must be withdrawn from Europe—Russian Defense Ministry,” *Interfax*, August 14, 2013, http://rbth.ru/news/2013/08/14/us_tactical_nuclear_weapons_must_be_withdrawn_from_europe_-_russian_defe_28898.html.

32. Steven Pifer, “Managing the U.S.-Russian Nuclear Relationship” (policy memorandum for Sustainable Partnership with Russia Group [SuPR] Meeting, Gstaad, Switzerland, April 2011), www.brookings.edu/~media/research/files/papers/2011/5/04%20arms%20control%20pifer/04_arms_control_pifer.pdf.

33. Vladimir Rybachenkov, “Tactical Nuclear Weapons” (remarks at a Carnegie-Ploughshares Workshop “Next Steps in Arms Control,” Washington, DC, February 15, 2012), <http://www.armscontrol.ru/pubs/en/vir-120215.pdf>.

34. *Ibid.*, 2.

35. Steven Pifer and Michael O’Hanlon, “Nuclear Arms Control Opportunities: An Agenda for Obama’s Second Term,” *Arms Control Today*, December 2012, http://www.armscontrol.org/act/2012_12/Nuclear-Arms-Control-Opportunities-An-Agenda-for-Obamas-Second-Term. The authors propose that, “[a] new START II should limit each side to no more than 2,000 to 2,500 nuclear warheads of all types combined.” Nevertheless,

nuclear weapons from Europe until after the proposed reductions are achieved, Russia would continue to rely more on TNWs than the United States and would have to sacrifice its strategic nuclear warheads for regional security, which risks long-term disparity with the U.S. strategic forces.

Nevertheless, the traditional view falls short of justifying Russia's hawkish demand to remove the entire nuclear military industry from European soil, which is nowhere close to threatening Russia's strategic forces currently or in the near future. Militarily, as Oliver Schmidt suggests, "the antiquated tactical U.S. nuclear weapons in Europe serve little to no purpose to NATO."³⁶ According to Nikolai Sokov, the "TNW are no longer front-line weapons. In fact they do not reach Russia at all."³⁷ The tactical nuclear weapons in Germany, for example, could only reach targets within the German territory during an armed conflict, due to their short range (500 kilometers) and low yield.³⁸ Moreover, many NATO countries do not think it is necessary to continue stationing U.S. tactical nuclear forces on their territories. Germany has been joined by the Netherlands, Norway, Belgium, and Luxembourg in its proposal to remove tactical nuclear weapons from Europe.³⁹ As illustrated in the Japan and South Korea cases, U.S. deterrence could be achieved without TNWs.⁴⁰ Given the flaccid capability and the waning prospects of Europe's tactical nuclear forces, Russia's ongoing intransigence on this matter seems erratic.

The anti-bullying view, which moves the concept of strategic stability away from nuclear force parity and toward the protection of national interests, offers a reasonable explanation for Russia's association of strategic instability with Europe's possession of U.S. tactical nuclear weapons. The immediate threat of NATO's possession of tactical nuclear weapons, according to this view, is the alliance's deep penetration into Russia's sphere of influence. As Deputy Defense Minister Antonov said, current "tactical nuclear weapons deployed in NATO states . . . may be rapidly relocated towards Russian borders, which actually makes them strategic."⁴¹ Such potential reflects a Western bullying act, since Russia, as opposed to the United States, would be "within the reach of nuclear weapons of several de jure and de facto nuclear states located close to its long borders."⁴² Another aspect of the bullying perceived by Russia is Europe's acquisition of tactical nuclear

they also emphasize that the removal of U.S. nonstrategic nuclear weapons from Europe is only acceptable with "very significant Russian reductions" and will be subject to "close consultation with NATO and Asian allies."

36. Oliver Schmidt, "The Utility of U.S. Tactical Nuclear Weapons in NATO: A European Perspective," Carnegie Endowment for International Peace, April 27, 2010, <http://carnegieendowment.org/2010/04/27/utility-of-u.s.-tactical-nuclear-weapons-in-nato-european-perspective/39yt>.

37. Nikolai Sokov, "U.S. and NATO Perspectives on TNW," in *Reducing and Regulating Tactical (Nonstrategic) Nuclear Weapons in Europe*, ed. Miles A. Pomper, William Potter, and Nikolai Sokov (Monterey, CA: James Martin Center for Nonproliferation Studies, 2009), 21, http://cns.miis.edu/opapers/pdfs/tnw_europe.pdf.

38. Paul Schulte, "Tactical Nuclear Weapons in NATO and Beyond: A Historical and Thematic Examination," in *Tactical Nuclear Weapons and NATO*, ed. Tom Nichols, Douglas Stuart, and Jeffrey D. McCausland (Carlisle, PA: Strategic Studies Institute, 2012), 13–14.

39. Guy B. Roberts, "Role of Nuclear Weapons in NATO's Deterrence and Defense Posture Review: Prospects for Change," in *Tactical Nuclear Weapons and NATO*, ed. Tom Nichols, Douglas Stuart, and Jeffrey D. McCausland (Carlisle, PA: Strategic Studies Institute, 2012), 387.

40. Rybachenkov, "Tactical Nuclear Weapons," 3.

41. "U.S. tactical nuclear weapons must be withdrawn from Europe."

42. Rybachenkov, "Tactical Nuclear Weapons," 2.

weapons on top of a superior conventional military force. In case of a NATO military action against Russia—which has become a more acute threat since the NATO bombing of Serbia in 1999 and NATO intervention in Libya in 2011—the only option left to Moscow would be to use Russia’s tactical weapons. The 2010 Military Doctrine reserves the use of tactical nuclear weapons to prevent “the outbreak of nuclear military conflicts . . . involving the use of conventional means of attack.”⁴³ In sum, Russia’s fear of U.S. TNWs in Europe and the reluctance to reduce its own TNW arsenal derive from the recruitment of states contiguous to the Russian territory to NATO and Russia’s conventional military weakness in the case of NATO military adventurism.

Conclusion and Policy Implications

Moscow’s obstructions of Washington’s offer of deeper nuclear cuts reflect Russia’s attempt to forestall disparity in strategic nuclear arsenals in the long run and its suspicions over the deepening Western penetration into Russia’s immediate sphere of influence. In deciphering Russian officials’ frequent citation of strategic stability, the traditional view explains Moscow’s fear of eventual disparity in nuclear arsenals. To make sense of Russia’s alarming call for including an expansive list of seemingly tangential issues in arms control, the anti-bullying view is needed, as it appositely identifies strategic stability as a tool for Russia to upset the eastward political and conventional military expansion of NATO.

As a result, solutions to the issues described above should entail two goals: first, to alleviate Russia’s fear of the eventual destruction of strategic parity and second, to assuage Russia’s concern about NATO’s political expansion. On the issue of missile defense, the United States must prove to Russia that it has “no intention of degrading Russia’s own deterrent power, and that the [NATO] system has no capability against Russian strategic missiles.”⁴⁴ While it would be virtually impossible for the U.S. Senate to ratify any legal guarantee not to direct U.S. missile defenses against Russian strategic forces, commitment on the presidential level could still be made, and Russia should be willing to drop its demand for a legal contract. In addition, Russia needs reassurance of the limited scope of NATO’s defense architecture. New START has prompted information exchanges between the United State and Russia on missiles, launchers, heavy bombers, and warheads, but trilateral collaboration on missile defense has not been achieved.⁴⁵ It would foster transparency to develop a joint data center that shares information about global missile threats detected by U.S., NATO, and Russian radars. A joint manned operation center would allow NATO and Russia to consult plans to intercept attacking missiles and allay the latter’s concern about becoming the target of European interceptors’ engagement.⁴⁶ At the same time, the reconciliation of disputes over tactical nuclear weapons in Europe requires U.S.

43. “The Military Doctrine of the Russian Federation.”

44. Dmitri Trenin, in Marcus, “Nato’s missile defense shield ‘up and running.’”

45. UPI, “U.S., Russia exchange nuclear data,” March 22, 2011, http://www.upi.com/Top_News/US/2011/03/22/US-Russia-exchange-nuclear-data/UPI-49311300801543/.

46. Steven Pifer, “NATO-Russia Missile Defense: Compromise is Possible,” Brookings Institution, December 2012, <http://www.brookings.edu/research/articles/2012/12/us-russia-nato-arms-pifer>.

verification through technical proof that NATO tactical weapons will not be employed near Russia's borders. Although NATO is not obliged to relinquish its eastward expansion, transparency measures surrounding the scope of its TNW deployment and Russian-NATO military exchanges must be coordinated to assuage Moscow's fear of conventional military aggression from the West.

It is worth noting that since the Russian adherents of the anti-bullying paradigm are less preoccupied with sustaining precise strategic force equivalence, as Rojansky points out, they are more amenable to deep nuclear cuts, as long as they do not perceive the United States and Western powers as trespassing on Russia's vital interests.⁴⁷ By following piously the Cold War definition of strategic stability and disregarding the new stream of Russia's strategic thinking, the United States is likely to dismiss the legitimacy in Russia's demand for immediate discussion of contingent issues, and thereby miss the opportunity to exploit Russia's much greater amenity to further nuclear cuts. The key to benefiting from that larger potential at this point is the United States' willingness to forgo the conventional divides between different nuclear issues and to seriously consider the Russian proposal for a comprehensive framework of arms control negotiation.

47. Rojansky, "Russia and Strategic Stability," 311.

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