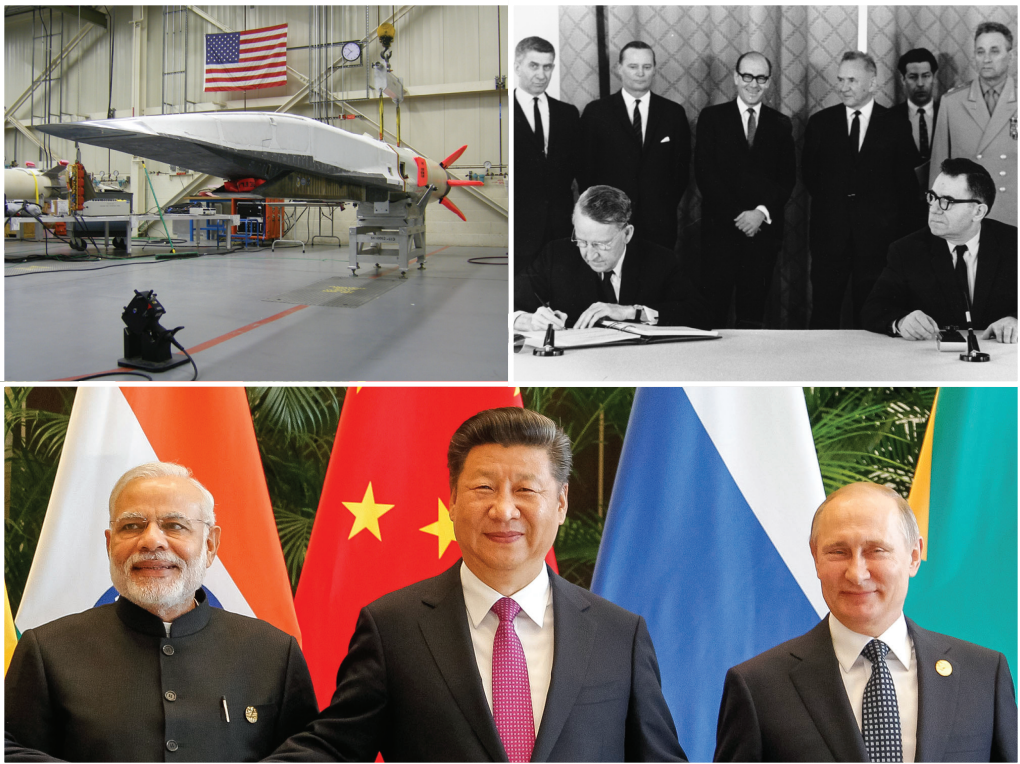


Meeting the Challenges of the New Nuclear Age:

Emerging Risks and Declining Norms
in the Age of Technological Innovation
and Changing Nuclear Doctrines



Nina Tannenwald and James M. Acton

With an Introduction by
Jane Vaynman

AMERICAN ACADEMY OF ARTS & SCIENCES

The Great Unraveling: The Future of the Nuclear Normative Order

Nina Tannenwald

With the end of the Cold War, nuclear weapons appeared to recede as a central feature of security relations among the nuclear powers. Responsible political leaders widely accepted that these were weapons of last resort. Concern shifted to nonproliferation and terrorist acquisition of nuclear weapons. The Nuclear Nonproliferation Treaty (NPT) was given a permanent extension in 1995, while the United States and Russia embarked on dramatic reductions in their nuclear arsenals.

Today, however, a new nuclear era is emerging, one of multiple nuclear powers, intersecting rivalries, increased regional tensions in Europe and Asia, and new technological arms races in both nuclear and nonnuclear weapon systems. In this emerging nuclear era, the key norms that have underpinned the existing nuclear order—most crucially deterrence, non-use, and nonproliferation—are under stress. A new norm of disarmament has emerged but it is deeply contested, while other norms, such as arms control, are disappearing altogether. Most disturbingly, nuclear weapons are being relegitimized in states' security policies.

It is useful to think of the current nuclear order in terms of two components. First is what we might call the *global nuclear order*, centered around the nuclear nonproliferation regime and debates over the justice and fairness of the regime's rules. It is essentially about the "haves" versus the "have-nots." The problems of the global nuclear order have received significant attention in recent years, in part because of the politics of inequality at NPT review conferences and the popularity of disarmament as an issue.¹ The second component is the *nuclear order among the nuclear powers*, centered around relationships of deterrence and issues of nuclear stability. These relations have received less sustained political attention, in part because the number of nuclear powers is small,

1. See Steven E. Miller, *Nuclear Collisions: Discord, Reform and the Nuclear Nonproliferation Regime* (Cambridge, Mass.: American Academy of Arts and Sciences, 2012); Toby Dalton, Togzhan Kassenova, and Lauryn Williams, eds., *Perspectives on the Evolving Nuclear Order* (Washington, D.C.: Carnegie Endowment for International Peace, June 6, 2016); and Jane Boulden, Ramesh Thakur, and Thomas G. Weiss, eds., *The United Nations and Nuclear Orders* (Tokyo: United Nations University Press, 2009).

strategic stability issues are complex and often technical, and most of the rest of the world wants to do away with deterrence, not preserve it. Yet the existing nuclear powers are at the core of the nuclear normative order. What they do has tremendous consequences for strengthening or weakening norms of restraint.

This essay takes stock of the current nuclear normative order, focusing on existing, declining, and emerging norms, especially among the nuclear powers. What challenges to norms, concepts, and doctrines does the new nuclear era pose? Under pressure from changing military technology and increasing geopolitical tensions, the global nuclear normative order is beginning to unravel. Deterrence and disarmament are both deeply contested, while some nuclear-armed states are lowering the threshold for nuclear use. The technological, political, and ethical status of deterrence is being brought into question. Although the norm of nonproliferation enjoys wide support, the nonproliferation regime itself suffers a legitimacy deficit. Further, little agreement exists on key concepts such as strategic stability or the value and purpose of arms control—once a central but now a largely moribund if not discredited practice.

This is a troubling state of affairs, with serious consequences for the risk of nuclear war. Below, I review this situation, beginning with some conceptual framings. I conclude with suggestions for how the nuclear powers might renew a commitment to norms of nuclear restraint.

EXPLAINING NORMATIVE CHANGE: THEORETICAL PERSPECTIVES

Norms are shared expectations about behavior.² They can be highly formalized, as in a codified legal regime (for example, the nonproliferation norm of the NPT), or they can be de facto norms, such as the norm of nuclear non-use. Norms depend for their maintenance and strengthening on some degree of behavioral compliance, which may differ for different norms. Scholars debate how much noncompliance will unravel a norm. Noncompliant behavior does not necessarily invalidate a norm, but over time increasing noncompliance does erode norms.³

Several theoretical perspectives on international relations provide a framework for understanding change in the nuclear normative order. In a realist view, norms reflect the existing distribution of power. Norms exist but are weakly institutionalized and unevenly enforced (“organized hypocrisy”).⁴ Norms will shift when the underlying distribution of power shifts. In this view, nuclear

2. Peter J. Katzenstein, ed., *The Culture of National Security* (New York: Columbia University Press, 1996).

3. Martha Finnemore and Kathryn Sikkink, “International Norm Dynamics and Political Change,” *International Organization* 52 (4) (Autumn 1998): 878–917.

4. Stephen D. Krasner, *Sovereignty: Organized Hypocrisy* (Princeton, N.J.: Princeton University Press, 1999).

norms will change as new nuclear powers rise and old ones decline, or with the development and spread of new military technologies. In the realist view, the nuclear nonproliferation regime is eventually doomed to fail because it cannot accommodate the rise and fall of great powers (e.g., India will never get to join the NPT as a nuclear power).⁵ Stable deterrence, in this view, is a direct function of secure second-strike capabilities and operates on the basis of prudential, not rule-following, behavior.

Liberal institutionalism would expect a little more staying power in the current normative order, especially in the more highly institutionalized areas such as the nuclear nonproliferation regime. Liberalism holds that norms can become institutionalized and embedded in legal rules and associated practices. Institutions and norms facilitate cooperation by stabilizing expectations, facilitating reciprocity, and monitoring cheating. The nuclear nonproliferation regime is the most highly institutionalized of the nuclear regimes and one of the most widely adhered to security regimes. It institutionalizes explicitly a number of nuclear norms—among them nonproliferation and peaceful uses of nuclear energy—and provides mechanisms for monitoring compliance. The recent Iran nuclear deal has bolstered the credibility of the nonproliferation regime as an enforcement mechanism that can respond to violations. Apart from the now-eroding U.S.-Russian arms control relationship, however, no comparably institutionalized “deterrence” or “disarmament” regime exists among the nuclear powers. Hence we might expect that shared understandings about deterrence and disarmament are weaker, and that norms in this area would be more contested and more easily eroded by changing behavior and new technology.

A third perspective, constructivism, emphasizes the role of ideas and identities, and the multiple roles norms play both substantively and symbolically. To analyze the nuclear normative order, three concepts are useful: normative incoherence, normative inconsistency, and normative contestation. *Normative incoherence (or conflict)* refers to a situation in which norms fundamentally conflict; for example, disarmament norms versus norms that associate nuclear weapons with great power status. *Normative inconsistency* refers to norms applied unevenly to states (e.g., India and Israel are treated differently from Iran and North Korea). Finally, *normative contestation* refers to different interpretations of the meaning of a particular norm (e.g., competing interpretations of the Article IV provision of the NPT on the “right” to peaceful nuclear energy) or of the validity or legitimacy of a norm.⁶

Most norms are contested to some degree, and all normative orders contain contradictions and inconsistencies. Severe contradictions, however, can point toward normative unraveling.

5. T. V. Paul, “The Systemic Bases of India’s Challenge to the Global Nuclear Order,” *Nonproliferation Review* 6 (1) (Fall 1998): 1–11.

6. Ramesh Thakur, “Conclusion: Normative Contestation, Incoherence and Inconsistency,” in *The Responsibility to Protect: Norms, Laws and the Use of Force in International Politics* (London: Routledge, 2011).

TWO ETHICAL VIEWS OF NUCLEAR WEAPONS

Two competing moral arguments about nuclear weapons have shaped the debate from the beginning of the nuclear era. The first is that *technology itself is value neutral*; it depends on how you use it. This is the view of U.S. military planners, who have argued repeatedly, going back to the 1950s, that weapons technology itself is neither good nor bad. Rather, it depends on how it is used. As a National Security Council Planning Board report argued in May 1953, the atomic weapon “differs only in degree from other weapons,” and moral judgments “should be on the same basis as for other weapons capable of destroying life and inflicting damage.”⁷ For the U.S. military, use is shaped (in principle) by just war principles of proportionality and discrimination, that is, the laws of war.

Such principles have informed the evolution of U.S. nuclear weapons toward smaller, more discriminating weapons, in the explicit belief that weapons that cause less collateral damage are more ethical. Such concerns drove Secretary of Defense James Schlesinger’s efforts in the 1970s to move toward smaller nuclear weapons, and motivated arguments in the wake of the 1991 Gulf War in favor of mini-nukes.⁸ More recently, similar concerns informed the Obama administration’s modernization plans. The secretary of defense’s 2013 *Report on Nuclear Employment Strategy of the United States* holds explicitly that “all plans [for use of nuclear weapons] must be consistent with the fundamental principles of the Law of Armed Conflict. Accordingly, plans will . . . apply the principles of distinction and proportionality and seek to minimize collateral damage to civilian populations and civilian objects.”⁹ The B61-12 warhead currently under development by the Pentagon will have variable yields and more precise targeting. Former Under Secretary of Defense for Policy James N. Miller, who helped develop the modernization plan before leaving his post in 2014, emphasized the ethical advantages of these upgrades. As he stated in an interview, “Minimizing civilian casualties if deterrence fails is both a more credible and a more ethical approach.”¹⁰

The paradox, of course, is that by making a weapon more ethical you also make it more usable. This makes deterrence more credible, but it also makes the arms more tempting to use first, rather than simply in retaliation. This is a prime example of normative conflict in the deterrence regime, in which more ethical weapons put pressure on the long-standing norm of nuclear non-use.

7. “Interim Report by the Ad Hoc Committee of the NSC Planning Board on Armaments and American Policy,” May 8, 1953, in *Foreign Relations of the United States, 1952–54, National Security Affairs, Vol. II, Part 2*, ed. Lisle A. Rose and Neal H. Petersen (Washington, D.C.: Government Printing Office, 1984), 1153, 1160.

8. Thomas W. Dowler and Joseph S. Howard II, “Countering the Threat of the Well-Armed Tyrant: A Modest Proposal for Small Nuclear Weapons,” *Strategic Review* 19 (4) (1991).

9. Office of the Secretary of Defense, U.S. Department of Defense, *Report on Nuclear Employment Strategy of the United States Specified in Section 491 of 10 U.S.C.*, June 12, 2013.

10. William J. Broad and David E. Sanger, “As U.S. Modernizes Nuclear Weapons, ‘Smaller’ Leaves Some Uneasy,” *The New York Times*, January 11, 2016.

The alternative ethical view is that nuclear weapons themselves are inherently immoral. This is the view of the anti-nuclear movement going back to the 1950s and of today's Global Zero movement, the Vatican (since the 1980s), and the humanitarian impact campaign at the United Nations. It is also the sentiment behind the nuclear taboo, a normative inhibition on any first use of nuclear weapons. President Obama's remarks at Hiroshima in May 2016 highlighted this ethical perspective. In the first-ever visit to Hiroshima by a sitting U.S. president, a highly symbolic moment, Obama called on the international community to pursue a nuclear-free world and stated that preventing the catastrophe of nuclear war demands a "moral revolution" as well as "progress in human institutions."¹¹

In this view, nuclear weapons, even "small" ones, are taboo. The risk of escalation is ever-present, and use would open a Pandora's box of more use. As President John F. Kennedy stated in a meeting on NATO policy in December 1962, "once one resorts to nuclear weapons one moves into a whole new world. There is no way to prevent escalation once the decision is made to employ nuclear weapons."¹² Thus *any* use of nuclear weapons, no matter how small, would be morally unacceptable. In this view, there is no such thing as an ethical nuclear bomb. In the long run, even deterrence itself is also immoral, because relying on a policy that threatens to kill millions of innocent people is fundamentally wrong, while the risk of accidental or intended use can never be eliminated.

These two competing moral views continue to shape debates over nuclear weapon policy today. On one hand, nuclear threats that are considered more moral are more credible but put pressure on the norm of non-use. On the other hand, as defenders of deterrence argue, abolishing nuclear weapons might lead to the return of war between major powers and the vast human suffering that would accompany the conflict. In short, even well-intentioned ethical impulses can lead unwittingly to actions that undermine important elements of nuclear restraint.

THE EXISTING REGIME OF NUCLEAR RESTRAINT

Since the 1960s, the existing nuclear normative order has been built around three key norms of nuclear restraint: deterrence, non-use, and nonproliferation. Under Barack Obama, new support for a norm of abolition emerged, taken up enthusiastically by civil society groups and nonnuclear states.¹³ These norms of

11. "Remarks by President Obama and Prime Minister Abe of Japan at Hiroshima Peace Memorial," May 27, 2016, <https://obamawhitehouse.archives.gov/the-press-office/2016/05/27/remarks-president-obama-and-prime-minister-abe-japan-hiroshima-peace>.

12. Memorandum, "NATO and Nuclear Matters," conversation between President John F. Kennedy and the Foreign Minister of Denmark, U.S. Department of State, December 4, 1962. Thanks to William Burr for this document.

13. Lawrence Freedman, "Disarmament and Other Nuclear Norms," *Washington Quarterly* 36 (2) (2013): 92–108; Moritz Kütt and Jens Steffek, "Comprehensive Prohibition of Nuclear Weapons: An Emerging International Norm?" *Nonproliferation Review* 22 (3–4) (2015): 401–420.

restraint constitute alternative pathways to the prevention of nuclear war. While they reinforce each other in some instances (e.g., extended deterrence helps prevent proliferation), they conflict in others (a robust norm of non-use might undercut the credibility of deterrent threats). Supplementing these are several additional norms: a no-explosive-testing norm, a norm of “peaceful uses” or civil nuclear cooperation, and an emerging norm of nuclear security. For reasons of space I do not address the latter two in this essay.

THE UNDERMINING OF THE DETERRENCE REGIME

Mutual deterrence between nuclear-armed states has been viewed as the core nuclear security relationship. During the Cold War, mutual vulnerability to catastrophic nuclear destruction gave the ideologically opposed superpowers one overarching shared interest: preventing all-out nuclear war. U.S. and Soviet leaders eventually arrived at the view that the overwhelming destructive power of nuclear weapons meant such weapons were useful for retaliatory deterrence only, not for coercive threats or actual nuclear warfighting purposes (although force structures did not follow). Debates over the requirements of stable deterrence were ongoing for decades, however, and were never resolved. Analysts doubted whether the nuclear states would share ideas of deterrence in the same way. Academic critics argued that the uncertainties of deterrence provoked arms races, led to arsenals capable of massive overkill, and provoked risky behavior, and that nuclear war during the Cold War was avoided largely by sheer luck.¹⁴

Nevertheless, the idea that nuclear weapons were for deterrence, not use, was an important accomplishment. In an effort to avoid miscalculation and unintended nuclear use, U.S. and Soviet leaders sought to stabilize deterrence by embedding it in arms control and other security cooperation agreements. The U.S.-Soviet arms control process, including the Strategic Arms Limitation Treaty (SALT), Anti-Ballistic Missile (ABM) Treaty, and NPT, along with confidence-building measures, helped to codify the practice of strategic deterrence between the superpowers and to reinforce that the primary goal of national security policy in the nuclear age was avoidance of nuclear war.¹⁵ While the SALT process was ultimately unsuccessful in reining in the strategic arms race, the 1972 ABM Treaty was essentially a no-strategic-first-use agreement. Both sides agreed they would leave themselves undefended. The ABM Treaty thus depended on a mutual expectation that neither side intended to initiate a nuclear attack. In short, while the regulative effect of the ABM Treaty was to ban ABMs, the *constitutive* effect was to codify and legitimize deterrence rather

14. Richard Ned Lebow and Janice Gross Stein, *We All Lost the Cold War* (Princeton, N.J.: Princeton University Press, 1994).

15. Joseph S. Nye Jr., “Nuclear Learning and U.S.-Soviet Security Regimes,” *International Organization* 41 (3) (Summer 1987): 371–402; Condoleezza Rice, “SALT and the Search for a Security Regime,” in *U.S.-Soviet Security Cooperation: Achievements, Lessons, Failures*, ed. Alexander L. George, Philip J. Farley, and Alexander Dallin (New York: Oxford University Press, 1988).

than use as the appropriate role for superpower nuclear weapons. This helped to enshrine a “norm” of deterrence. Joseph Nye described the U.S.-Soviet deterrence relationship as a “partial security regime.”¹⁶

Today, the hard-won U.S.-Russian security relationship is unraveling. The George W. Bush administration’s withdrawal from the ABM Treaty in 2002 cleared the legal pathway for U.S. deployment of missile defenses in Europe, in the face of strong Russian objections. It also marked a unilateral retreat from an important shared understanding about deterrence, with nothing to replace it. Deep disagreements over U.S. missile defenses are now a major source of tension in the deteriorated U.S.-Russian relationship, along with mutual trading of charges of violation of the INF Treaty, nuclear saber rattling from Russia, and disputes over implementation of the 1992 Open Skies Treaty, which promotes transparency.¹⁷ Russia’s withdrawal in 2013 from the Nunn-Lugar Cooperative Threat Reduction Program and its boycott of the 2016 Nuclear Security Summit further undermined nuclear cooperation norms.

This retrenchment from traditional understandings of deterrence in the U.S.-Russian relationship is an example of a far deeper problem. Today, deterrence is being challenged from three directions: first, by *technological developments* that entangle nuclear and conventional deterrence and also erode the boundaries between nuclear and conventional weapons; second, by a *political critique* that new nuclear states are irrational and cannot be deterred; and, third, by an *ethical critique*, exemplified by Pope Francis and the humanitarian campaign, that relying on nuclear deterrence has become morally unacceptable.

First, technological advances risk undermining nuclear stability. Stable nuclear deterrence has depended on the survivability of nuclear arsenals against any kind of disarming attack. Today, leaps in missile accuracy and in remote sensing, aided by computers, threaten to undermine the steps countries take, such as hardening and concealment, to ensure the survivability of their nuclear forces.¹⁸ Even ballistic-missile submarines may not be invulnerable in the future.¹⁹ Additionally, new guided bombs, such as the U.S. plans for an advanced cruise missile that would carry a nuclear warhead, and new delivery systems threaten the second-strike capabilities of Russia and China.²⁰ Together these technological developments undercut the logic of “mutual assured destruction.” They make the task of securing nuclear arsenals much more difficult, undermining one of the foundations of stable nuclear deterrence between rivals.

16. Nye, “Nuclear Learning.”

17. Steven Pifer, *The Future of U.S.-Russian Arms Control* (Washington, D.C.: Brookings Institution, February 26, 2016).

18. Kier A. Lieber and Daryl G. Press, “The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence,” *International Security* 41 (4) (Spring 2017): 9–49.

19. James R. Holmes, “Sea Changes: The Future of Nuclear Deterrence,” *Bulletin of the Atomic Scientists* 72 (4) (June 13, 2016): 228–233.

20. William J. Broad and David E. Sanger, “Race for Latest Class of Nuclear Arms Threatens to Revive Cold War,” *The New York Times*, April 16, 2016.

New technologies also risk blurring the line between nuclear and conventional weapons. As Thomas Schelling first noted in the 1960s, the nuclear-conventional distinction is the principal qualitative restraint on using the bomb.²¹ U.S. leaders have consistently recognized this distinction as the only clear “fire-break” on nuclear warfare. In 1965, Secretary of Defense Robert McNamara’s arguments rejecting proposals to build a neutron bomb emphasized the importance of this firebreak. He argued, “While we may find very low yield weapons and enhanced radiation warheads to be of military utility, we should not acquire them simply for the purpose of breaking down the distinction between nuclear and nonnuclear warfare.”²²

Today, the new smaller, lower-yield warheads weaken this distinction.²³ Further, well-intentioned efforts to develop high-tech conventional weapons to replace former nuclear missions may inadvertently increase the risk of nuclear use.²⁴ The U.S. hypersonic weapon under development, for example, a conventional weapon intended for “prompt global strike,” will be so fast and powerful that it will likely spur a nuclear response. The hypersonic glider is explicitly a way to attack China without crossing the nuclear threshold, complicating Chinese leaders’ assessment of nuclear retaliation. For normative reasons, strategic conventional weapons are more “usable” than nuclear weapons. However, prompt global strike can encourage preemption or the mistaken perception that it is a nuclear strike. Russian leaders believe, for example, that the United States seeks such weapons for potential use against Russian nuclear forces.²⁵ For its part, Russia is developing new sea- and air-launched cruise missiles that can carry either nuclear or conventional payloads, and Russia has conducted various military exercises combining conventional and nonstrategic nuclear weapons or dual-capable systems.²⁶ Pakistan’s intention to counter India’s conventional military superiority with battlefield nuclear weapons also revives unacceptably risky strategies of the 1980s. These practices increase, rather than reduce, the

21. Thomas C. Schelling, *Arms and Influence* (New York: Praeger, 1977), 264.

22. Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons since 1945* (Cambridge: Cambridge University Press, 2007), 277.

23. The B61-12 bomb is a thermonuclear tactical warhead designed to have four selectable explosive yields: 0.3 kilotons (kt) or 300 tons, 1.5 kt, 10 kt, and 50 kt. See Hans M. Kristensen and Matthew McKinzie, “Video Shows Earth-Penetrating Capability of B61-12 Nuclear Bomb,” Federation of American Scientists, January 14, 2016, https://fas.org/blogs/security/2016/01/b61-12_earth-penetration/.

24. James M. Acton, *Silver Bullet? Asking the Right Questions about Conventional Prompt Global Strike* (Washington, D.C.: Carnegie Endowment for International Peace, September 2013); James M. Acton, ed., *Entanglement: Russian and Chinese Perspectives on Non-Nuclear Weapons and Nuclear Risks* (Washington, D.C.: Carnegie Endowment for International Peace, 2017).

25. Elbridge Colby, *The Role of Nuclear Weapons in the U.S.-Russian Relationship*, Task Force on U.S. Policy Toward Russia, Ukraine, and Eurasia White Paper (Washington, D.C.: Carnegie Endowment for International Peace, February 26, 2016).

26. Łukasz Kulesa, *Towards a New Equilibrium: Minimising the Risks of NATO and Russia’s New Military Postures* (London: European Leadership Network, February 2016).

risk of nuclear escalation by entangling nuclear and conventional systems and dangerously eroding the firebreak between nuclear and conventional warfare.

These new technologies will require new understandings about how the key concept of strategic stability applies. Strategic stability was always a contested concept. Yet today there are major differences in how the nuclear-armed states think about this key notion and what they believe would enhance or degrade stability in specific issue areas. It is not even clear whether they consider strategic stability to be a useful framework for discussing security cooperation.²⁷ In short, without new, shared understandings about what would make deterrence stable today, new military technologies may increase the risk of escalation to nuclear use.

Second, deterrence is being discredited politically. Some critics argue that new nuclear states, especially those with extremist elements domestically, are irrational and cannot be deterred. The same applies to terrorists. Therefore, goes the argument, a policy of relying on nuclear deterrence is no longer a viable option and states should pursue more aggressive preventive or preemptive military strategies instead.²⁸ The George W. Bush administration was a strong proponent of this view, but it was also quite evident in the debate over the Obama administration's Iran nuclear deal, in which some critics argued that Iranian leaders were not rational and therefore nuclear deterrence would never work against a nuclear-armed Iran. On the other end of the political spectrum, some analysts, in trying to make the case for nuclear abolition, have sought to debunk nuclear deterrence as a "myth."²⁹

Finally, deterrence is subject to a renewed ethical critique, led by the humanitarian impact campaign and the Catholic Church. The humanitarian campaign, launched at the 2010 NPT Review Conference by nonnuclear states frustrated by the slow pace of disarmament, seeks to highlight the devastating humanitarian consequences of any use of nuclear weapons as a way to delegitimize deterrence and mobilize support for disarmament. The church has long been a powerful moral voice on this issue. In the 1980s, the U.S. Catholic bishops' groundbreaking 1983 pastoral letter focused on the ethics of nuclear use and criticized nuclear deterrence as "morally flawed."³⁰ At the time, the bishops justified a "provisional acceptance" of possession of nuclear weapons for purposes of deterrence as an "interim" strategy on the way to "progressive disarmament." They opposed first use but did not rule out any conceivable second

27. Nancy W. Gallagher, "Re-thinking the Unthinkable: Arms Control in the Twenty-First Century," *Nonproliferation Review* 22 (3-4) (2015): 480.

28. Joshua Rovner, "After Proliferation: Deterrence Theory and Emerging Nuclear Powers," in *Strategy in the Second Nuclear Age: Power, Ambition, and the Ultimate Weapon*, ed. Toshi Yoshihara and James R. Holmes (Washington, D.C.: Georgetown University Press, 2012), 17-35.

29. Ward Wilson, "The Myth of Nuclear Deterrence," *Nonproliferation Review* 15 (3) (November 2008): 421-439.

30. National Conference of Catholic Bishops, *The Challenge of Peace: God's Promise and Our Response, A Pastoral Letter on War and Peace*, May 3, 1983 (Washington, D.C.: United States Conference of Catholic Bishops, 1983).

use. This powerful statement provoked a widespread debate about the ethics of the nuclear arms race and helped undermine public support for the Reagan administration's aggressive nuclear strategies.³¹

Today, more than three decades later, the church finds even deterrence unacceptable and an entrenched obstacle to disarmament. In December 2014, a church policy paper expressed unequivocal rejection of any use, noting "the very possession of nuclear weapons *even for purposes of deterrence* is morally problematic."³² During his visit to the United States in September 2015, Pope Francis called for a complete prohibition of nuclear weapons, stating, "An ethics and a law based on the threat of mutual destruction—and possibly the destruction of all mankind—are self-contradictory and an affront to the entire framework of the United Nations."³³ The Vatican was an outspoken supporter of negotiations on the Treaty on the Prohibition of Nuclear Weapons that began in March 2017. It signed and ratified the treaty when the latter opened for signature on September 20, 2017. In the eyes of the church and the 121 nonnuclear nations that voted to adopt the treaty, nuclear deterrence is now not only immoral but also illegal. The implications of the prohibition treaty for the nuclear normative order are considered further below.

In sum, technological developments along with political and ethical critiques of deterrence are eroding both the legitimacy and the stability of nuclear deterrence as the core strategic relationship among nuclear-armed states.

THE NORM OF NON-USE

Closely associated with the practice of deterrence is the norm of non-use, or nuclear taboo: a shared belief or expectation that nuclear weapons should not be used. The taboo stems from a powerful sense of revulsion associated with such destructive weapons. No state has used a nuclear weapon in war since 1945. The seventy-two-year tradition of non-use of nuclear weapons is by now the most important feature of the nuclear age. Both self-interest and moral concerns have contributed to the rise of the taboo.

The taboo is an important source of nuclear restraint. Its rise has helped stigmatize nuclear weapons as unacceptable weapons of mass destruction and made it impossible to view them as "just another weapon." This shift in discourse is the single most important legacy of the global anti-nuclear weapon movement. Evidence suggests that this normative stigmatization helped to con-

31. Henry Shue, ed., *Nuclear Deterrence and Moral Restraint: Critical Choices for American Strategy* (Cambridge: Cambridge University Press, 1989).

32. Gerard Powers, "From Nuclear Deterrence to Disarmament: Evolving Catholic Perspectives," *Arms Control Today* 45 (4) (May 2015).

33. "Full text of Pope Francis' Speech to United Nations," *PBS NewsHour*, September 25, 2015, <http://www.pbs.org/newshour/rundown/full-text-pope-francis-speech-united-nations/>. Some argue that, in adopting this position, the church is moving away from a traditional "just war" ethical framework.

strain U.S. leaders from using nuclear weapons during the Cold War and after.³⁴ The taboo reinforces mutual deterrence between nuclear powers while undermining the credibility of deterrent threats between nuclear and nonnuclear states.³⁵ It also has decreased the legitimacy of making nuclear threats, which, until recently, had become both rarer and more veiled.³⁶

The nuclear taboo and nonproliferation norms are mutually reinforcing. The taboo—the sense that nuclear weapons are illegitimate—is fundamental to the future of the nonproliferation regime. A prohibition regime cannot be sustained over the long haul by sheer force or coercion, or by physical denial; it requires an internalized belief among its participants that the prohibited item is illegitimate and abhorrent. Further, the NPT’s long-term sustainability requires that the prohibition apply equally to all states (not just to some). Conversely, a robust nonproliferation norm helps sustain the taboo. If the norm against possession erodes, this may put pressure on the taboo against use. Further, as William Potter has pointed out, “the NPT is not as explicit as one might like in prohibiting the use of nuclear weapons, or even the threat of their use against nonnuclear states.”³⁷ This has led to repeated calls by nonnuclear states for legally binding “negative” security assurances from the nuclear weapon states and, more recently, to calls for a legal ban on nuclear weapons.

Additionally, the spread, strengthening, and internalization of the taboo have long been seen as a step on the route to disarmament. Should the taboo become sufficiently robust, even the nuclear powers might join a formal legal ban on the use of nuclear weapons, as anti-nuclear states and activists have advocated. Nevertheless, Western powers have sought to associate the taboo with being a “responsible” nuclear power. The taboo could also become an obstacle to disarmament if the nuclear powers maintain that acceptance of the taboo preserves stable deterrence and therefore justifies their (responsible) possession of nuclear weapons into perpetuity.

Today the taboo is under pressure, although the picture is mixed. On one hand, as a norm of the international community, the belief that nuclear weapons should not be used remains widely shared. Efforts continue by civil society and nonnuclear states to further delegitimize the weapons, as the humanitarian impact campaign illustrates. Under the Obama administration, government officials engaged in more public “taboo talk”—explicit reference to the tra-

34. Tannenwald, *Nuclear Taboo*.

35. General Chuck Horner, U.S. commander of the air war in the 1991 Gulf War, said in an interview after the war that the threat to use nuclear weapons against a nonnuclear state was no longer credible. “Oral History: Charles Horner,” *The Gulf War: An In-Depth Examination of the 1990–1991 Persian Gulf Crisis*, Frontline/PBS, January 9, 1996, <http://www.pbs.org/wgbh/pages/frontline/gulf/oral/horner/1.html>.

36. Samuel Black, *The Changing Political Utility of Nuclear Weapons: Nuclear Threats from 1970 to 2010* (Washington, D.C.: Henry L. Stimson Center, August 2010).

37. William C. Potter, *In Search of the Nuclear Taboo: Past, Present, and Future*, Proliferation Papers no. 31 (Paris: IFRI Security Studies Center, Winter 2010), <https://www.ifri.org/en/publications/enotes/proliferation-papers/search-nuclear-taboo-past-present-and-future>.

dition or norm of non-use and the obligation to uphold it. U.S. officials regularly stated in their nuclear speeches that “it is in the U.S. interest and that of all other nations that the nearly 65 [now 72]-year record of non-use of nuclear weapons be extended forever.”³⁸ This language was also in the Obama administration’s 2010 *Nuclear Posture Review Report*. In an important summit statement in November 2010 between the United States and India, President Obama and Prime Minister Manmohan Singh stated they “support strengthening the six decade-old international norm of non-use of nuclear weapons.”³⁹ In May 2016, U.S. Defense Secretary Ash Carter pushed back publically against Russian President Vladimir Putin’s nuclear saber rattling, saying it “raises troubling questions about Russia’s leaders’ commitment to strategic stability, their respect for norms against the use of nuclear weapons, and whether they respect the profound caution that nuclear-age leaders showed with regard to brandishing nuclear weapons.”⁴⁰

These statements serve as valuable public affirmations of the importance of non-use. Likewise, the historic visits to Hiroshima by Secretary of State John Kerry and President Obama in spring 2016 were important symbolic pilgrimages to remind the world of the catastrophic destructive power of nuclear weapons and the need for “never again.”⁴¹ According to officials at Hiroshima’s Peace Memorial Museum devoted to the atomic bombings, Obama’s visit substantially boosted attendance at the museum, illustrating a significant demonstration effect.⁴²

Nevertheless, there are troubling signs the taboo is weakening, a trend that began well before President Donald Trump. Especially worrisome is the renewed salience of nuclear weapons in the NATO-Russia confrontation, in which Russian leaders have begun to employ a frightening rhetoric of nuclear use. Aware of Russia’s conventional military inferiority vis-à-vis NATO, Russian leaders talked openly about putting nuclear weapons on alert during the Crimea operation in 2014, deployed nuclear-capable missiles to Kaliningrad in 2016, and have even made nuclear threats against NATO member states.⁴³ NATO is responding by strengthening its deterrent and promoting its plans for ballistic

38. Acting Under Secretary for Arms Control and International Security Rose Gottemoeller, “Priorities for Arms Control Negotiations Post–New START,” February 21, 2013, U.S. Department of State, <http://www.state.gov/t/us/205051.htm>.

39. “Joint Statement by President Obama and Prime Minister Manmohan Singh of India,” November 8, 2010 (Washington, D.C.: Government Printing Office, 2010).

40. Secretary of Defense Ash Carter, “Remarks at EUCOM Change of Command, Stuttgart, Germany, May 3, 2016,” U.S. Department of Defense, <http://www.defense.gov/News/Speeches/Speech-View/Article/750946/remarks-at-eucom-change-of-command>.

41. Felicia Schwartz, “John Kerry, in Hiroshima, Reaffirms Need to Curb Nuclear Weapons,” *The Wall Street Journal*, April 10, 2016.

42. Interview with Yasuyoshi Komizo (Hiroshima Peace Culture Foundation chairperson), July 2017.

43. Julian E. Barnes, “NATO Accuses Russia of Loose Talk on Nuclear Weapons,” *The Wall Street Journal*, February 13, 2016; Andrew E. Kramer, “Russia Speaks of Nuclear War as U.S. Opens Missile Defense System,” *The New York Times*, May 12, 2016.

missile defenses, which only continues the cycle.⁴⁴ Igor Ivanov, a former Russian foreign minister who now runs a Russian government think tank, said in March 2016, “The risk of confrontation with the use of nuclear weapons in Europe is higher than in the 1980s.”⁴⁵ Former U.S. Secretary of Defense William J. Perry has been airing similar concerns.⁴⁶

The lack of caution in brandishing nuclear weapons has become most alarming in the U.S.–North Korean relationship, in which the exchange of nuclear threats and bombastic rhetoric between Trump and North Korean leader Kim Jong-un has risen to frightening levels. North Korean leaders’ penchant for threatening preemptive strikes suggests that they think nuclear weapons are usable. Trump’s impulsive and reckless wielding of threats to “totally destroy” North Korea has significantly escalated tensions on the Korean peninsula, raising the risk of miscalculation and inadvertent nuclear war. Some analysts think a U.S. first strike on North Korea is imaginable.⁴⁷

The recklessness of this situation defies belief. When the world’s leading democracy demonstrates willful disrespect for the long-standing norms of non-use and nonproliferation (during the campaign Trump suggested that Japan and South Korea should get nuclear weapons of their own), it sets a particularly damaging example. If there is a silver lining, it is that Trump’s behavior has likely put a sizeable dent in the “orientalist” discourse that non-Western nuclear states are irrational while Western states are “responsible” nuclear powers.⁴⁸ Alarmed members of Congress have called for review of the American president’s authority under U.S. law to decide unilaterally on nuclear use. Analysts, the media, and public discourse increasingly frame Trump as childlike or mentally ill, and therefore—like Kim Jong-un—“outside the pale” and not someone whose views or behavior establish a precedent. Such a framing will be essential to preserving the nuclear taboo going forward.

44. Samuel Charap and Jeremy Shapiro, “U.S.-Russian Relations: The Middle Cannot Hold,” *Bulletin of the Atomic Scientists* 72 (3) (2016): 150.

45. Alix Culbertson, “European Nuclear War Imminent as Russia Relations Break Down,” *Express* (London), March 19, 2016.

46. William J. Perry, “The Risk of Nuclear Catastrophe Is Greater Today than During the Cold War,” *Huffington Post*, https://www.huffingtonpost.com/william-jperry/nuclear-catastrophe-risk_b_9019558.html.

47. David Nakamura and Anne Gearan, “In U.N. Speech, Trump Threatens to ‘Totally Destroy North Korea’ and Calls Kim Jong Un ‘Little Rocket Man,’” *The Washington Post*, September 19, 2017; Mark Fitzpatrick, “The Increasing Likelihood of War with North Korea,” *Politics and Strategy* blog, International Institute for Strategic Studies, November 8, 2017, <https://www.iiss.org/en/politics%20and%20strategy/blogsections/2017-6dda/november-c6ba/the-likelihood-of-war-with-north-korea-4ea5>.

48. Hugh Gusterson, “Nuclear Weapons and the Other in the Western Imagination,” *Cultural Anthropology* 14 (1) (February 1999): 111–143.

Nuclear Doctrines that Lower the Threshold for Use

The lowered threshold for use is also reflected in the nuclear-armed states' nuclear doctrines. Doctrines are the set of ideas about how nuclear weapons would be used to achieve outcomes. Many of the doctrines today increase the salience of nuclear weapons in security policy, blur the line between nuclear and conventional weapons, and emphasize "early" use. While the U.S. 2010 *Nuclear Posture Review* narrowed the conditions under which the United States would use nuclear weapons, even under Obama Pentagon planning remained largely mired in outdated Cold War nuclear strategies that emphasize first-strike capabilities. The Trump administration's *Nuclear Posture Review*, released on February 2, 2018, reverses important progress of the Obama era nuclear policy.⁴⁹ It increases the role of nuclear weapons in deterring nonnuclear attacks, requests new nuclear warheads that make use seem easier, and seeks to integrate nuclear and conventional forces to facilitate nuclear warfighting. The latter will blur the important "firebreak" between nuclear and conventional weapons that serves as a main barrier to nuclear war. Further, the review advocates with breathless enthusiasm a costly, full-speed-ahead nuclear arms race with Russia and China. While not everything the review calls for will come to pass, the Trump *Nuclear Posture Review* signals a renewed, dangerous embrace of the risks of nuclear weapons and that the United States has abandoned aspirations for leadership on reducing nuclear dangers.

The picture elsewhere is equally grim. Analysts debate whether Russia plans to rely on a so-called "escalate to de-escalate" strategy—a limited nuclear strike involving a few low-yield nuclear weapons in response to large-scale aggression with conventional weapons by NATO. On the positive side, it is likely Russia's threshold for nuclear use will rise as its long-range conventional precision-strike capabilities improve.⁵⁰ However, Russia, Pakistan, and likely North Korea believe nuclear weapons are a legitimate means to deter and counter a conventional threat, a retreat from the view that nuclear weapons should be used only to deter other nuclear weapons. The Trump administration also now appears to share this view.

In contrast, China and India have both adopted no-first-use doctrines, and China maintains a nuclear retaliatory capability based on a relatively small force and a second-strike posture.⁵¹ Both China and India have resisted concepts of deterrence that rely on nuclear warfighting capabilities and counterforce targeting. Yet if they move toward multiple-warhead missiles, then this stra-

49. U.S. Department of Defense, *Nuclear Posture Review*, February 2018, <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>.

50. Anya Loukianova Fink, "The Evolving Russian Concept of Strategic Deterrence: Risks and Responses," *Arms Control Today* 47 (6) (July/August 2017); Kristin Ven Bruusgaard, "The Myth of Russia's Lowered Nuclear Threshold," *War on the Rocks*, September 22, 2017, <https://warontherocks.com/2017/09/the-myth-of-russias-lowered-nuclear-threshold/>.

51. Fiona S. Cunningham and M. Taylor Fravel, "Assuring Assured Retaliation: China's Nuclear Posture and U.S.-China Strategic Stability," *International Security* 40 (2) (Fall 2015): 7–50.

tegic restraint will disappear.⁵² Indeed, India already appears to be in a state of doctrinal drift away from its “credible minimum deterrent” posture. In contrast, Pakistan’s highly risky posture of “asymmetric escalation” threatens early use of battlefield nuclear weapons if hostilities erupt with India.⁵³ Both India and Pakistan are examples of “new” nuclear states with doctrines and postures that increase the risk of destabilizing dynamics and arms racing in the region. Their doctrines are “either ambiguous about how to address crucial deterrence related issues” or demonstrate “a clear mismatch between the security challenges faced by [the] state and the kind of role it assigns to nuclear weapons.”⁵⁴ Because of unresolved tensions over Kashmir between these two nuclear-armed states, the risk of nuclear use is probably increasing in South Asia.

Finally, recent survey experiments suggest that support for the taboo among the American public is weak, and that American public opinion today would not pose a significant constraint should U.S. leaders desire to use nuclear weapons.⁵⁵ While these findings are incomplete, along with the shifts in doctrine and discourse they contribute to an overall picture of lowered thresholds for use and fraying normative restraints.

NORMATIVE INCONSISTENCY: THE NUCLEAR POWERS AND THE NONPROLIFERATION NORM

The norm against the spread of nuclear weapons to new states has served as an important element of nuclear restraint since the creation of the NPT in 1968. It is one of the most successful and widely shared nuclear norms. Cooperation of the UN Security Council’s P5+1 in the achievement of the Iran nuclear deal bolstered both the norm and the credibility of the NPT.

Nevertheless, the nonproliferation regime itself is deeply troubled by the unresolved asymmetry in the “bargain” between the nuclear and nonnuclear states, and by inconsistent application of the rules. This undercuts the legitimacy of the regime. In the eyes of the nonnuclear states, the implementation of the bargain has disproportionately favored the norms of the nuclear powers. The failure of the P5 to make adequate progress on disarmament and the lack of

52. Michael Krepon, Travis Wheeler, and Shane Mason, eds., *The Lure and Pitfalls of MIRVs: From the First to the Second Nuclear Age* (Washington, D.C.: Stimson Center, May 2016).

53. Timothy Hoyt, “Pakistan’s Nuclear Posture: Thinking about the Unthinkable?” in Yoshihara and Holmes, eds., *Strategy in the Second Nuclear Age*, 181–200.

54. Mahesh Shankar and T. V. Paul, “Nuclear Doctrines and Stable Strategic Relationships: The Case of South Asia,” *International Affairs* 92 (2) (January 2016): 1.

55. Scott D. Sagan, Benjamin A. Valentino, and Daryl G. Press, “Atomic Aversion: Experimental Evidence on Taboos, Traditions, and the Non-Use of Nuclear Weapons,” *American Political Science Review* 107 (1) (February 2013): 188–206; Scott D. Sagan and Benjamin A. Valentino, “Revisiting Hiroshima in Iran: What Americans Really Think about Using Nuclear Weapons and Killing Noncombatants,” *International Security* 42 (1) (Summer 2017): 41–79.

an equivalent “monitoring” mechanism for disarmament as compared to the nonproliferation pillar are particularly grating. Perceptions of special treatment of “friends” of the West outside the regime, as in the 2008 U.S.-India civil nuclear deal and the Nuclear Suppliers Group exception for India, as well as U.S. diplomatic protection of Israel’s nuclear arsenal, create the impression that the nonproliferation rules do not apply to all. This has led to a deep sense of unfairness on the part of the nonnuclear states. It has encouraged them to pursue alternative approaches to disarmament and undercut their willingness to do more to strengthen the NPT.

Further, three of the nine nuclear powers are free riders on the NPT. Non-members India and Pakistan are expanding their nuclear arsenals while benefitting from the norms that make it more costly for others to enter the bomb-making business. India has actively sought to weaken the nonproliferation commitments it was required to undertake to receive the Nuclear Suppliers Group exemption in 2008.⁵⁶ Pakistan complains about unequal treatment with India and continues to block UN negotiations on a fissile materials cutoff treaty. Neither has signed the Comprehensive Nuclear-Test-Ban Treaty (CTBT), taken as a key symbol of a “responsible” nuclear power. As a recent report notes, “neither India nor Pakistan seems willing to take actions that would align its [nonproliferation and disarmament] policies, commitments, and practices with other states currently in the mainstream.”⁵⁷ Another free rider, Israel, brazenly harangues the rest of the international community to hold Iran to its obligations under the NPT while refusing important nonproliferation obligations itself, such as ratifying the CTBT.

The NPT has become a regime of double standards, unsustainable over the long run. The basic problem is that what was supposed to be a transformation regime—the transformation to a disarmed world—has become a status quo regime. Nonnuclear states perceive that the NPT has become a regime for managing the nuclear status quo in the interests of the nuclear powers, both those inside and, increasingly, those outside the treaty. Other nonproliferation norms face uncertain futures. The emerging norm of nuclear security is off to a respectable start but currently has no institutionalized future, while the buttressing of the norm of civil nuclear cooperation by the U.S.-India deal had the bitter side effect of undermining the core nonproliferation norm.⁵⁸

The Deeply Contested Disarmament Norm

Under the NPT, the nuclear powers have an obligation to pursue disarmament in good faith. The call in *The Wall Street Journal* in 2007 for a nuclear-free

56. Daryl G. Kimball, “Obama’s India Nuclear Blind Spot,” *Arms Control Today* 46 (6) (June 2016).

57. Toby Dalton, Togzhan Kassenova, and Lauryn Williams, “Introduction,” in *Perspectives on the Evolving Nuclear Order*.

58. Ramesh Thakur, *The Global Governance Architecture of Nuclear Security*, Policy Analysis Brief (Muscatine, Iowa: Stanley Foundation, March 2013).

world by four U.S. elder statesmen, along with President Obama's speech in Prague in June 2009, put disarmament squarely back on the agenda of the international community.⁵⁹ The enthusiasm for disarmament on the part of civil society and nonnuclear states is largely not shared, however, by those who would have to do the disarming.

The disarmament norm is characterized by a vast disconnect between rhetoric and reality. The ritual incantation of disarmament at the UN seems increasingly disconnected from what nuclear-armed states are doing domestically. Since Prague, although there have been some reductions in numbers, U.S.-Russian efforts at disarmament have stagnated. Russia, China, France, India, and Pakistan are not really interested in disarmament, though they go through the motions. Even France and Britain committed to maintain their nuclear forces in perpetuity.⁶⁰ Further, the United States is leading a global expansion of nuclear weapon programs, with plans to spend an unaffordable \$1 trillion on the development of a whole new generation of bombs and delivery systems in the name of safety and reliability. Such an enormous level of spending will effectively "establish (or strengthen) strong vested interests against abolition or even meaningful reduction."⁶¹ Russia is also modernizing old systems, both strategic and nonstrategic, and building some new ones. China has started to deploy multiple independently targetable reentry vehicles (MIRVs), and India and Pakistan will likely do the same. The combined stockpiles of nuclear weapons in Pakistan, China, and India could grow by around 250 warheads over the next ten years if current trends continue.⁶²

Pretending that this buildup is somehow "disarmament," as the Obama administration did, increased the cynicism of the nonnuclear states, leading them to take matters into their own hands.

The No-Explosive-Testing Norm

The twenty-one-year-old Comprehensive Test Ban Treaty (CTBT) has helped to foster a powerful global norm against nuclear explosive testing. The force of the norm is broader than the law, since today even states that are not parties to the treaty, such as North Korea, are widely condemned for testing. While it enjoys wide support, the CTBT remains unratified by key states, however, including the United States, China, Israel, Egypt, and Iran, and so it is not

59. George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn, "A World Free of Nuclear Weapons," *The Wall Street Journal*, January 4, 2007.

60. Patrick Wintour, "Britain and France Sign Landmark 50-Year Defence Deal," *The Guardian*, November 2, 2010.

61. William Burr and Jeffrey Kimball, "Seven Decades after Hiroshima, Is There Still a Nuclear Taboo?" *Bulletin of the Atomic Scientists* (August 4, 2015), <https://thebulletin.org/seven-decades-after-hiroshima-there-still-nuclear-taboo8591>.

62. Krepon, Wheeler, and Mason, *Pitfalls of MIRVs*, 8.

formally in force.⁶³ The ban thus takes the form of a voluntary moratorium on explosive testing. The declared nuclear powers have maintained a de facto ban on testing since 1996, and India and Pakistan have since 1998. The norm against explosive testing has been broken by only one state in this century—North Korea—which carried out six announced tests in 2006, 2009, 2013, 2016, and 2017.

The CTBT continues to be regarded as an important component of the global nonproliferation and disarmament regime. NPT parties agreed at the 2000 NPT Review Conference that achievement of the CTBT constitutes the first practical step toward disarmament.⁶⁴ Today, however, the CTBT exhibits some disconnect between its symbolic, political importance and its practical effect as a restraint. Because of advances in virtual methods of stockpile management, various kinds of “surrogate” testing that rely heavily on computers and do not involve any nuclear detonation have rendered some of the physical impediments imposed by the test-ban treaty less relevant. Ironically, while these technological advances support compliance with the no-explosive-testing norm, they also help nuclear-armed states quietly evade the disarmament norm (mentioned in the CTBT’s preamble). Surrogate testing capabilities make it possible for nuclear-armed states to maintain nuclear arsenals indefinitely, even without explosive testing, thus undercutting one of the original purposes of the CTBT.⁶⁵ In practice, the CTBT has not had any discernible disarmament effect on nuclear-armed states, or on “existing” nuclear weapons, though it has been observed by some of those states for more than twenty years.

Nevertheless, the ban does make it harder for would-be proliferators to produce a working and deliverable nuclear warhead and for existing nuclear states to develop new designs or miniaturize weapons. For these reasons, it remains an important component of the nonproliferation regime.⁶⁶ The puzzle is why the United States, which possesses a sophisticated surrogate testing capability, has failed to ratify a treaty that so clearly preserves its asymmetric advantage, thereby failing to bolster a norm that mostly constrains others but not itself.

As long as the CTBT languishes “out of force,” the no-explosive-testing norm remains vulnerable. Some observers worry that Russia may withdraw from the CTBT and begin testing a new generation of warheads in under-

63. Eight states still need to ratify the CTBT for it to come into effect, including the United States, China, Israel, Egypt, and Iran. India, Pakistan, and North Korea have not signed it. The United States has abided by the treaty but the Senate has never ratified it. It is expected that once the United States ratifies it, several other holdouts will quickly follow suit.

64. Lisa Tabassi, “The Nuclear Test Ban: *Lex Lata* or *de Lege Ferenda*?” *Journal of Conflict and Security Law* 14 (2) (Summer 2009): 335–336.

65. Elvira Rosert, Una Becker-Jakob, Giorgio Franceschini, and Annette Schaper, “Arms Control Norms and Technology,” in *Norm Dynamics in Multilateral Arms Control: Interests, Conflicts, and Justice*, ed. Harald Müller and Carmen Wunderlich (Athens: University of Georgia Press, 2013), 127.

66. Daryl G. Kimball, “The Enduring Nonproliferation Value of the Comprehensive Nuclear-Test-Ban Treaty,” *Nonproliferation Review* 23 (3–4) (2016): 397–408.

ground detonations. With all the nuclear powers engaged in modernization, China, India, and Pakistan may also feel pressures to test, and there are certainly constituencies among the weaponeers in all the nuclear-armed countries who would press for testing. Bringing the CTBT into force would help codify the no-explosive-testing norm and establish a legal barrier to explosive testing along with the verification regime to monitor compliance.⁶⁷ The persistent efforts by governments, international organizations, and civil society to bring the CTBT into force reflect the urgency and priority they give to the matter. Still, the major challenge for the test ban today is North Korea's flagrant explosive testing and whether the U.S. president can deliver Senate ratification of the treaty.

The Decline of Arms Control

Even as the nuclear order is fraying, arms control as a tool for managing nuclear rivalries has become discredited. As noted earlier, arms control once played a central role in codifying shared understandings about deterrence. Post-1962 history shows that neither U.S. nor Soviet leaders felt comfortable relying purely on the operation of the balance of terror alone. Rather, they sought to codify shared understandings about the nature of nuclear security in arms control agreements, institutions, and practices as a way to stabilize their relationship. Without this institutional and normative context, deterrence might still have operated, but it would not have been stable.

Today treaties no longer enter into force, or, if they do, they lack key parties. Obama was constrained by hawks in Congress and the Pentagon. Trump has little interest in arms control and even seems determined to end the multilateral 2015 Iran agreement, despite its success so far in restricting Iran's nuclear program and near universal support for it by other states. Russia and the United States have no arms control agenda and no negotiations under way on a new deal to reduce their vast nuclear stockpiles.⁶⁸ China has rejected efforts by the United States and Russia to enter into formal arms control discussions, even though it participates in such discussions informally. India and Pakistan have not adequately cooperated on reducing nuclear risks and have failed to develop any meaningful treaty relations to deal with their escalating nuclear and missile standoff.⁶⁹ There is currently little prospect for negotiating a ban or serious constraints on MIRVed missiles in Asia. There are no meaningful conversations on nuclear risk reduction between China and India or between India and Pakistan.⁷⁰

67. Tabassi, "Nuclear Test Ban," 337.

68. Kingston Reif and Kelsey Davenport, "Trump's Threat to Nuclear Order," War on the Rocks (blog), October 12, 2017, <https://warontherocks.com/2017/10/trumps-threat-to-nuclear-order/>.

69. Dalton, Kassenova, and Williams, *Perspectives on the Evolving Nuclear Order*.

70. Krepon, Wheeler, and Mason, *Pitfalls of MIRVs*.

The discrediting of this tool has a number of explanations—the hostility of the George W. Bush administration toward international law in general, the new “cold war” between Russia and NATO, the perception on the part of new nuclear states that a multilateral arms control process would be about preserving the dominant power position of the original nuclear states, unequal nuclear-conventional balances, and the desire of countries to preserve freedom of action in uncertain times.⁷¹ The deeper crisis of arms control is that it suggests a more fundamental rejection among states of cooperation and shared rules of behavior. As Britain’s stunning vote in June 2016 to leave the European Union suggests, there is a collective amnesia about how difficult it is to create institutions of peace and cooperation—and how recklessly easy it is to undo them. The disdain for arms control may also reflect a somewhat cavalier attitude toward nuclear weapons and deterrence—perhaps some nuclear “forgetting.”

Yet arms control is not simply a technical but an inherently political activity. As Nancy Gallagher reminds us, its “most important potential contribution to global security [is] to progressively increase order and a sense of society among sovereign states while decreasing the role that threats and use of force play in maintaining mutual security.”⁷²

The Nuclear Prohibition Treaty: Implications for the Nuclear Normative Order

With the nuclear powers failing to lead on disarmament, the nonnuclear states stepped into the gap with a new Treaty on the Prohibition of Nuclear Weapons, adopted at the United Nations on July 7, 2017, by 122 nonnuclear states. The treaty outlaws all aspects of nuclear weapons including their use and threat of use, testing, development, possession, sharing, and stationing in a different country. It is the first multilateral treaty for nuclear disarmament since the 1996 CTBT, and the first legally binding international agreement comprehensively to prohibit nuclear weapons. It will enter into force after fifty states have ratified it.⁷³

Unfortunately, as with other multilateral arms control measures these days, it will lack key parties. The nuclear-armed states and U.S. NATO allies boycotted the negotiations, and the nuclear powers made clear that they are not bound by the resulting treaty. This raises the question of what effect the treaty will have.

For advocates, this was an explicitly normative strategy of disarmament.⁷⁴ The goal was simply to declare nuclear weapons illegal, just as chemical and

71. Robert Legvold, *Return to Cold War* (Cambridge: Polity, 2016).

72. Gallagher, “Rethinking the Unthinkable,” 471.

73. As of this writing (March 2018), fifty-seven states have signed and six states have ratified it.

74. Nina Tannenwald, “Normative Strategies for Disarmament,” in *Global Nuclear Disarmament: Strategic, Political, and Regional Perspectives*, ed. Nik Hynek and Michal Smetana (London: Routledge, 2015), 107–121.

biological weapons are, and thereby to establish a new international norm.⁷⁵ This would outlaw any use of nuclear weapons. The participation of the nuclear powers was not needed for this. The treaty codifies the moral critique of nuclear weapons into a legal ban. It explicitly seeks “to codify under international law the ‘nuclear taboo’ or moral imperative not to use nuclear weapons” and to eliminate the legal asymmetry of the NPT.⁷⁶ The hope is that the treaty will foster a domestic political debate about nuclear weapons, especially in the democratic nuclear weapon states and those states under a nuclear “umbrella.”

Although skeptics argue that the treaty is irrelevant, in fact it poses a serious political and normative challenge to the nuclear-armed states. As a delegitimization process, the humanitarian campaign is an effective strategy because it creates a tension—especially for the three democracies: the United States, Britain, and France—between the values they assign to nuclear weapons and their self-identity as upholders of international law and humanitarian values.⁷⁷ The treaty will likely intensify the conflict among the norms of nuclear restraint. The treaty seeks to strengthen the norms of non-use and non-possession, but its most pointed effect is to outlaw deterrence. Like many legal regimes, it will likely have spillover effects even for non-parties. U.S. officials argue—correctly—that the treaty could eventually delegitimize nuclear extended deterrence on which alliance relationships depend. A legal ban will likely complicate policy options for U.S. allies under the U.S. nuclear umbrella who are accountable to their parliaments and civil society. U.S. officials also argue, less plausibly, that the treaty will compete with, and damage, the NPT.⁷⁸ This is primarily an argument about competing organizations, not conflicting norms. There is no inherent reason why the prohibition treaty should damage the NPT. Whether it competes with the NPT or supports it, as, for example, nuclear weapon-free zones do, will depend primarily on how states respond. A strategy of seeking to discredit the prohibition treaty could do more harm than good to NPT politics.

Nevertheless, as opposition to the prohibition treaty shows, although widespread support exists for further stigmatizing nuclear weapons, the general opprobrium is far from universal or complete. The nuclear powers themselves continue to believe firmly in the benefits of retaining their nuclear capabilities.

75. Nick Ritchie, “Pathways to Nuclear Disarmament: Delegitimising Nuclear Violence” (working paper, UN General Assembly Open-Ended Working Group, May 11, 2016), 7.

76. Alberto Perez Vadillo, *Beyond the Ban: The Humanitarian Initiative of Nuclear Disarmament and Advocacy of No-First-Use Nuclear Doctrines* (London: British American Security Information Council, May 2016), 3.

77. Nick Ritchie, “Waiting for Kant: Valuing and Delegitimizing Nuclear Weapons,” *International Affairs* 90 (3) (2014): 601–623.

78. “Briefing on Nuclear Ban Treaty by National Security Council Senior Director Christopher Ford,” Carnegie Endowment for International Peace, August 22, 2017, <http://carnegieendowment.org/2017/08/22/briefing-on-nuclear-ban-treaty-by-nsc-senior-director-christopher-ford-event-5675>; Rebecca Davis Gibbons, “The Nuclear Ban Treaty: How Did We Get Here, What Does It Mean for the United States?” War on the Rocks (blog), July 14, 2017, <https://warontherocks.com/2017/07/the-nuclear-ban-treaty-how-did-we-get-here-what-does-it-mean-for-the-united-states/>.

Wider alliance systems such as NATO continue to tout the great value of deterrence and first use as the basis for security, a position that has been revalorized today by Russia's intervention in Ukraine. The commitment to non-use among some of the "new" nuclear powers, such as Pakistan, may be tenuous.

Further, the non-use and disarmament norms face powerful norms that run in the opposite direction: those that associate nuclear weapons with prestige and great power status.⁷⁹ Thanks to Putin, Trump, and Kim Jong-un, nuclear weapons are once again being celebrated as symbols of national power. For the older nuclear powers, nuclear weapons have become a matter of both national identity and habit. According to Britain's former Prime Minister Tony Blair, the utility of nuclear weapons is "non-existent in terms of military use." Nevertheless, Blair wrote in his memoir, giving up Britain's arsenal would be "too big a downgrading of our [Britain's] status as a nation."⁸⁰ Russia increasingly relies on its nuclear arsenal for signaling and prestige. India has long sought the status associated with nuclear technological prowess, while Pakistan's desire for the bomb has less to do with great power status and more to do with "issues of self-definition" and identity—that is, "being like India, while not India."⁸¹ For disarmament to succeed, supporters will have to dismantle a powerful sense of "nuclear exceptionalism"—leaders' views of their nations "as somehow exceptional and thereby entitled to nuclear weapons."⁸²

Renewing a Regime of Nuclear Restraint

Lawrence Freedman has worried that the disarmament norm is "being used to deride other valuable forms of restraint, including deterrence."⁸³ This is true. Yet it is debatable whether the humanitarian campaign or the nuclear powers themselves are doing more to undermine deterrence. The nuclear-armed states exhibit a striking collective lack of imagination about how to respond to the demands of the humanitarian campaign and the prohibition treaty, even while themselves implementing nuclear doctrines that undermine deterrence, stability, and non-use.

Beyond this, a deeper source of normative unraveling is the unequal distribution of the "benefits" of deterrence. As a result of the asymmetrical nature of the nonproliferation regime, some states possess nuclear weapons, others—such as NATO members—are protected by the nuclear deterrence threats of others, while the rest, who exist outside any nuclear umbrella, must put their faith in

79. Anne Harrington de Santana, "Nuclear Weapons as the Currency of Power: Deconstructing the Fetishism of Force," *Nonproliferation Review* 16 (3) (November 2009): 327.

80. Tony Blair, *A Journey: My Political Life* (New York: Vintage, 2011).

81. Hoyt, "Pakistan's Nuclear Posture," 182.

82. Kjølve Egeland, "Change the Incentives: Stigmatize Nuclear Weapons," *Bulletin of the Atomic Scientists* (March 15, 2016), <https://thebulletin.org/change-incentives-stigmatize-nuclear-weapons9261#w>.

83. Freedman, "Disarmament and Other Nuclear Norms," 102.

norms, laws, and morality to protect against nuclear use. As Angela Kane, UN high representative for disarmament affairs, noted in 2015, this situation is inherently unstable. “The risk of proliferation grows every additional day that states insist the doctrine of nuclear deterrence is essential for their security.”⁸⁴ The larger problem is one of inequitable access to security globally.⁸⁵

Restraint is a condition of keeping a situation “under control or within limits.”⁸⁶ It is associated with notions of self-control, self-discipline, moderation, and prudence. Without a conscious and collective effort to renew the norms of nuclear restraint, they are likely to unravel further, heightening the risk of nuclear war. A renewed regime of nuclear restraint must be based on the fundamental recognition that security in the nuclear age cannot be achieved unilaterally. Rather, it requires the cooperation of others. A renewed regime of restraint would aim to reduce contradictions and inconsistencies in the nuclear normative order through greater effort to balance conflicting norms, which means some attention to principles of equity and fairness.

A No-First-Use Regime

The cornerstone of a renewed regime of nuclear restraint would be strengthening the norm of non-use of nuclear weapons through the adoption of a declared no-first-use policy by all the nuclear powers. There have been increasing numbers of proposals for the United States to adopt a no-first-use policy in recent years, with compelling analyses. However, the case can be made more strongly for common declared no-first-use policies as the linchpin of a renewed regime of nuclear restraint among the nuclear powers.

A no-first-use policy means that nuclear powers would rely on nuclear weapons only to deter nuclear attacks.⁸⁷ Adoption of no-first-use would not

84. Angela Kane, “The Home Stretch: Looking for Common Ground Ahead of the 2015 NPT Review Conference,” Annecy, France, March 13, 2015.

85. John D. Steinbruner, *Principles of Global Security* (Washington, D.C.: Brookings Institution Press, 2000).

86. Oxford English Dictionary, <https://en.oxforddictionaries.com/definition/restrain>.

87. An alternative wording is “sole purpose,” as in “the sole purpose of the possession of nuclear weapons is to deter the use of such weapons against one’s own state and that of one’s allies.” Sole purpose declarations have been advocated most prominently by the Evans-Kawaguchi International Commission on Nonproliferation and Disarmament in 2009. There may be slight distinctions in meaning: sole purpose refers to intent, while no-first-use refers to behavior. Sole purpose may be slightly less restrictive in that it could leave open the scenario of a counterforce first strike to limit damage in the face of an imminent nuclear attack. In practice, these concepts are largely interchangeable. Former Secretary of Defense William Perry has stated that sole purpose is a more acceptable euphemism for no-first-use in the United States because no-first-use was tarnished during the Cold War by the Soviet Union’s disingenuous advocacy of the policy. See Masa Takubo, “The Role of Nuclear Weapons: Japan, the U.S., and ‘Sole Purpose,’” *Arms Control Today* 39 (9) (November 2009). The Evans-Kawaguchi report also states that a sole-purpose declaration is essentially a no-first-use commitment disguised under a different formulation, and for the same reasons. See Gareth Evans and Yoriko Kawaguchi, *Eliminating Nuclear Threats: A Practical Agenda for Global Policymakers* (Canberra, Australia: International Commission on Nuclear Non-Proliferation and Disarmament, 2009), paragraph 17.28.

simply be “mere words,” but rather both doctrinal and operational issues would follow from it.⁸⁸ An operational no-first-use doctrine would eliminate first-strike postures, preemptive capabilities, and other types of destabilizing warfighting strategies. It would induce restraint in targeting, launch-on-warning, alert levels of deployed systems, procurement, and modernization plans. In other words, it would help shape the physical qualities of nuclear forces in a way that renders them unsuitable for missions other than deterrence of nuclear attacks.⁸⁹ A no-first-use policy also would reduce the risk of accidental, unauthorized, mistaken, or preemptive use. The removal of threats of a nuclear first strike would strengthen strategic and crisis stability.⁹⁰ It would also make absolute the boundary between nuclear and conventional weapons. Finally, by reducing the overall risk of nuclear dangers, no-first-use policies would move toward addressing humanitarian concerns and reducing the salience of nuclear weapons.⁹¹

As others have argued, no-first-use could be adopted unilaterally or as part of an international agreement. It would move Russia and Pakistan away from their high-risk doctrines and reduce a source of Russia-NATO tensions. For Russia to consider no-first-use, its concerns about U.S. ballistic missile defenses, imbalances in conventional forces, and issues of NATO enlargement would need to be addressed. The United States would need to address the issue of extended deterrence with its allies and move toward conventional extended deterrence.⁹² India and Pakistan would need a modus vivendi on Kashmir. The United States and North Korea would need a nonaggression pact.

What are the prospects for this? Skeptics will object that the geopolitical preconditions are not ripe for a no-first-use policy at this time. Russia and North Korea are hostile. The Obama administration choked at the last minute on declaring a no-first-use policy, largely because of pushback from allies who are under the U.S. nuclear umbrella. And restraint is not a word normally associated with President Trump, who trades in excess. But the threat to defend allies such as South Korea and Japan with nuclear weapons these days is hardly credible. In Europe, Russia is busy cutting military spending as its oil revenues shrink, with plans to cut the defense budget by 30 percent.⁹³ This is not the sign of a country poised to invade the Baltics. Trump could act on his desire for better relations with Russian President Vladimir Putin to begin rolling back both countries’ nuclear posturing in Europe. Adoption of a no-first-use policy will require close consultation with allies, but the U.S. administration should begin this task.

88. Scott D. Sagan, “The Case for No First Use,” *Survival* 15 (3) (June–July 2009).

89. Vadillo, *Beyond the Ban*, 11.

90. Bruce Blair, “How Obama Could Revolutionize Nuclear Weapons Strategy Before He Goes,” *Politico Magazine*, June 22, 2016.

91. Vadillo, *Beyond the Ban*, 12.

92. Sagan, “No First Use.”

93. Tony Bertuca, “Russia Poised to Cut Defense Spending 30 Percent,” *Inside Defense*, July 7, 2017, <https://insidedefense.com/insider/russia-poised-cut-defense-spending-30-percent>.

The United States could unilaterally adopt a no-first-use policy, asking other nuclear-armed states to do the same. This would constitute formal adoption of what is already essentially de facto U.S. policy.⁹⁴ As even card-carrying realists such as the “four horsemen” recognized, given overwhelming U.S. conventional capabilities on the battlefield, there exists no plausible scenario in which nuclear first use would be in the interest of the United States. A U.S. no-first-use policy would create political space for Russia to follow suit. A common no-first-use policy would also help anchor the existing no-first-use policies of China and India and implicitly acknowledge their leadership in this area, a virtue when middle-power states are feeling disenfranchised from the global nuclear order.

As an initial step on the way to no-first-use and a regime of nuclear restraint, the U.S. administration should consider the recent proposal by Jeffrey Lewis and Scott Sagan that the United States should declare it will not use nuclear weapons “against any target that could be reliably destroyed by conventional means.”⁹⁵ This policy would not solve the larger problem of the unhappy entangling of conventional and nuclear deterrence (for example, U.S. hypersonic weapons targeted against China). Nevertheless, it would represent an initial important declaratory statement of nuclear restraint.

Beyond no-first-use, the nuclear-armed states must pursue several steps to create a renewed regime of nuclear restraint:

First, they should publically recommit to deterrence and the taboo. Leaders should make speeches that lay out the risks of any use of nuclear weapons and the perils of nuclear brinkmanship and threats. They should reaffirm the importance of the seventy-two-year tradition of non-use and that use of even a small nuclear weapon would open a Pandora’s box of unpredictable and potentially dire consequences.⁹⁶ The historic visits by Secretary of State John Kerry and President Obama to Hiroshima in spring 2016 were important steps in this direction.

Second, they must develop new understandings of strategic stability. Traditional norms and concepts such as deterrence and strategic stability are still valuable, but how they apply is changing. The nuclear states need to reinvigorate discussions about strategic stability and lessons learned from the historical record of nuclear deterrence.

Third, they must delegitimize nuclear weapons while conceiving new and credible methods for deterring hostile actors. While the humanitarian campaign has sought to undermine support for nuclear weapons, states still see them as effective instruments of deterrence. The nuclear states committed themselves to delegitimizing nuclear weapons in the 2010 NPT Review Conference Action Plan, but on balance they have taken few steps to implement this

94. Blair, “How Obama Could Revolutionize Nuclear Weapons Strategy.”

95. Jeffrey G. Lewis and Scott D. Sagan, “The Common-Sense Fix that American Nuclear Policy Needs,” *The Washington Post*, August 24, 2016.

96. Steven Pifer, “Time to Push Back on Russia’s Nuclear Threats,” *The National Interest*, May 10, 2016, <http://nationalinterest.org/feature/time-push-back-russias-nuclear-threats-16138>.

in practice.⁹⁷ Policy creativity is badly needed here if states are to move beyond nuclear weapons without sacrificing deterrence. Nuclear states should refrain from undermining the Nuclear Prohibition Treaty. Policy discussions should include states from inside and outside the nuclear club.

Fourth, they must engage in frank conversations about the morality of deterrence. Deterrence—as a threat to kill millions of innocent people—has always been ethically problematic, what George Quester once called a “necessary moral hypocrisy.”⁹⁸ Beyond moving toward making deterrence less necessary, civil society and governments should foster debate about whether there are forms of deterrence that would be more morally acceptable. This should include consideration of how the laws of war restrain, or should restrain, nuclear strategy today, including how to respond to the development of more “ethical” nuclear weapons that are also more usable.

Finally, the nuclear-armed powers must delink nuclear weapons from nationalism. Disarmament and further devaluing nuclear weapons will require separating nuclear weapons from conceptions of identity, especially beliefs about great power status and notions of nuclear exceptionalism. This will be a long-term process that will require mobilizing public support for nuclear restraint and a nonnuclear identity. The rise of aggressive nationalism in recent years has been troubling. If that rise is tied to nuclear weapons, it may lead to catastrophe.

97. “Conclusions and Recommendations for Follow-on Actions,” *2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons Final Document*, Vol. I, Pt. 1 (New York: United Nations, 2010), <http://www.un.org/en/conf/npt/2010/>.

98. George H. Quester, “The Necessary Moral Hypocrisy of the Slide into Mutual Assured Destruction,” in *Nuclear Deterrence and Moral Restraint*, ed. Henry Shue (Cambridge: Cambridge University Press, 1989), 227–269.