Chapter 6: Nuclear Disarmament and Nonproliferation

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1 author:

Maria Rost Rublee
Monash University (Australia)
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Chapter 6

Nuclear Disarmament and Nonproliferation

Maria Rost Rublee

Conventional wisdom about nuclear weapons decision-making argues that nuclear policy is based on material cost-benefit calculations, with systemic forces propelling states into a narrow range of choices. Nuclear proliferation is unsurprising, given the anarchical state system; nonproliferation will succeed only if the great powers can enforce it through a system of benefits and sanctions; disarmament is both unlikely and undesirable. This chapter examines conventional wisdom on all counts and finds it wanting. Nuclear weapons decision-making is more than a simple response to material conditions; ideational influences, including norms, psychology, language and beliefs, shape global nuclear futures in incontrovertible ways. As a result, nuclear proliferation is rare, nonproliferation is more often embraced than forced, and the issue of disarmament has become more, not less, potent.

This chapter specifically focuses on the latter two topics, nonproliferation and disarmament, both neglected by conventional scholarship. First, these ambiguous and sometimes overlapping terms will be examined: what exactly is meant by disarmament and nonproliferation? Next, the chapter will explore each topic in-depth before moving into an exploration of the future frontiers in research on the topic. What can new perspectives on disarmament and nonproliferation add to global security policy debates? The chapter ends with comparative conclusions, examining how trends from related disarmament treaties may shape global nuclear futures.

Deconstructing Nonproliferation and Disarmament

The distinction between nuclear nonproliferation and disarmament seems clear-cut: nonproliferation refers to prevention of state acquisition of nuclear weapons, whereas disarmament refers to a state's relinquishment of actual nuclear weapons

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and the accompanying military nuclear program. However, in both the academic and policy literature, the distinctions are often blurred, as Burford notes:

> Theorists have often been vague about whether they are addressing nuclear nonproliferation or nuclear disarmament in their accounts of nuclear decision making. This is exemplified by the insouciance with which scholars interchangeably use terms such as restraint, forbearance, rollback, denuclearisation, nonproliferation, disarmament, and more recently, deproliferation. These terms have been used in cases which variously involve the conscious restraint from a decision to acquire nuclear weapons; a decision to renounce an established nuclear weapons programme not yet come to fruition; the reduction or complete dismantlement of existing arsenals; or surrender of nuclear weapons inherited from other countries. (Burford, 2013, p. 4)

There are only four cases of nuclear disarmament: South Africa and the three former Soviet republics (Ukraine, Kazakhstan, and Belarus), which inherited Soviet nuclear weapons after the collapse of the regime. Nevertheless, these cases tend to be lumped together with cases of nuclear rollback by scholars without any distinction between the different processes of nonproliferation and disarmament. In addition, the messiness of reality blurs the categories because whether the Ukraine, Kazakhstan, and Belarus can be truly considered disarmament is a matter for debate, given that the countries' leaders never made a decision to acquire nuclear weapons and did not have access codes to use the weapons once inherited.

Distinguishing between nuclear nonproliferation and disarmament is important for both theoretical and policy reasons.[1] One cannot assume that motivations for nonproliferation will also explain motivations for disarmament. Acquiring nuclear weapons irreversibly changes a state, from the public prestige (or scorn) that accrues to the domestic bureaucracy that forms to manage and maintain the weapons program. Reversing that type of decision will involve a different set of processes than the processes involved in nuclear restraint. The policy importance of separating nonproliferation from disarmament flows from this analysis: policymakers and activists who want to encourage disarmament will need to go beyond the policies that have successfully promoted nonproliferation.

Nevertheless, the distinctions between the concepts of nonproliferation and disarmament do not negate the deep and complex relationship between them. Serious discussion and action in nuclear nonproliferation and disarmament concentrated heavily on the nonproliferation side of the bargain, but the end of the Cold War brought optimism for more equal progress. Multiple challenges, however, overwhelmed the push for global nuclear disarmament, from concern over nuclear weapons programs by state members of the Nuclear Non-Proliferation Treaty (NPT, North Korea and Iraq) to nuclear weapons tests by two NPT holdout states (India and Pakistan). In particular, the administration of George W. Bush focused heavily on nonproliferation, to the exclusion of global disarmament negotiations. For example, at the 2004 NPT PrepCom, US Under-Secretary of State John Bolton argued that states were focusing on Article VI violations "that did not exist" (Wurst, 2004). It is not hard to understand the frustration of non-nuclear weapons states that wanted balance between the obligation of nonproliferation and the obligation of disarmament.

However, just as it was mistaken to focus exclusively on nonproliferation, it would also be incorrect to focus entirely on disarmament to the exclusion of nonproliferation. Indeed, global nuclear disarmament is impossible without success in nuclear nonproliferation. Should Iran acquire and operationalize nuclear weapons, the likelihood of Israel disarming falls to almost zero – and several other states in the Middle East may rush to join Iran as nuclear powers (Kaye and Wehrey, 2007). The task of disarmament grows more difficult with each additional state that joins the nuclear club. Surprise and stringent inspections of civilian nuclear facilities ensures countries do not cheat and create a nuclear "break-out" capability; just as important, the inspections create confidence in the global community that nuclear power is not being used for nuclear weapons. This creates a positive environment for disarmament because nuclear weapons states are unlikely to disarm if they fear others are engaging in nuclear hedging. Inspections also foster greater global confidence in the International Atomic Energy Agency (IAEA), the likely candidate to verify disarmament measures such as the Fissile Material Cut-Off Treaty (FMCT). Certainly, the bargain swings the other way as well: non-nuclear weapons states are less likely to adhere to strict rules and inspections if the nuclear weapons states do not show progress on their obligations. Nuclear disarmament and nonproliferation require each other.

Nuclear Nonproliferation

History of the Nuclear Nonproliferation Regime

Less than a year after the United States conducted its first nuclear test, Washington presented the first plan for nuclear nonproliferation to the United Nations. In June 1946, the United States proposed the Baruch Plan, which argued for international oversight of all civilian nuclear programs and international control of any nuclear facilities that could be used to create nuclear weapons. One of the primary purposes of the plan was to prevent any other states from acquiring nuclear weapons. In addition, the United States pledged to disarm after international control was established. The Soviet Union rejected the plan, in part due to its skepticism that the United States would actually disarm.

Later negotiations for agreements related to nuclear weapons were significantly more modest than the Baruch Plan. After the United States and the Soviet Union began testing hydrogen bombs (1952 and 1953, respectively), the concern over radioactive fallout led to negotiations for a nuclear test ban treaty. By August 1955, the world's first conference protesting nuclear weapons was held in Hiroshima. The next year, the US Democratic presidential candidate, Adalai Stevenson, proposed an end to above-ground nuclear tests (Bunn, 1992). While Eisenhower dismissed the proposal when he was reelected, "considerable pressure by powerful popular movements" prodded him to begin expert talks with the Soviets on the possibility of an enforceable test ban (Müller, Fischer, and Kötter, 1994, p. 18). These grassroots movements – composed of diverse elements such as intellectuals, scientists, students, religious organizations, pacifists, and housewives – led Eisenhower to remark in August 1958, "The new thermonuclear weapons are tremendously powerful; however, they are not … as powerful as is world opinion today in obliging the United States to follow certain lines of policy" (Tannenwald, 2001, p. 65).

By 1962, the negotiations were formalized in the United Nations' Eighteen-Nation Disarmament Committee (ENDC). Within a year, the Partial Test Ban Treaty had been concluded. In July 1968, the NPT was opened for signature and entered into force in 1970. The treaty's nonproliferation provisions have been quite successful. Since 1970, only four states have developed nuclear weapons (India, Pakistan, North Korea, and Israel), although some argue that Israel had obtained the bomb as early as 1967. However, the nuclear weapons states' promise to engage in good faith negotiations for nuclear disarmament has been more disappointing, as will be discussed later in the chapter.

The Causes of Nuclear Restraint

For decades the literature on nuclear policy was dominated by discussions of nuclear proliferation: strategy and deterrence, nuclear rivalries, and the causes of nuclear acquisition. Only recently has the academic community begun to seriously examine the causes of nuclear restraint. As I argue elsewhere,

> Why have so many states abstained from nuclear weapons, why do a few continue to pursue them against all odds? Of all the states in the today's world, the fact that only four have "gone nuclear" since the introduction of the NPT is a fact pregnant with potential for both theoretical and policy insights. If we can understand what influenced these states – those with the motive, means and opportunity to develop nuclear weapons but that instead abstained – we will be much better prepared to handle today's potential proliferators. (Rublee, 2009, pp. 1–2)

Researchers have focused both on different substantive reasons and different levels of analysis to understand state decisions to remain non-nuclear. In terms of substantive content, arguments have been made about the importance of traditional security concerns (such as great power pressure and security alliances), economic orientations, and ideational factors (including the impact of norms and elite psychology).

Realist explanations about nuclear restraint revolve around explaining why the proliferation predicted by the theory has failed to materialize. The basic tenets of realism – anarchy and self-help – combine to create powerful incentives for states to achieve the maximum military capability possible. If the international system makes cooperation unlikely and self-reliance imperative, then acquiring nuclear weapons is the most reasonable response by a rational state. However, the powerful structural arguments of realism do not match up to the empirical record, as T.V. Paul notes:

> To begin with, hard realists, based on their assumption of anarchy, argue that cooperation is difficult if not impossible in the security area. The empirical evidence – i.e., the cooperation thus far developed in non-proliferation – challenges this basic argument. Many states, both capable and not so capable of producing nuclear weapons, have adhered to the regime, which takes away part of their sovereignty in this matter. It seems that the number of countries that acquired nuclear weapons from the original five is so small that these cases seem more like an anomaly than the norm. (Paul, 2000, p. 8)

Realists respond to the surprising lack of proliferation through a variety of theoretical explanations. Benjamin Frankel argues that the Cold War bipolarity artificially reduced proliferation, but after the collapse of the Soviet Union, proliferation would increase because multipolarity increases uncertainty, making states less likely to depend on alliances and security guarantees (Frankel, 1993, p. 38). In fact, Mearsheimer predicted just such a spread of nuclear weapons in Europe after the end of the Cold War because of "substantial incentives" that non-nuclear states will have in order to acquire a nuclear deterrent. Not only will small states seek nuclear weapons to avoid blackmail by Russia, Mearsheimer predicted, but Germany would also feel insecure without its own nuclear force (Mearsheimer, 1990, p. 37). However, again realist predictions failed to materialize. Since the end of the Cold War, only three states have joined the nuclear club (India, Pakistan, and North Korea), whereas seven states gave up nuclear weapons or serious nuclear weapons programs (South Africa, Ukraine, Belarus, Kazakhstan, Argentina, Brazil, and Libya).

Another popular realist argument explaining the lack of proliferation is security guarantees. While strong states balance against threats by developing indigenous nuclear capability, weaker states are more likely to balance by aligning with a powerful, nuclear-armed ally. Clearly, credible security guarantees have been an important component of nuclear decision-making in states such as Japan and Germany. However, security guarantees alone cannot explain nonproliferation. At what point did Japan and Germany move from "weak" to "strong," and why didn't their nuclear decision-making change at that point? Why have some weak states managed, against all odds, to create their own nuclear deterrent? More to the heart of realist assumptions, however, is the question to what extent can a security guarantee truly be credible to a survival-conscious state? As Jacques Hymans argues,

> It is hard to see why, from a realist perspective, anything less than an indigenous nuclear arsenal would be sufficient to deter outside threats. Realists spent the entire Cold War bemoaning the lack of credibility of extended deterrence: Could anyone really expect us to trade New York for Berlin? (Hymans, 2006a, p. 456)

The lack of credibility springs from the realist focus on self-help. Mearsheimer argues that while self-help does not rule out alliances, "alliances are only temporary marriages of convenience, where today's alliance partner might be tomorrow's enemy, and today's enemy might be tomorrow's alliance partner" (Mearsheimer, 1994/1995, p. 11). Thus, if today's friend could be tomorrow's enemy, why would you trust anyone for a nuclear guarantee? Ultimately, realism offers powerful structural explanations for proliferation, but its attempts to deal with nonproliferation do not match the empirical record or fundamental realist assumptions.

Another important explanation for nuclear nonproliferation can be found in the work of Etel Solingen, whose economic arguments posed the first major challenge to realist orthodoxy. Solingen argues that economic orientations of domestic coalitions shape state nuclear decision-making:

> Leaders or ruling coalitions advocating economic growth through integration in the global economy have incentives to avoid the costs of nuclearization, which impair domestic reforms favoring internationalization. By contrast, nuclearization implies

> fewer costs for inward-looking leaders and for constituencies less dependent on international markets, investment, technology, and institutions, who can rely on nuclear weapons programs to reinforce nationalist platforms of political survival. (Solingen, 2007, p. 17)

Thus, strategies of domestic survival led to the practice of nonproliferation in East Asia, while proliferation became the dominant norm in the Middle East. Solingen positions her arguments within the "world time" after 1968, when the NPT opened for ratification. In doing so, she elevates the importance of the NPT, but in her analysis, leaves the impact of the NPT unexamined. As Scott Sagan notes, her

> "focus on the post-1968 NPT world time, however, makes it more puzzling that Solingen denigrates the role of the treaty and does not examine whether the NPT was necessary for "liberalizing" governments to be concerned that movement toward a nuclear weapons program would lead to international sanctions or other restrictions on the potential benefits from integrating into the global economy" (Sagan, 2011, p. 236).

Another problem with a narrow focus on economic incentives is that Solingen misses the identity and normative-based drivers that shape domestic coalitions' decisions about nuclear weapons. These coalitions are not acting on solely rational economic concerns, but rather a broader set of ideas about either being part of the international community or autarkic rejection of Western philosophies of progress and modernization (Rublee, 2009, pp. 11–13).

The newest research about nuclear forbearance looks to ideational causes, whether beliefs, culture, or norms. The two main authors who focus on ideational reasons for nuclear nonproliferation are Jacques Hymans and Maria Rost Rublee. Both authors blend constructivism and social psychology, and both argue for the importance of understanding individual beliefs. There, however, the similarities end. Hymans contends that we shouldn't question why so few states have nuclear weapons, but rather why any states at all have nuclear weapons. Acquiring nuclear weapons is a "leap in the dark", and few elites are willing to risk such a revolutionary choice. What drives those who do make the leap is a psychological identity profile of oppositional nationalist:

> Oppositional nationalists see their nation as both naturally at odds with an external enemy, and as naturally its equal if not its superior. Such a conception tends to generate the emotions of fear and pride – an explosive psychological cocktail. Driven by fear and pride, oppositional nationalists develop a desire for nuclear weapons that goes beyond calculation, to self-expression. Thus, in spite of the tremendous complexity of the nuclear choice, leaders who decide for the bomb tend not to back into it. For them, unlike the bulk of their peers, the choice for nuclear weapons is neither a close call nor a possible last resort but an absolute necessity (Hyman, 2006b, p. 2).

Hymans's in-depth research into four country's nuclear choices (France, India, Australia, and Argentina) makes a powerful case for the importance of the oppositional nationalist leader in driving proliferation. But his conclusions are less than satisfying when it comes to understanding nonproliferation. When elites who are not oppositional nationalists express interest in nuclear weapons programs, Hymans would

argue that they are not seriously interested and would not commit to a full-fledged program. But serious progress on nuclear weapons can be made in such instances, and given that experts have identified up to 14 cases of nuclear rollback, it would be unwise to dismiss the proliferation implications of such work. In addition, the policy recommendations from Hymans' work are disconcerting. If proliferation is limited because of elite psychology, rather than the nonproliferation regime, can we ignore the many hard questions involved in strengthening the regime, such as whether to universalize the Additional Protocol, which allows for unannounced and intrusive inspections of state nuclear facilities? As Jeffrey Lantis notes, "Hymans' singular focus on the revolutionary decision means that 'ancillary questions' are moved to the margins of the study. Yet, decisions regarding these questions seem every bit as relevant as the ultimate order to build nuclear weapons" (Lantis, 2007, p. 651).

Although I also focus on ideational causes for nuclear nonproliferation, my work emphasizes the importance of systemic factors, in particular, the international social environment created by the nuclear nonproliferation regime. The nonproliferation norm, embedded in the NPT, has changed not only state cost-benefit equations when considering nuclear weapons, but also has transformed the way some state elites conceptualize the value of nuclear weapons (Rublee, 2009). Thus, nonproliferation policies cannot be taken for granted; if the NPT and associated norm is weakened, state thinking on military nuclear capability is likely to shift in response. My work also draws from the social psychology literature to create a framework through which analysts can measure whether norms are actually influencing elite decisions (Rublee, 2008). Particularly in democracies, antinuclear peace groups, using the international norm to gain credibility, were critical in raising the political costs for conservative elites to go nuclear. Indeed, Malet contends that this line of argument points to a need for a deeper focus on the norm entrepreneurs responsible for shifting debate: "If states are to use social psychology to prevent proliferation – whether through persuasion, the pressure of social conformity, or in fostering new identifications as responsible international actors – it will be necessary to identify the best messengers or interlocutors" (Malet, 2010, p. 70).

Restraint, Hedging, or Ambiguity?

Nonetheless, some analysts raise questions about whether "restraint" is the best characterization for the lack of proliferation today. In particular, two authors have offered innovative interpretations for limited nuclear proliferation: Ariel Levite and Itty Abraham. Levite argues that nuclear restraint may better be understood as nuclear hedging, "a national strategy of maintaining, or at least appearing to maintain, a viable option for the relatively rapid acquisition of nuclear weapons, based on an indigenous technical capacity to produce them within a relatively short time frame ranging from several weeks to a few years" (Levite, 2003, p. 69). Article VI of the NPT allows non-nuclear weapons states to acquire nuclear technology for civilian purposes, including uranium enrichment and plutonium reprocessing facilities. This same technology can be used to create nuclear weapons, and a state with very advanced civilian nuclear facilities could potentially withdraw from the NPT and create nuclear weapons within months. Being able to deliver those nuclear weapons through reliable means is another matter, but more than one country has come

under suspicion because of its advanced civilian nuclear complex, including Japan and Brazil (Rublee, 2010). Nevertheless, ascribing motives of nuclear hedging to a country because of civilian nuclear programs is problematic. While it is true that politicians in both Japan and Brazil have made comments about nuclear acquisition, these are individuals who, by themselves, have no real influence over the scientific, energy, diplomatic, and military bureaucracies that would need to be marshaled to create serious nuclear weapons programs (Hughes, 2007). In addition, societal barriers in countries must be acknowledged; for example, talking in a pro-nuclear fashion in Japan still can wreak havoc on a politician's career, at least in the short term (Rublee, 2009). An advanced nuclear industry may provide psychological comfort for conservative elites who wish for an indigenous nuclear capacity, but by itself, it is only one of the necessary building blocks of a military nuclear capacity.

Indeed, innovative analysis by Itty Abraham points to the fact that concern over "hedging" and "restraint" may actually push countries toward proliferation. Abraham argues that what is typically termed restraint or hedging may actually be ambiguity: elites may be undecided or have not committed to any particular nuclear choice. The nature of nuclear technology is such that "both war and peace are always present in the meanings attributed to nuclear programs" (Abraham, 2006, p. 56). Ambivalence, then, is central to "nuclear", rather than a half-completed state or a failure to know enough about intentions. But because of the academic and policy focus on proliferation, "the multiple meanings of nuclear power are shrunk into one register – the desire to produce weapons" (Abraham, 2009, p. 117). The resulting distorted analysis turns every nuclear program into a possible weapons program, leading to increased restrictions and surveillance – and resentment. In addition, "[T]his reinforces the particular aura of nuclear weapons to be coveted and desired, the very opposite effect sought by policy makers concerned with nuclear proliferation" (Abraham, 2009, p. 117). According to this logic, nonproliferation policies may be responsible for actual proliferation.

Nuclear Disarmament

History of Negotiations for Nuclear Disarmament

While the history of nuclear nonproliferation is largely a success story, the history of nuclear disarmament is often painted as a failure. More than 40 years after the NPT entered into force, the numbers are not encouraging: none of the five original nuclear weapons states have disarmed; an additional four states currently have nuclear weapons; as of 2102, approximately 19,000 nuclear weapons remain (Ploughshares Foundation, 2012). After the failure of the Baruch Plan in 1946, the Cold War stifled serious discussion of nuclear disarmament for the major powers. After the end of the Cold War, movement on disarmament has been slow and halting, and even recently, despite the full support of US President Barak Obama, gains have been few and disappointing.

While factual, such a broad-brush portrayal of the record on disarmament misses numerous important achievements. For example, nuclear-weapon-free zones (NWFZ) have carved out regional disarmament zones since the late 1960s. The first NWFZ, the Treaty of Tlatelolco, entered into force in 1969, covering Latin America

and the Caribbean (BASIC and Oxford Research Group, 2005). Since then, four other NWFZs have been negotiated and entered into force: the Treaty of Rarotonga (1986, covering South Pacific, Australia, and New Zealand), the Treaty of Bangkok (1997, Southeast Asia), the Treaty of Pelindaba (2009, Africa), and the Treaty on a Nuclear-Weapon-Free Zone in Central Asia (2009). In addition, Mongolia declared itself a single-state NWFZ in 1992, and uninhabited areas (including Antarctica, the sea bed, the moon, and outer space) are also de facto NWFZs. NWFZ treaties prohibit the development, acquisition, and possession of nuclear weapons, as well as assistance with research for any of these tasks (Magnarella, 2008, p. 511). As a result, their spread creates "geographical areas that are completely free of nuclear weapons and thereby constitute steps towards a nuclear-weapon-free world" (Center for Nonproliferation Studies, 2010). Today, this disarmament zone extends over 116 countries and the entire Southern hemisphere. Until and unless a nuclear weapons convention is negotiated (discussed next), NWFZ may be the best tool for the promotion of nuclear disarmament.

Another significant disarmament achievement was brought about during the height of the Cold War by unparalleled public protests. In the 1980s, mass public demonstrations against nuclear weapons in both Europe and the United States led to significant policy changes and new disarmament initiatives. Within America, the nuclear freeze movement began as a grassroots movement focused on the local level, but quickly became the largest citizen's movement in the United States up to that time. In response, US President Ronald Reagan was compelled into dropping his opposition to nuclear arms control (Wittner, 2010). European leaders faced perhaps even greater pressure from the antinuclear mass movement. The 1979 NATO decision to pursue the development of intermediate-range nuclear forces (INF) led to the largest demonstrations in history for multiple European countries, including Britain, Belgium, and Germany. Both besieged and traumatized by the unprecedented protests, European leaders pressured Washington into making concessions in negotiations for an INF treaty. By 1987, the Soviets and the Americans signed the INF treaty, the first treaty to completely ban an entire class of nuclear weapons. As Wittner notes,

> Boxed in by the movement and Gorbachev, Reagan and his successor, George H.W. Bush, were drawn into the most substantial burst of nuclear arms control and disarmament ventures in history. By the early 1990s, the United States and the Soviet Union had ceased the testing, development, and deployment of nuclear weapons and had reduced their nuclear arsenals. (Wittner, 2010)

The indefinite extension of NPT in 1995, and resulting commitments for disarmament in 2000, can also be counted as disarmament achievements. Originally negotiated for a period of 25 years, in 1994 the NPT faced either another extension of a specific period or indefinite extension. Many non-nuclear weapons states felt agreeing to indefinite extension would give up their only leverage for disarmament. As Squassoni notes,

> When states met in 1995 to decide whether or not to extend the NPT indefinitely, it was important to obtain a serious commitment to disarmament steps by the nuclear-weapon states. In fact, it is doubtful that the NPT would have been extended indefinitely in 1995 without such a commitment. (Squassoni, 2009, p. 2)

At the Review Conference, states agreed on several steps toward disarmament, including early conclusion of the Comprehensive Test Ban Treaty, and the treaty was indefinitely extended. Just three years after the Review Conference, a cross-cutting group of states formed the New Agenda Coalition (NAC) with the goal of pressing the nuclear weapons states for concrete movement on disarmament. Composed of Brazil, Egypt, Ireland, Mexico, New Zealand, Africa, and Sweden, the NAC included US friends and allies and thus could not be easily dismissed as a grouping of states composed only of member of the nonaligned movement. At the next NPT Review Conference in 2000, the NAC was able to pressure the nuclear weapons states into a commitment of thirteen practical steps for nuclear disarmament, including "unequivocal undertaking by the nuclear-weapon States to accomplish the total elimination of their nuclear arsenals leading to nuclear disarmament to which all States parties are committed under Article VI" (United Nations, 2000, p. 14).

While disarmament took a back seat during the administration of US President George W. Bush, the election of Barak Obama propelled global zero back to the top of the agenda. With the election of US President Barak Obama, however, the tone underwent another dramatic shift. Just months after his inauguration, Obama declared that the United States was committed to a world without nuclear weapons. In his famous Prague speech in April 2009, he said, "as nuclear power – as a nuclear power, as the only nuclear power to have used a nuclear weapon, the United States has a moral responsibility to act. We cannot succeed in this endeavor alone, but we can lead it, we can start it" (The White House, 2009). Despite a hostile reception from many Republicans, Obama's work was supported by earlier calls for disarmament from unlikely allies: the four horsemen (Henry Kissinger, George Shultz, William Perry, and Sam Nunn), who jointly published an opinion piece in the *Wall Street Journal* entitled "A World Free of Nuclear Weapons" in 2007 and then a follow-up piece in 2008. The foreign policy giants argued that unless the United States seriously pursued disarmament, we would end up with a much more proliferated world.

While the change in discourse in Washington was enabling, similar changes occurred around the world. Australia announced the International Commission on Nuclear Non-Proliferation and Disarmament, co-chaired by former Australian and Japanese foreign ministers Gareth Evans and Yoriko Kawaguchi. The Commission was especially focused on empirical opportunities and roadblocks to disarmament (Hanson, 2012). A number of NATO members were able to force the security organization to confront questions about the necessity of tactical nuclear weapons in Europe. Within Britain, debate over renewal of the Trident submarines – the United Kingdom's only delivery vehicle for nuclear weapons – led to serious discussion about possible unilateral disarmament.

Perhaps the most remarkable disarmament achievement is the serious discussion of a Nuclear Weapons Convention (NWC), which would ban the development or possession of nuclear weapons. Taking their cue from the success of the land mine ban treaty and the cluster munitions treaty, a group of like-minded states and activists argued that the NPT lacks the force to compel the nuclear weapons states to give up their military nuclear capability, and the best option open to the international community is to pursue a NWC. At the 2010 RevCon, outspoken states such as Austria and Switzerland raised the NWC forcefully; for the first time, the final document referenced a possible NWC. While endorsement of a NWC was not possible due to

opposition from some nuclear weapons states, the final language on disarmament commitments was not unsubstantial:

> The Conference affirms that the final phase of the nuclear disarmament process and other related measures should be pursued within an agreed legal framework, which a majority of States parties believe should include specified timelines. (NPT/CONF.2010/50 Vol. I: 13)

With nuclear disarmament seriously on the table for the first time, both friends and critics began to analyze obstacles to getting to zero. In the space of a few years, the academic literature on the topic blossomed (see, for example, Perkovich and Action, 2009; Sagan *et al.,* 2010, O'Hanlon, 2010; Blechman and Bollfrass, 2010; Kelleher and Reppy, 2011; Burford, 2012; Ogivile-White and Santoro, 2012). The academic literature on disarmament has focused on two key questions: is disarmament desirable, and is it achievable?

Is Disarmament Desirable?

The first debate raised by the serious consideration of nuclear disarmament is whether it is even desirable. In his Prague speech, Obama committed the United States to "seek the peace and security of a world without nuclear weapons," but critics say that a world without nuclear weapons will have neither peace nor security. In fact, as realist Ken Waltz says, "Those who like peace should love nuclear weapons" (Sagan and Waltz, 2010, p. 93). Disarmament critics offer two main arguments for why global zero is undesirable. First is the argument pioneered by Waltz, that nuclear weapons reduce the possibility of war. Countries with nuclear weapons will not use them against other nuclear-armed states because of fear over mutually assured destruction. Moreover, states are very unlikely to start conventional wars with nuclear weapons states: non-nuclear states do not want to pick fights with a nuclear-armed opponent, and a country with military nuclear capability would hesitate to attack another nuclear state for fear the conflict could lead to a nuclear exchange.

Many experts disagree with Waltz's assessment of the value of nuclear weapons. Chief among his critics is Scott Sagan, who argues that Waltz misreads history. Nuclear-armed countries have fought each other: the 1999 Kargil conflict between India and Pakistan led to more than one thousand military deaths. As Sagan notes, "The Kargil war occurred not *despite* Pakistan developing nuclear weapons but rather *because* Pakistan got the bomb. Pakistani generals thought that their new nuclear arsenal was a shield behind which they could safely sneak Pakistani soldiers into Indian-controlled Kashmir without triggering a war" (Sagan and Waltz, 2010, p. 94, emphasis in original). In addition, proponents of nuclear weapons ignore the organizational and human facets of command and control (Sagan and Waltz, 2003); weapons are managed and guarded by human beings, who make mistakes and could be tempted by money or ideology to transfer sensitive nuclear materials. Nuclear disarmament is the only way to ensure this does not happen.

The second key critique is that global zero may actually cause nuclear proliferation. As Evangelista notes, some argue that nuclear weapons have not spread because of the stability brought about by extended nuclear deterrence, in particular the US

nuclear umbrella (Evangelista, 2011). If the United States makes deep cuts to its nuclear forces as it moves toward disarmament, this could generate concern among allies over America's ability to protect them – and thus could stimulate nuclear proliferation as allies seek their own indigenous nuclear deterrent (Kyl and Perle, 2009). While the argument has been applied to a number of allies, including Australia and Turkey, the main focus of concern is Japan, which relies on US extended deterrence and faces nuclear threats from North Korea and China. However, this argument does not hold up to scrutiny. It assumes that nuclear choices are determined by systemic strategic forces; a nuclear withdrawal by the United States would mean a necessary nuclear step forward by the countries involved. However, as the literature on nuclear restraint demonstrates, systemic security concerns are filtered and given meaning through regional, domestic, and even individual conditions, both material and normative. As Llewelyn Hughes argues about the "hard" case of Japan, "a hollowing out of the U.S. deterrent is unlikely to automatically translate into the inclusion of a nuclear deterrent within Japan's force structure" (Hughes, 2007, p. 96).

Is Disarmament Achievable?

Another key debate about nuclear disarmament is whether it is actually technically feasible. As Catherine Kelleher notes, the question that critics often ask, "Can we really restore the genie to its bottle, given the global spread of civil nuclear technologies, the near instantaneous distribution of technical literature, and a global commerce system poised to deliver any and all necessary components through a myriad of legal and illegal channels?" (Kelleher, 2011, p. 3). The technical difficulties are numerous, but can be collapsed into two main problems: reaching and then maintaining global zero. First, how do we ensure all current nuclear weapons are destroyed? How can it be confirmed that all nuclear weapons states actually dismantle all of their weapons and dispose of their weapons-grade fissile material? Second, once global zero is achieved, how do we ensure that no new nuclear weapons are built? The most difficult step in building a military nuclear capacity is the creation of fissile material: either uranium-235 or plutonium-239. While most technologies available today to create weapons-grade fissile material are detectable, some are easier to hide than others. For example, South Africa used jet nozzle technology to secretly create enough enriched uranium for a handful of atomic bombs. Waltz comments that even if the international community were able to verify nuclear disarmament, "one state or another might eventually come to believe that it faced a threat to its very existence. A mad scramble to rearm with nuclear weapons would then take place" (Sagan and Waltz, 2010, p. 93).

Analysts who support movement toward disarmament do not underestimate the challenges that verification will pose. As Trevor Findlay argues,

> The verification and compliance regime for a nuclear weapon-free world will need to be more effective than any disarmament arrangement hitherto envisaged. One hundred per cent verification of compliance with any international arms agreement is highly improbable. In the case of nuclear disarmament, however, the security stakes will be so high that states will not agree to disarm and to disavow future acquisition of nuclear weapons unless verification reduces to a minimum the risk of non-compliance. (Findlay, 2003, p. 2)

Nevertheless, the sense of realism about the magnitude of the obstacles does not dampen enthusiasm that the technical verification challenges can be overcome. First, some question whether perfect verification will be necessary. As Perkovich and Acton muse, "If, as zero is approached, robust verification finds no unresolvable indications of possible cheating and states become convinced that each truly intends to fulfill the agreement, they might no longer require such stringent verification" (Perkovich and Acton, 2009, p. 52). Next, scholars and scientists have just begun to apply considerable talent and energy to disarmament obstacles, and they have already begun to make inroads. Developing nuclear weapons requires creating fissile material, either highly enriched uranium or plutonium – a process that is detectable. For example, recent advances in mass spectrometry have enabled the IAEA to detect fissile material at levels ten times lower than previously possible, and thus increasing the agency's ability to detect cheating (IAEA, 2012). Another example can be found in the work of the United Kingdom, Norway, and the nongovernmental organization VERTIC on verification of nuclear warhead dismantlement, illustrating how fruitful cooperation can be in solving seemingly intractable technical and political problems associated with disarmament (Ritchie, 2010). Finally, Donald MacKenzie and Graham Spinardi argue that nuclear weapons may not be easily redeveloped once successfully banned because of the importance of tacit knowledge ("embodied in people rather than words, equations, or diagrams") to nuclear weapons development. They contend, "If design ceases, and if there is no new generation of designers to whom that tacit knowledge can be passed, then in an important (though qualified) sense nuclear weapons will have been uninvented" (MacKenzie and Spinardi, 1995, p. 44).

New Frontiers in Policy and Research

Nuclear politics will dominate headlines for years to come, and the academic literature will continue to proliferate as scholars attempt to understand and solve key global nuclear issues. Several new openings in research deserve special attention for their policy relevance and/or theoretical innovations.

Questioning Deterrence

Nuclear deterrence lies at the heart of realist thinking on the atomic bomb; without it, the logic may collapse like a house of cards. But is nuclear deterrence "real", or is it a social construct that has become embedded in policy without justification? These questions are not new. More than 20 years ago, Mary Kaldor argued that deterrence served an ideational function, allowing political and military elites to create an imaginary war through which they could exert control. "[D]eterrence, instead of preventing war, actually turns out to be a way of keeping the idea of war and the idea of a conflict alive, either to legitimize the growth of military forces or for domestic or intra-bloc purposes" (Kaldor, 1990, p. 194). Today's scholars have developed numerous other creative analyses to disturb the idea of "deterrence". Ward Wilson has provocatively argued that the fundamental assumptions behind deterrence are unsound:

> [T]hree practical arguments put the efficacy of nuclear deterrence into doubt: 1) the characteristic attack threatened in most nuclear deterrence scenarios – city attack – is not militarily effective or likely to be decisive; 2) the psychology of terror that is supposed

> to work in nuclear deterrence's favor actually creates the circumstances for unremitting resistance; and 3) even though the field is mostly conjectural, what little unambiguous evidence does exist contradicts the claim that nuclear deterrence works. (Wilson, 2008, p. 421)

If the logic behind deterrence is unpersuasive, why has it carried so much weight, for so long? Applying Karl Marx's discussion of commodity fetishism, Anne Harrington de Santana argues deterrence has remained unquestioned because nuclear weapons have become fetish objects.

> [N]uclear weapons are the embodiment of power. Just as access to wealth in the form of money determines an individual's opportunities and place in a social hierarchy, access to power in the form of nuclear weapons determines a state's opportunities and place in the international order. In both cases, the physical form of the fetish object is valuable because it serves as a carrier of social value. In other words, the power of nuclear weapons is not reducible to their explosive capability. Nuclear weapons are powerful because we treat them as powerful. (Harrington de Santana, 2009, p. 327).

In challenging the conventional wisdom of nuclear deterrence, these and other authors have questioned unexamined assumptions and in doing so, forced significant rethinking of the value of nuclear weapons.[2]

Norm Entrepreneurs: Promoting Both Disarmament and Proliferation?

Martha Finnemore and Kathryn Sikkink's seminal article (1998) on the norm life cycle spurred enormous interest in applying the concept to international relations, particularly the concept of norm entrepreneurs. While some scholars have analyzed nuclear politics through the framework of norms (Tannenwald, 2007; Rublee, 2009; Lantis, 2011), surprisingly little work has been done on the drivers of change in nuclear norms. A strong literature on civil society and nuclear protest does exist, for example, Lawrence Wittner's three-volume set, *The Struggle Against the Bomb* (1993, 1997, 2003) and Jeffrey Knopf's *Domestic Society and International Cooperation* (1998). But in terms of analyzing normative change through the framework of norm entrepreneurs, less work has been done. Rublee examines how antinuclear norm entrepreneurs might interact with international organizations to advance their goals (2011); Carmen Wunderlich explores Iran as an advocate of nuclear norms (2011); Malfrid Braut-Hegghammer focuses on how nuclear entrepreneurs can drive proliferation (2009); and Karl-Erik Passonen (2007) documents the successful tactics that activists used against uranium mining in the Northern Territory of Australia. Nonetheless, more research is needed to explore the questions, how and through what methods can individuals outside of the state apparatus dramatically shape the meaning of "nuclear weapons" through normative argumentation?

The Individual: Future Plains of Research

The bulk of scholarly work on nuclear proliferation uses realism, which seeks to understand nuclear politics through systemic security drivers. This trend has slowly

turned toward a greater theoretical focus on other variables, including economic conditions, domestic coalitions, normative concerns, institutional constraints, and even supply and demand. Few theoretically informed works, however, have specifically spotlighted the role of individuals in nuclear decision-making; some notable exceptions include Matthew Evangelista's analysis of the importance of scientists in US–Soviet arms control discussions (1999), Peter Lavoy's exploration of nuclear "mythmakers," individuals who have the access and ability to promote the mythical qualities of nuclear weapons to decision makers (2006), and Hymans's focus on psychological characteristics of decision-makers (2006b). The lack of attention to individuals may be in part due to the dominance of realism, but also due to the more general neglect of the first image in international relations.

However, in nuclear politics, it is time for a renaissance for the individual level of analysis – to bring the individual back in. The field needs to curtail its unending gaze on the state, and researchers need to deconstruct some of the basic ways of thinking about nuclear politics. Rather than seeing it as an inevitable march towards a state's security interests – complete with all the post-hoc justifications – people have an unrelenting and undeniable influence on what we call "nuclear politics". The extension of work on norm entrepreneurs is an excellent start, but this type of project requires more than just inserting a few footnotes about individuals in the state-centered study of nuclear politics.

Hymans contributes to such a project in his latest work *Achieving Nuclear Ambitions: Scientists, Politicians and Proliferation* (2012). He argues that management style may have as much to do with nuclear weapons success as any other variable. Sara Kutchesfahani (2010) focuses on the importance of epistemic communities in persuading elites to pursue nonproliferation policies. Jan Ruzicka and Nicholas Wheeler (2010) present intriguing hypotheses on the importance of trust in the nuclear nonproliferation regime; this work would be applicable in looking at relationships between key individuals (diplomats, scientists, decision makers) in nuclear negotiations. My recent work (Rublee, 2012) takes a broad look at antinuclear advocacy – focusing on individuals – to understand the tactics, strategies, and effectiveness of multiple antinuclear norm entrepreneurs in both developed and developing countries. But the field is open for others to investigate the importance of individuals in nuclear politics – leading to a crumbling of what we "know" and uncovering the chaotic and contingent sources of nuclear-related activities.

Comparative Conclusions: Beyond Nuclear Politics

Comparing nuclear nonproliferation and disarmament, the literature offers a much deeper and broader understanding of nonproliferation. In terms of methodology, the number of cases of nonproliferation far outnumbers the cases of disarmament, making the topic easier to study. Just as important, the policy biases of Western states likely help to focus academics on nonproliferation – most of the researchers hail from nuclear weapons states and thus are more likely to be naturally interested in nonproliferation as opposed to disarmament. Finally, the lack of serious consideration of disarmament has likely contributed to the dearth of interest in it as a subject of academic study, and given its renewed place on policy agendas around the world, both theoretical and empirical studies of disarmament are likely to increase.

Comparing the NPT with other disarmament treaties leads to the obvious insight of the relative failure of the NPT in achieving its disarmament goals. The Chemical Weapons Convention (CWC) has a time-bound disarmament framework with verification measures, and although not all deadlines have been met, chemical weapons stocks have been reduced dramatically and the treaty is seen as a relative success. The Biological Weapons Convention (BWC) lacks verification measures, but the norm against the acquisition and use of biological and toxic weapons is strong: "Biological weapons remain, essentially, outside the arsenals and war plans of most states and violent non-state actors" (Littlewood, 2010, p. 16). While neither the Mine Ban Treaty (MBT) nor Cluster Munitions Convention (CMC) has near universal adherence, these two disarmament treaties were negotiated outside of normal channels and without the blessing of major powers. That they even exist shows the success of the initiating movements; the fact that both treaties have shaped security policy in non-signatories is even more of an achievement.

However, comparing the NPT with other disarmament treaties can make the treaty seem less successful that it actually is. The NPT was designed with three pillars: nuclear nonproliferation, nuclear energy, and nuclear disarmament. While the first two are meant to be supportive of the ultimate aims of the latter, at times the embedded norms (nonproliferation, right to civilian nuclear technology, and disarmament) are in conflict with one another. Because the CWC, BWC, MBT, and CMC are all strictly disarmament treaties, their implementation is more straightforward. Other key comparative issues that disadvantage the NPT include whether disarmament is time bound (in the NPT, it is not), whether all parties openly accept the need for disarmament (in the NPT, they do not), and whether decisions must be negotiated by consensus versus majority vote (in NPT Review Conferences, the final document is adopted by consensus).

Nevertheless, scholars and policymakers concerned with nuclear disarmament can learn from the other disarmament treaties. The first lesson is that disarmament in the general sense is not impossible. As Burford notes, "These [disarmament treaties] all provide strong evidence of both the will and the capacity of states to collaborate on multilateral disarmament projects, when they perceive the mutual benefit in doing so" (Burford, 2013, p. 3). The key point here is "mutual benefit", and because of the embedded conflicts within nuclear politics, achieving consensus on mutual benefit may not be possible. For this reason, like-minded states and activists have been pushing for the movement of disarmament-related measures outside of the Conference on Disarmament (CD), which operates by consensus rules. Similar obstacles were faced by the supporters of the landmine ban treaty, who decided to negotiate a new regime outside of the regular fora, leading to the Ottawa Treaty banning antipersonnel landmines (Rutherford, 1999).

Like-minded states and NGOs have taken note of this success, and will likely attempt to replicate it with nuclear disarmament measures. One of the key treaties necessary for nuclear disarmament is a ban on the creation of new fissile material (uranium 235 or plutonium 239). However, negotiations for a Fissile Material Cutoff Treaty (FMCT) have been stalled in the CD because of opposition by Pakistan (which believes it will be hurt by such a ban because of India's advantage in fissile material). As a result, in 2011, Norway, Austria, and Belgium put forward a resolution to move the negotiations outside the CD – the UN Secretary-General suggested

that negotiations might take place in the UN General Assembly. Indeed, the UN Secretary-General has made the FMCT a priority and it is likely that negotiations for it will follow the pattern established by the MBT and the CMC. If this process is successful, then pressure to move negotiations for a nuclear weapons convention outside the CD will almost certainly build as well.

The final lesson for nuclear disarmament from other treaties relates to whether it is worth pursuing a treaty that will not have universal adherence: is a weak or non-universal treaty better than no treaty at all? While no conclusive answer can be given, it is worth noting the experiences of the landmine ban treaty. Negotiated without the support of major powers, such as the United States, Russia, or China, the treaty today has been ratified by more than 75% of the countries in the world. More important, many states that are not party to the treaty still abide by its provisions. The case of the United States is illustrative: "The United States hasn't used land mines on the battlefield in more than two decades. It has poured nearly $2 billion into mine clearance, helping the injured and other assistance since 1993, making it a commanding force in the global battle against antipersonnel land mines" (Alpert, 2012). Despite its lack of universality, the normative power of the treaty has grown tremendously. As Richard Price argues, "As the number of crucial states supporting a ban reached critical mass, concerns of reputation and identity fostered emulation, which became an increasingly powerful mechanism through which the new norm was adopted" (Price, 1998, p. 640). In normative terms, the regulative norm took on a constitutive effect; the logic of appropriateness convinced even non-parties to conform to the treaty. Landmines are not nuclear weapons, but the normative power of the NPT has effectively promoted nonproliferation for six decades. To see similar success in the field of nuclear disarmament, a separate treaty banning nuclear weapons may be necessary to bring the full power of regulative, and over time, constitutive norms to bear.

Notes

1. For a thorough discussion of the differences between disarmament and arms control, see Neil Cooper. 2006. "Putting Disarmament Back in the Frame." *Review of International Studies,* 32: 353–376.
2. On questioning deterrence, see also Robert Green, *Security Without Nuclear Deterrence* (2010); Ward Wilson, *Five Myths about Nuclear Weapons* (2013); and Ken Berry, Patricia Lewis, Benoît Pélopidas, Nikolai Sokov and Ward Wilson, *Delegitimizing Nuclear Weapons: Examining the validity of nuclear deterrence* (2010). For an opposing view, see Elbridge Colby (2011) "Hiroshima, Nagasaki and the New Logic of Nuclear Deterrence," *The National Interest*, October 19, 2011. Accessed July 2, 2012 from http://nationalinterest.org/commentary/hiroshima-nagasaki-the-new-logic-nuclear-deterrence-6032

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