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## What's Next?

The Adelphi Paper, *Abolishing Nuclear Weapons*, and the critiques collected here speak for themselves. They are an early contribution to an analytical conversation that needs to take place within and between nuclear-armed states and non-nuclear-weapon states. This concluding essay highlights some of the outstanding points of agreement and contention that we found among the critiques. Our aim is to pose an agenda for additional analysis and debate to help illuminate further the possible pathways toward a nuclear-weapon-free world.

By highlighting particular points made by the contributors to this volume we do not underestimate the value of many other passages. Readers may find much else to agree with or dispute in these short essays. Our aim, as in the Adelphi Paper, is to invite further international debate on all points of interest.

### **Nuclear Weapons as Valuable Sources of Deterrence and Stability, Versus the Risks of Nuclear Annihilation**

In the Adelphi Paper we wrote that “some commentators on earlier drafts charged us with minimising the difficulties of nuclear abolition. They suggested that our belief in the desirability of abolition blinded us to its infeasibility. Others have said that we have identified too many obstacles.” Our final draft did not remove the stimuli of split perceptions, as the critiques collected here show.

Those who think that nuclear deterrence will not be fail-safe forever tend to put a premium on pursuing abolition. So do people who find threats of mass destruction to be morally unacceptable. Lawrence Freedman speaks for the former: "The case for abolition, though, is that it is hard to believe that the past 60 years of self-restraint can continue for the next 60 years." Jonathan Schell adds that "a world without nuclear weapons, though hardly without dangers, would be incomparably safer and more decent than a world with them." None of this means that abolition would be secure and feasible without the removal of major security obstacles. The argument is that the goal of abolition can help motivate both nuclear-armed states and those that do not possess nuclear weapons to mobilize power to remove these obstacles.

On the other side are those who think that the risks of major warfare in a world without nuclear deterrence would be greater than the risks that nuclear weapons would actually be used. They worry that focusing on abolition could increase the chance of its being undertaken without reliable alternative means of deterring major aggression. Frank Miller writes: "Nuclear weapons exist because nation states retain the option to use military force in world affairs. Nuclear weapons compensate for conventional military inferiority and moderate against the use of force by one great power against another. The problem lies not in the weapons, but in the nature of humankind." Bruno Tertrais adds: "Nuclear-armed states assume that maintaining nuclear deterrence is a safer means to ensure the absence of major conventional war than taking the risk to disarm." Brad Roberts is more open to the value of abolition but judges that we underestimate the difficulties of securing it: "How would the major powers do their jobs as global sheriffs against a nuclear-armed challenger?" "Could deterrence of such a challenger be effective by conventional means alone?"

Takaya Suto and Hirofumi Tosaki eloquently summarize the contradiction between these views and the dilemma that results:

Although the abolition of nuclear weapons may very well be "justice" ... blind pursuance of this cause could disturb order and stability.... However, in the nuclear age, order and stability are provided under the sword of Damocles. The [argument] that deep reductions and the subsequent abolition of nuclear weapons cannot be initiated without the assurance of security and "strategic stability" is prone to be used as a pretext for maintaining the status quo under the premise that the present order and stability would continue. But there is no guarantee that

this premise would hold indefinitely. Nor is there a guarantee that nuclear deterrence would continue to function in today's increasingly complicated security environment as it did when it rendered the Cold War "the long peace."

Suto and Tosaki's invocation of "justice" is particularly instructive. It underscores the political, moral, and psychological nature of this issue as perceived by many, adding balance to the emphasis on security that states under nuclear deterrent umbrellas stress. The requirement to balance justice with security emerges in multiple critiques calling for greater attention to be paid to the moral and legal dimensions of the abolition issue, as we discuss further below.

Security and justice are, in fact, closely interlinked. Societies fear aggression and occupation in part because of the injustice such acts of domination would bring. Conversely, people feel secure when they are confident that the state in which they live protects them against major injustice. Nuclear weapons cut both ways here: On the one hand, the destruction threatened by nuclear weapons is a form of mega-injustice insofar as it could entail the taking of innocent life on a massive scale, hence the moral opprobrium that many feel toward nuclear weapons. On the other hand, nuclear weapons can be attractive because they deter aggression. Part of the challenge, then, in abolishing nuclear weapons is to build confidence that societies living under nuclear deterrent umbrellas will not suffer the injustice of aggression if they relinquish that protection, while simultaneously reassuring those who do not have nuclear deterrents that they will not suffer intervention or unjust power displays by those who do.

James Doyle points to a partial resolution of this tension by focusing on "transforming the role [that nuclear arms] play in today's world, the nature of the infrastructure that supports them, and the manner in which they are deployed and operated." He points to steps nuclear-armed states could take *starting now* to reassure each other and non-nuclear-weapon states that they will not suffer intervention, terrorist acquisition of nuclear weapons, or nuclear blackmail even if nuclear weapons remain in national arsenals. His recommendations can be read as policies to greatly reduce the fears of the material and political injustices associated with nuclear use and status, while time is taken to build confidence that major aggression can be deterred without nuclear weapons.

Harald Müller complements Doyle's synthesis by focusing on limiting the danger of major power competition, which he recognizes is far from being accomplished today. "It is ... urgent," Müller writes, "to provide

a security environment, one that is strategic as well as institutional, to prevent the repetition of great-power rivalry in the classical sense." The Concert of Europe after the Napoleonic wars provides a model whose basic principles Müller adumbrates. The core attribute was the major powers' agreement on basic rules of conduct that were practiced through "a dense process of conferences and ambassadorial consultations" in which the actors "showed moderation and restraint when it counted most—in international crises, including those that were caused by internal upheaval in smaller states." Frank Miller notes that the Adelphi Paper predicates the feasibility of abolition on the reconciliation of interests among the nuclear-armed states and other key actors surrounding them. Jonathan Schell from a very different angle concurs that "agreement among" the United States, Russia, and China "is a necessary condition both for embarking on abolition and for preserving it."

The "concert" model deserves much greater attention in part because it clarifies that world government need not be invoked in considerations of abolishing nuclear weapons. Nuclear abolition is not an alternative to international politics and power balancing. Rather, it can be a realistic organizing principle of states seeking to balance and order their relations in ways that remove the singular threats of nuclear mass destruction.

### **The Nature of Nuclear Disarmament Obligations and the Relative Responsibilities of Nuclear-Armed and Non-Nuclear-Weapon States**

Another major divide in the critiques concerns the nature of the nuclear-armed states' (at least those party to the Non-Proliferation Treaty, or NPT) obligation to eliminate their nuclear arsenals. For example, Achilles Zaluar argues that "[t]he abolition debate has already been won, as a matter of principle, in the NPT and the ICJ decision; but as a matter of implementation, it cannot be won today." Moreover, he notes that the International Court of Justice (ICJ) also ruled that nuclear disarmament is a "'stand-alone' obligation," not contingent on conventional disarmament. Bruno Tertrais agrees in part, writing that nuclear-weapon states "do not challenge the existence of an obligation to pursue nuclear disarmament," but that "[t]he disarmament obligation contained in Article VI does not contain any deadline... [and] it also contains a conventional disarmament obligation that is hardly met by non-nuclear-weapon states."

Lawrence Freedman cuts through these arguments eloquently by writing, "The problem is not that the nuclear powers are in breach of a binding promise to disarm; the legal requirement was never more than best efforts. [The problem] is more the impression of cynical disdain, as the

nuclear powers insist that the non-nuclear-weapon states strictly follow treaty obligations while showing indifference to their own. Solemn undertakings delivered by junior officials and backed by no more than lists of relatively minor activities and discussions will no longer suffice.”

In the Adelphi Paper we emphasized the indisputable point that nuclear-armed states can benefit from and afford to take many steps to reduce the numbers and salience of nuclear weapons irrespective of progress on non-proliferation. However, to bring the world much closer to the horizon from which abolition becomes a visible prospect, we urged joint, simultaneous steps on nuclear disarmament and non-proliferation. Several contributors find this unrealistic. Key non-nuclear-weapon states plus India and perhaps China think that non-nuclear-weapon states already have taken more steps to facilitate a nuclear-weapon-free world than have the nuclear-armed states, particularly the United States and Russia. Therefore they believe it is unfair and unrealistic to expect non-nuclear-weapon states to take new steps until nuclear-armed states catch up in meeting agreed disarmament benchmarks.

At the same time, as discussed above, American commentators and Bruno Tertrais from France wonder, if nuclear-armed states did more, whether non-nuclear-weapon states would undertake measures such as making the Additional Protocol universal and clarifying procedures for states to withdraw from the NPT? Miller writes: “[T]he nuclear-weapon states have been steadily reducing their nuclear forces and stockpiles.” “While all this was occurring,... North Korea repudiated its treaty obligations and developed and detonated a weapon, Iran is on the brink of developing a weapon, and two other emerging nuclear weapons programs (Iraq and Libya) were terminated by superior force and skillful diplomacy.” “It is not immediately evident therefore that proliferation is linked to the existing arsenals of the five nuclear-weapon states.” Tertrais adds that “there is little evidence that leaders of states advocating nuclear disarmament consider it a top political priority. When they have a face-to-face meeting with the head of a state or government that has nuclear weapons, how often do they mention disarmament? The answer probably is almost never.”

Representatives of non-nuclear-weapon states should take the lead in answering these arguments. But we can first clear away some of the conceptual and historical underbrush. Informed advocates do not argue primarily that nuclear disarmament would change the minds of determined proliferators such as North Korea or perhaps Iran. Rather, disarmament strengthens the willingness of *mainstream states*—the overwhelming majority of NPT members that are not seeking nuclear weapons—to cooperate in

enforcing the treaty *against* proliferators. Jonathan Schell writes, “the mere example of disarmament would have little sway on proliferators, who are more influenced by local anxieties.” But, Schell continues, “these objections overlook the raw power that would be generated by a concert of all nuclear-armed states, backed by every non-nuclear-weapon state, resolved to stake their security on abolition just as firmly as many now stake it on nuclear arms.” Rather than the current situation in which nuclear-armed states (with varying degrees of alacrity) try to enforce a regime based on a double standard, the abolition framework could mobilize a “global campaign to exert moral, political, economic, and even military pressure against the few holdouts that dared to argue that they alone among the world’s nations had a right to these awful weapons.”

As a matter of history, arms reductions by the recognized nuclear-weapon states have helped encourage or pressure others to relinquish nuclear weapons and related programs. Would Belarus, Kazakhstan, and Ukraine have agreed to join the NPT as non-nuclear-weapon states if the United States and Russia had not been in the midst of major reductions of their nuclear arsenals? Argentina and Brazil shut down their nascent nuclear weapon programs largely for domestic reasons, but there is no doubt that the post-Cold War environment of nuclear arms reductions created norms that helped pull them in that direction. Had the United States and Russia been insisting at the time that they would never eliminate their nuclear arsenals and had no genuine intention of fulfilling Article VI of the NPT, would Argentina and Brazil have joined the Treaty? South Africa dismantled its secret nuclear arsenal and joined the NPT as a non-nuclear-weapon state also because of internal changes and the disappearance of Cold War-related external threats; but this decision, too, came amidst the most significant U.S. and Soviet arms control treaties. The Intermediate Nuclear Forces Treaty, which eliminated nuclear-armed missiles from Europe, had been concluded in 1987, and by the time of South Africa’s 1991 decision to disarm, START was in its final stages of negotiation.

Moreover, contrary to skeptics, the North Korean and Iranian cases do not indicate that disarmament has no value in affecting determined proliferators. North Korea and Iran both began their clandestine efforts to acquire nuclear weapon capabilities *before* the U.S.–Soviet disarmament process began in earnest. It should also be noted that Iranian and North Korean leaders’ interests in acquiring potential nuclear deterrents seem to be affected by fears of U.S. military intervention in any form. U.S.–Russian reductions that still leave each with thousands of nuclear weapons therefore have not addressed these states’ core concerns.

Achilles Zaluar offers a thought experiment for those who argue that proliferation is not linked to the arsenals of existing nuclear-armed states: "Imagine that nuclear weapons had been acquired by several rival Eurasian powers but that the United States had none. Would the strategic calculus of the United States be affected by the nuclear policies of the nuclear-armed countries in Europe and Asia? The question provides its own answer."

Setting these historical and analytical points aside, we expect that non-nuclear-weapon states would make a more fundamental argument: reductions are welcome but if they are paired with expectations that nuclear weapons will be retained indefinitely, then the goal under the NPT of an equitable nuclear balance of zero is still being ignored. The failure of the nuclear-weapon states to implement more than four of the thirteen benchmarks of progress toward nuclear disarmament agreed politically in 2000 heightens the equity argument that non-nuclear-weapon states make in resisting new nonproliferation rules to strengthen IAEA safeguards and other controls on nuclear technology and circumscribe their options to withdraw from the NPT. From the perspective of justice, zero is the issue. Reductions are welcome, but aiming for anything more than zero nuclear weapons is inequitable and problematic. As a political reality, without a clearer commitment to abolition, non-nuclear-weapon states will not cooperate in strengthening the nonproliferation regime and so the issue must not be pushed off the agenda for international analysis and discussion. The politics of gaining the cooperation of non-nuclear-weapon states is missed by those who seek to deflect genuine exploration of abolition.

Frank Miller seems to dismiss arguments over Article VI as rhetoric. But, like frequent American invocations of "freedom," demands for the equity of a nuclear-weapon-free world reflect genuinely felt values and aspirations. The demanders do not always practice what they preach and sometimes undermine their own interests by failing to help strengthen a nonproliferation regime "that prevents one's neighbors from developing nuclear weapons," as Miller writes. But the "cynical disdain" that some nuclear-weapon states' officials display towards serious efforts to abolish nuclear weapons, as Freedman notes, intensifies rather than abates demands for the fairness of zero.

Finally, when asked privately, leaders of non-nuclear-weapon states say they do not press nuclear disarmament in meetings with leaders of nuclear-armed states because they know they will be dismissed by these more powerful actors and they have other business that they do not want to jeopardize. This should not be surprising. Even officials and experts within the United States, Russia, and France have, over the years, felt that

pressing nuclear disarmament with their leaders and nuclear establishments is not a good career move. (The same is no doubt true at least in Pakistan and Israel, if not in India and the United Kingdom. We can only imagine the caution of nuclear dissidents in North Korea and Iran.)

Two steps would break the current impasse. First, as Freedman suggests high-level officials from nuclear-armed and unarmed states must become involved in negotiating on these issues. Second, as many commentators suggested, the United States and Russia must take the lead by doing more to reduce their nuclear arsenals and lower the salience of these weapons as, of course, we urged.

Achilles Zaluar's view could offer a way through key dilemmas and standoffs if it represents wider international opinion and not merely a small minority:

If combined with a firm political commitment toward the implementation of Article VI of the NPT, moving first from thousands of nuclear weapons with high profile (today) to a few hundred with low profile (an intermediate step toward abolition ...) would present many of the benefits and none of the alleged dangers and risks of the abolition scenario. Committing to this agenda of reducing the total number of nuclear weapons globally to the hundreds and taking them out of the foreground of international politics would represent positive change in the direction of the NPT's ultimate objective. In fact, the change would be so enormous that its consequences would ripple throughout the international system, without the risks that some fear from the tidal wave of going to absolute zero. It would, moreover, provide the international community with a "to-do list" that would take at least a decade—a decade in which the loss of credibility of the nonproliferation regime could be reversed.

This analysis deserves attention and debate.

### **Is Exploring Abolition a Distraction or a Necessity?**

The Adelphi Paper's concentration on the challenges of the steps immediately before and after the abolition of nuclear weapons elicits protests in some quarters and applause in others.

Some believe the focus on such a distant prospect distracts official and unofficial expert communities from the more practical moves that can and should be taken to prevent the acquisition and use of nuclear weapons by terrorists and additional states, and to reduce risks of use by states that

now possess these weapons. Ian Hore-Lacy, Frank Miller, James Doyle, and Scott Sagan say this most clearly, though Doyle and Sagan do find that addressing abolition can help motivate progress on near-term steps.

Others argue that the focus on abolition is imperative. Schell insists that without the clear goal of abolition, the world will not muster sufficient political will, moral drive, and power to push states beyond half-measures of arms control that leave too many nuclear dangers unmitigated. However, along with Zia Mian and Pan Zhenqiang, he takes us to task for focusing on security challenges that sap the power of the abolition vision. Others commentators, such as Roberts and Freedman, even if they do not agree with all of our analysis about those security challenges, believe that it is worthwhile to explore, in detail, the challenges of the final abolition of nuclear weapons.

Roberts offers a synthesis that can take us beyond this stalemate. He is “skeptical that the conditions that would make abolition feasible are in any way proximate” because of the role he ascribes to nuclear deterrence today. But, he goes on to write that “[t]his is not to argue that we should not work to bring them into being. After all, we want to live in a world in which most of the conflicts have been eliminated, or at least stabilized, and where major powers act in concert to maintain the peace.” For Roberts, therefore, disarmament could be a good organizing principle for interstate relations, which is a core point of our work. Freedman, Tertrais, Zedillo, and Patricia Lewis would probably concur, even if they do not stake out their position on this point as explicitly as Roberts.

Müller advances this synthesis. He notes that consideration of abolition is necessarily highly speculative, not least because the processes of working toward disarmament change the conditions in which successive steps are taken. “As conditions change, so do the structures of opportunity,” he writes. “New options, unthinkable at the beginning, become a serious possibility.” Müller reminds that “[w]hen the Soviet Union admitted observers to its military maneuvers in a politically binding way for the first time in the Stockholm Document of 1986... none predicted, at the time, that it would end in German unification. Yet the process that followed created, step by step in the interplay between political and arms control changes, the conditions in which unification became not only a real opportunity, but also the right thing to do and, eventually, a necessity.” He advocates that those who think about the long-term challenges of abolition be flexible and adapt their ideas to changing realities.

To be sure, incremental steps can achieve much good even if they are not informed by the distant destination of nuclear abolition, and they can

be taken without having such a destination in mind. But the balance of the arguments in this collection do not alter our view that keeping abolition in mind as the goal helps more than it hurts.

Ultimately, the value in a conversation about the abolition of nuclear weapons probably depends on the way it is conducted. Explorations of the challenges of abolition must take place in parallel with practical near-term steps (lest they be nothing more than empty rhetoric). They are useful to the extent that all parties—nuclear-armed and non-nuclear-weapon states—explore the challenges in good faith for the purpose of finding solutions. Discussions of abolition would become counterproductive if, as Zaluar warns, nuclear-armed states used them as a way of dismissing non-nuclear-weapon states with a barrage of technical objections they were unwilling to explain because of classification rules. The same liability arises when non-nuclear-weapon states use discussions of abolition as a platform to posture. The test in such deliberations—whether in official forums or in the think tank consortium we urge creating—would be intellectual, political, and technical honesty. To evaluate fulfillment of this criterion would require that the analyses be made publicly available so that experts from around the world could evaluate and contest them. Where nuclear-armed states feel that security interests require withholding data and analyses, they should provide explanations sufficient to give experts without security clearances some basis for accepting the secrecy.

### **The United States and Russia Must Lead From the Front**

Another common theme that emerged from the commentaries is that new initiatives by the United States and Russia would change the global nuclear dynamic. Leaders in Washington and Moscow could in the near term take some key disarmament steps and offer to go further still if leaders of non-nuclear-armed states supported incremental strengthening of the nonproliferation regime. Such near-term steps could include the United States and Russia undertaking force reductions beyond those called for in the Strategic Offensive Reductions Treaty (SORT)—that is, below 1,700 deployed strategic weapons—and declaring, at a minimum, that they would not use nuclear weapons against non-nuclear-weapon states in full compliance with their NPT and safeguards obligations.

Then, rather than guess how non-nuclear-weapon states would respond in NPT-related forums, which tend to be managed by working-level diplomats, American and Russian leaders should consult directly with the leaders of key non-nuclear-weapon states to seek agreement on corresponding measures to strengthen nonproliferation rules. The

White House and the Kremlin could promise that if progress in tightening nonproliferation measures were achieved, the two countries would take further steps to reduce their force levels, modify their doctrines, and change operational practices that now put a premium on immediate use of nuclear weapons under warning of attack. A bilateral initiative by the United States and Russia, followed by negotiation of reciprocal additional disarmament and nonproliferation steps, seemingly offers the only feasible way forward to strengthen security against nuclear dangers.

### **Multilateral Reductions and the “Low Numbers” Problem**

Even if the United States and Russia build down, the disarmament process will hit a concrete floor if China is not brought into it. (China would also insist that the other NPT nuclear-weapon states—the UK and France—join, too.) Many treatments of the nuclear disarmament challenge assume that after the United States and Russia reduce their arsenals to 1,000 each, China would join. Yet, there is no evidence for this assumption, as we hinted in the Adelphi Paper. General Pan Zhenqiang acknowledges this in his wide-ranging contribution, writing that “China should be prepared to respond to a legitimate question raised in the ... paper, that is, at what phase of nuclear disarmament by the two major nuclear powers would China think it is time to join them for further actions. An appropriate answer will require a lot of homework on the part of China.”

Other comments on our paper indicate that Beijing is not the only capital that must do intensive homework on this question. If multilateral nuclear arms reductions are to be feasible, many unexplored security questions must be answered. Brad Roberts writes that should the major powers “reduce their reliance on nuclear weapons and adapt their strategic postures to new circumstances,” they “will confront new problems of instability.” Lawrence Freedman notes that “a more inclusive process” of nuclear reductions “would not... necessarily address the issue of more delicate nuclear balances, when small numbers multiply the impact of any aggressive first strike.” Freedman adds that “[t]here is no reason to suppose [danger] just because the numbers had fallen below some threshold level. Nuclear options would come into play only when international relations were already at a breaking point. Nonetheless, those who rely on extended deterrence are going to be more concerned....”

In other words, a great deal of analysis and debate is needed to assess whether and how reductions could be managed to the point that no nuclear-armed state had more than, say, low-hundreds of nuclear weapons. None of today’s nuclear-armed states (and those depending on them for security

guarantees) would commit to major proportional reductions in their arsenals without well-vetted studies by their national defense establishments. And because the envisioned process would be multilateral, and therefore would involve complex calculations of deterrence equations involving changing sets of multiple actors, international analysis and debate would be necessary.

Governments should commission their relevant defense research institutions to begin such studies now. There is no good reason not to, and commissioning such studies would be evidence that a state is taking its disarmament obligations seriously. Independent experts also should explore and model the “low numbers” problem.

- What conditions would China, France, and the UK put on entering or completing multilateral negotiations? Would they, for example, bring in conventional military considerations? Doctrinal issues? Transparency requirements that France urges but that China finds unpalatable?
- Beyond the five recognized nuclear-weapon states, wouldn't India and Pakistan, at least, have to be involved, given the connections between China and South Asia? How could this be squared with the refusal of some key states to include India, Pakistan, and Israel in official discussions of nuclear arms control and disarmament because they are not recognized as nuclear-weapon states under the NPT?
- Would the anomalous position of North Korea continue to be addressed through the Six-Party process? Would North Korea's ongoing possession of a small number of nuclear weapons be reasonable cause to block the others from making reductions to low numbers?
- If multilateral discussions were focused on “nuclear weapons,” Israel presumably would not participate, given that it does not acknowledge possessing them. Could this problem be finessed if a forum were convened of states that possess unsafeguarded fissile materials, with the purpose of negotiating steps to bring materials and facilities under safeguards incrementally? This is essentially what a fissile material production cutoff would do, and it does not require declaring possession of nuclear weapons.

- Have American and Russian strategists actually thought about going below 1,000 nuclear weapons? How much of a numerical advantage does each state think it needs over the rest? (Many Americans, for example, believe the United States should have as many nuclear weapons as everyone beyond Russia combined.) How do they think about triangular deterrence requirements: United States–Russia–China? Does Russia think it needs nuclear deterrence against not only the United States and China, but also the UK and France? Pakistan? How about China: it thinks it needs deterrence against the United States, Russia, and India, but is that all?
- Some American strategists who have thought or opined about the subject worry that reductions to mid- to low-hundreds could invite China to race up to parity. Is it reasonable to think that any multilateral negotiations would have to provide assurance against this, and should that be recommended? Would China insist on parity at its numbers? And would India accept disparity in a formal agreement?
- If U.S.–Soviet parity after the 1970s was not destabilizing, why would parity at low numbers be destabilizing? If the problem is multiple actors and the possibility of two or more collaborating against one to create disparity, how could this be addressed?
- U.S. and some UK (and Russian?) analysts worry that low numbers (a few hundred) could invite nuclear use that would not be attempted when high numbers exist. Such assumptions have not been modeled and tested through international discussion. Shouldn't this be done?
- Why would deterrence be weakened at low numbers? What sorts of scenarios would be presumed, and how justified would they be? Are deterrence and stability more sensitive to numbers or to the survivability of forces? How would ballistic missile defenses affect such calculations?
- Couldn't confidence-building measures and arms control ameliorate concerns about instability? What would the elements be? (Ballistic missile defense would probably be important here.)

- The United States would be very sensitive to erosion of extended deterrence commitments, especially vis-à-vis Japan and South Korea (as would Tokyo, Seoul, and perhaps others). Presumably these states would be consulted thoroughly along the way, and the robustness of conventional deterrence would have to be assured. How should this be addressed?

### **Outlaw Use of Nuclear Weapons?**

Several commentators criticized the Adelphi Paper's inattention to the prospect of outlawing the use of nuclear weapons as a precursor to the more difficult and time-consuming process of actually eliminating the last weapons. The argument for outlawing use is informed by the view that nuclear weapons are immoral, as articulated by Mian and Schell (although neither explicitly urges a ban on the use of nuclear weapons). Mian writes that "[a]part from their intrinsic merit, arguments for abolition that are normative, moral, and legal have the added benefit of being available equally to all states: They are universal in application and can be used consistently both at home and abroad."

Raghavan presents a recent Indian government proposal to move in stages to outlaw nuclear weapon use, but he does not provide a rationale. Pan goes even further and advocates outlawing nuclear weapons themselves, even before the details of abolition have been worked out. He writes that "[c]ountries without legal and moral pressure would always be able, one way or the other, to find excuses to keep a nuclear option." "[P]erhaps nuclear weapons should be outlawed first in a form of a world convention, just as chemical and biological weapons were banned, so that a powerful legal and moral framework is created in which all the other measures on the path to zero are to be taken." Sameh Aboul-Enein takes a similar view.

These arguments and the potential benefits of outlawing the use of nuclear weapons deserve more analysis and international debate. In the Adelphi Paper we were deflected from this in part by space constraints, but more by the reality that global conventions historically have not succeeded in preventing the use or development of banned weapons. In spite of a global injunction against the use of chemical weapons, for instance, Iraq used them against Iran in the early 1980s. The major powers singly and through the United Nations Security Council did practically nothing to stop it or to punish Iraq. The same sorts of enforcement challenges we address in the Adelphi Paper in regard to abolishing nuclear weapons would also determine the feasibility of any attempt to ban their use. For banning possession or use of nuclear weapons to be a realistic proposition,

then, much greater effort must be dedicated to matters of enforcement, with the related challenges we have identified.

Prohibitions on the use of nuclear weapons could be an alternative way of effecting no-first-use declarations. This logic is implicit in the Indian government proposals described by Raghavan and could find receptivity in China, as indicated by Pan. That is, as long as some states possess nuclear weapons, a prohibition on their use would in fact, if not explicitly in “law,” amount to a no-first-use commitment. This is so because the first use of nuclear weapons presumably would release others to retaliate in kind to punish and limit the gains of the nuclear aggressor. In such a debate it is easy to predict that governments and experts who focus on continued political-security competition among nuclear-armed states would find little value in commitments to ban nuclear weapon use. As indicated in the comments of Miller, Roberts, Tertrais, and Müller, declaring the use of nuclear weapons illegal while some states continued to possess them could invite destabilizing crises. If leaders of one or more states hinted at nuclear options, or took hedging steps to increase the readiness of nuclear forces in a crisis, the potential for escalation would grow. A regulatory regime to prevent or manage such moves would need to be built. The challenges of doing so would, in some respects, be similar to the difficulties of abolishing nuclear weapons entirely.

### **Enforcement**

Many contributors to this volume acknowledge the salience and difficulty of the enforcement challenges we raise in chapter 4. Some who criticize us for underemphasizing the benefits of abolition or focusing too much on obstacles do not actually address how these enforcement problems can be resolved. It seems inescapable that the potential to authorize use of force, and to muster effective instruments of coercion, would be necessary to secure a world without nuclear weapons.

In this vein, Schell and Pan rightly criticize us for paying too little attention to the problem of enforcing a nuclear weapon prohibition if one of the major military and economic powers, for example the United States or Russia, were found in noncompliance. We noted that smaller economic and military powers would feel inhibited from undertaking economic sanctions or military action against a great power, but the issue deserves greater consideration. States that now rely on their own nuclear deterrents or extended nuclear umbrellas against larger powers would need to be convinced that reliable means would exist to deter or defeat a larger adversary that breaks out from a nuclear weapon prohibition.

Some might argue that the major military powers would be the least likely to violate a nuclear weapon prohibition, because they would have adequate conventional military power to deter aggression against themselves or those whose security they guarantee. Yet, if conventional military balances among the major powers—say, the United States, Russia, and China—were not managed to give each confidence in its sufficiency, one or more of these powers could be tempted under duress to take measures that could raise questions about compliance. Obviously this is a circular dynamic: The major powers would not agree to eliminate their nuclear arsenals if their relations and military balances were not stable. Still, in the near to medium terms, the history of moves to abrogate or violate arms control agreements, as occurred when the United States withdrew from the Anti-Ballistic Missile Treaty and Russia was found not to have eliminated all its biological weapons as required under the Biological Weapons Convention, have to be overcome.

Zedillo advances the enforcement discussion thoughtfully in his analysis of the impediments posed by the veto mechanism in today's Security Council. He argues persuasively that "[t]here is no obvious reason why an enlarged Security Council would inherently be more functional than the present one." Functionality—effectiveness—would be determined more by the rules of the council's decision making. "[F]ailure to accomplish veto reform," Zedillo writes, "would leave the abolition process in a dead end."

Raghavan makes an elliptical point that "India would be unlikely to find it in its interests to join ... a coalition of enforcers." This deserves elaboration. It seems to reflect a belief that India's attainment of a permanent seat on the Security Council would meet with objections that India would not want to exacerbate by having council membership related to disarmament enforcement. But if India were a permanent member, and the Security Council had a role in enforcing a prohibition on nuclear weapons, which seems inevitable, wouldn't India have to participate? How else would the nuclear disarmament that India now advocates be enforced? Raghavan writes that "[t]he power to enforce would also need to be subordinated to the intent of all states represented in the United Nations." But among other questions, this raises anew the problem of ensuring that enforcement would be reliable and timely.

Similar questions of timeliness and efficacy would also seem to confound Mian's interesting suggestion that "the International Court of Justice, rather than the Security Council, could serve as the body that adjudicates disputes over compliance involving nonproliferation, arms control, and abolition agreements."

### **The Role of the Public**

Lawrence Freedman notes that the Adelphi Paper does not sufficiently address the role that could, would, or must be played by the public if nuclear weapons are to be abolished. If nuclear abolition “is going to be treated with the seriousness it deserves over an extended period,” Freedman writes, “public opinion will need to be engaged.”

In the Adelphi Paper we posited that governments in nuclear-armed states with competing political parties probably would face charges of being weak and careless with national security if they took the last steps to eliminate nuclear arsenals. Opposing parties could always find ways in which verification and enforcement mechanisms could be stronger than those agreed multilaterally. Freedman similarly suggests that “if popular opinion becomes animated, it is as likely to serve as a brake on disarmament progress as an accelerator.” Moreover, public opinion is unlikely to be the same in all states, creating dilemmas that are intractable or at least extremely difficult to resolve, as Mian trenchantly notes. Arguments that might convince the public of one nuclear-armed state that it will gain security in a world without nuclear weapons might communicate to other states that they would lose relative power in such a world. Mian avers that “some of the potential problems over nuclear-weapon abolition that result from arguments based purely on national security and national interest” could be overcome “by broadening the frame to include normative, moral, and legal considerations” that are universal and therefore do not convey relative advantage or disadvantage. This recommendation deserves to be taken seriously. Yet, it is probably arguments from security that will ultimately overcome the braking impulses of public opinion and opposition parties contemplating decisions by their leaders to relinquish nuclear weapons.

### **Relative Silence on Verification**

Interestingly, only one contributor, Patricia Lewis, focused on the chapter on verification, although Aboul-Enein, Müller, and Zaluar also engage with it. This may reflect the judgment offered in the Adelphi Paper that verification is important but ultimately not as vital as political-security dynamics and enforcement, because verification cannot be perfect, and even if it were, the challenges of deterring and defeating an actor that chose to break a prohibition would remain. Lewis correctly notes that historically the process of verification has been much more effective than enforcement mechanisms, which both affirms our argument that enforcement is the major challenge and corrects the impression we might have left that verification difficulties render abolition infeasible.

Somewhat paradoxically, governments of nuclear-armed states show some willingness to commission studies of verification and to discuss these issues with each other, but they resist tasking officials to explore political-security issues such as those raised in the Adelphi Paper. We can only speculate that modern states are more comfortable dealing with technical issues than political ones, acting as if technical solutions might be found to what are in reality political problems. (This is also true when it comes to managing nuclear industry, as discussed below.) This is not to devalue the work being done by national laboratories in the United States, Russia, the United Kingdom, and Norway to develop verification technology. Confidence could be built and useful practices and technologies could be developed through such cooperation.

Harald Müller suggests that research and development oriented to establishing effective verification of a fissile material cutoff treaty could prepare a basis for subsequent nuclear archaeology of fissile material production that has occurred outside of safeguards, as would be necessary to achieve nuclear abolition. His observation emphasizes that including stocks in a fissile material cutoff treaty would significantly enhance its value as a step toward disarmament.

Achilles Zaluar reminds us that after Brazil closed its nascent nuclear weapon program the country incorporated into its Constitution in 1988 a prohibition on the manufacture or possession of nuclear weapons. Were other states to do the same after all nuclear weapons had been abolished, the societal barriers against cheating could be significantly strengthened.

Lewis's contribution offers many insights, including a cogent argument that the costs of nuclear disarmament should be considered as part of the full life-cycle costs of nuclear weapons. She engages with the more "political" of the verification questions: cost, civil society monitoring, challenge inspections, and the role of national intelligence agencies. Although these are probably not as hard to resolve as some of the political issues discussed above, they are sensitive and therefore also deserve to be engaged by international research institutions and, where possible, government representatives.

### **Nuclear Industry and Strengthened Safeguards**

Although many of the commentators did not discuss the nuclear industry, an interesting dichotomy emerged among those who did. The pivot is over whether progress on nonproliferation can, as a political reality, be separated from the disarmament challenge.

Hore-Lacy writes that the chapter of the Adelphi Paper about nuclear energy "focuses not so much on disarmament as on proliferation..."

Similarly, Zaluar writes that “[t]he pros and cons of nuclear disarmament relate to security issues; the pros and cons of nuclear safeguards relate to issues of expense, confidentiality, and technological secrets.” In contrast, Suto and Tosaki implicitly view preventing further proliferation as an integral part of the disarmament challenge.

On this point we agree with Suto and Tosaki. If disarmament is viewed not as an end in itself but as a means to enhance global security, then nonproliferation is essential for nuclear weapons to be safely prohibited. Developing safeguards that build confidence in the peaceful use of declared facilities and in the absence of clandestine activities is an integral part of the disarmament and nonproliferation challenges. Many would find it ideal to develop such safeguards independent of progress on disarmament and commitment to abolition as a real objective. But there is clear evidence that many non-nuclear-weapon states will not agree to strengthen safeguards and their enforcement without concomitant progress toward abolition. To wish this were not so is understandable, but that does not make it realistic.

Sagan notes that all NPT parties, not only states in possession of nuclear weapons, share Article VI obligations and goes on to make the innovative and formidable suggestion that international control or management of the fuel-cycle could be a prerequisite of nuclear weapon abolition. Otherwise, the risks of proliferation would induce states to hedge by retaining nuclear weapons or quick reconstitution capabilities. Thus, Sagan argues, “non-nuclear-weapon states also need to recognize that entering into negotiations about international control of the nuclear fuel-cycle is actually part of *their* Article VI commitment...” As far as we know, this is a new idea and it deserves further international analysis and discussion.

It is tempting for champions of nuclear industry to act as if this commercial enterprise can be separated from the complexities and potential constraints of the twin nonproliferation and disarmament challenge, as Hore-Lacy suggests. Leaving aside highly debatable claims about the likely rate at which nuclear reactors will be built in coming decades, it is unrealistic to assume that the pace and scale of expansion will not be influenced by confidence in nonproliferation bulwarks and nuclear deterrence stability. Proliferation, military nuclear crises, or use of nuclear weapons cannot help but affect public perceptions of all things nuclear, even if states do not use civilian power reactors to proliferate. Key states would urge additional constraints on the trade of nuclear technology. If such backlash made it more difficult for developing countries to receive nuclear cooperation from supplier states, those facing what they would perceive as constrictions of their Article IV rights would consider withholding cooperation on the nonproliferation side, exacerbating a vicious cycle of nuclear disorder.

To prevent a weakening of nuclear order, the nuclear industry should participate positively in efforts to advance nonproliferation tools and disarmament progress rather than seek to distance itself from these challenges.

Perhaps the most difficult issues will arise over managing the fuel-cycle. As the International Atomic Energy Agency and others have argued, international management may be necessary to avoid the risks and instabilities of a proliferation of national enrichment and reprocessing programs. We noted some of the difficulties of this course. Hore-Lacy objects categorically: "What weakening of the non-proliferation system would result from the creation of such facilities [enrichment plants] in Australia and Canada?" Implicit in his logic is that these are "good" states, whereas the dangers are posed by "bad" states. Yet, a number of states that today are not seeking nuclear weapons could do so in the future. Moreover, it becomes much harder to inhibit the acquisition of fuel-cycle facilities by some states if the green light has already been given to others. If the United States "approves" the construction of enrichment plants in Australia or Canada, for instance, the pressure to do likewise for South Korea, Taiwan, or Egypt (all current friends or allies of the United States) would increase considerably.

The recently agreed exemption of restrictions on nuclear cooperation with India demonstrates the problem. The United States and most other members of the Nuclear Suppliers Group do not judge Pakistan to merit a similar exemption, due to its proliferation record and concerns about its overall stability. Yet the nuclear deal with India may increase the probability that China could decide to provide its friend, Pakistan, with similar assistance.

Ultimately, furthering the discrimination that already exists by deciding whether to support or oppose the acquisition of nuclear technology by another state based on perceptions of its government's intentions undermines the sustainability of a rules-based nonproliferation regime. This is especially true when nuclear technology is externally supplied (as opposed to indigenously developed).

A similar political problem arises with proliferation-resistant technology, which Hore-Lacy and Suto and Tosaki discuss (even laying aside the more complex technical debate about how proliferation-resistant this technology really would be). The introduction by South Korea of commercial pyroprocessing (one of the proliferation-resistant electrometallurgical reprocessing processes Hore-Lacy advocates) would not, for instance, be accompanied by a ban on standard (highly proliferative) aqueous reprocessing. In fact, it would help "normalize" reprocessing as a technology

and give states that wished to hedge a convenient excuse to develop aqueous reprocessing (especially if they first asked for assistance with developing pyroprocessing and were refused). This is not to say that proliferation-resistant technologies are a bad idea per se, but that there is no quick technical fix to what is essentially a political problem.

Of the commentaries that discussed current attempts to curtail the spread of fuel-cycle facilities, there was broad agreement on the importance of states' "inalienable right... to develop research, production, and use of nuclear energy for peaceful purposes...." Although Zaluar states that it would not be a good idea if all 191 states had fuel-cycle facilities, he stresses that such decisions are a purely sovereign affair and that attempting to interfere with them (beyond offering fuel assurances "free of political considerations") could spark a backlash. Suto and Tosaki also emphasize the importance of Article IV and a non-discriminatory approach to fuel supply but do see the need for some conditionality. Although they (along with Hore-Lacy) doubt that "determined proliferators... would participate in such an international approach," they presumably do believe that such assurances might have a role in preventing the spread of fuel-cycle facilities to states that are not seeking nuclear weapons today but might do so in the future.

We suspect that, if pushed, others would have taken a different line and advocated a more active policy to curtail the spread of fuel-cycle facilities (such as the one advocated by former U.S. defense secretary Harold Brown). It is interesting, therefore, that few chose to comment on the nuclear industry. In general the politics of the fuel-cycle are an underappreciated dimension to debates about nonproliferation and disarmament. It is surely no coincidence that the two contributions that did focus on efforts to restrict the spread of the fuel-cycle were written by authors from Brazil and Japan, two non-nuclear-weapon states that possess fuel-cycle facilities but worry about being "'punished' for activities by certain non-complying countries, resulting in the divestiture of the rights relating to the nuclear fuel cycle," as Suto and Tosaki put it. The evolution of the fuel-cycle is a key question that requires much more attention than it has attracted in the past.

In particular, the question of returning spent fuel to its suppliers, and therefore removing the perceived need for reprocessing capabilities in countries that do not now possess them, deserves much greater attention. This is important in reducing the risks of proliferation via the "plutonium route." More importantly, without "take-back" provisions, potential buyers of international fuel services will still be left with the costly and

often politically challenging problem of disposing of nuclear waste. Sparing states from this burden would greatly increase the attractiveness of relying on international supply and forgoing acquisition of indigenous fuel-cycle capabilities. As nuclear-weapon states that care greatly about nonproliferation, the United States, France, and the UK need to confront their own legislative obstacles to taking back spent fuel from foreign states that would buy fuel services and agree not to acquire their own enrichment and reprocessing capabilities.