George Perkovich and James Acton are to be commended for completing a vital task. They have successfully outlined a broad range of potential challenges to nuclear disarmament and the specific questions, both technical and political, that states must address if they are to pursue the elimination of nuclear weapons in earnest. The authors have thus created an invaluable reference for those who are serious about this crucial undertaking.

I hope the points I make below add to the rich foundation provided by the authors. As for my own thoughts in this debate, I support the elimination of nuclear weapons as instruments of national security strategy. Their “abolition,” however, is an idea, as yet undefined in detail and, although I do support it as a long-term goal, I am a much stronger advocate of rapidly transforming the role nuclear weapons play in today’s world, the nature of the infrastructure that supports them, and the manner in which they are deployed and operated. Doing so can provide near-term security benefits for the international community and facilitate the eventual elimination of nuclear weapons as they exist today.

Therefore, my analytical efforts, and my comments on Abolishing Nuclear Weapons, are motivated not by the abstract goal of abolition but by the achievement of more specific nuclear security objectives, including decreasing the chances that nuclear terrorism could occur; that nations will ever use nuclear weapons in conflict; and that nuclear weapons will further proliferate.

The views expressed in this chapter are exclusively the author’s personal views and do not necessarily reflect the positions of the Los Alamos National Laboratory or the U.S. Government.
**Uncomfortable Assumptions**

The authors stake out very difficult ground for themselves by hypothesizing from the vantage point of today’s world what might be necessary for nations to give up their last nuclear weapons at some point perhaps twenty to fifty years in the future. This approach has limitations because there are too many unknown factors and unforeseen events that could make elimination either more or less possible. It also takes the focus off the real prize—improved global nuclear security—and concentrates instead on the endgame of nuclear-weapon abolition, which is not clearly defined, may not be desirable, and if it occurs, would do so under circumstances we cannot now imagine. What we can imagine is changing the roles nuclear weapons play and the manner in which they are deployed.

The essay also seems to proceed uncritically from the view that many nations naturally view nuclear weapons as a solution to a whole raft of national and international security problems. If this were so, many more states would possess them. Nuclear disarmament has been pursued for more than sixty years and has been enshrined as a law-backed international goal because most states and people view nuclear weapons not as a solution but as a problem.

The view that the ideology of nuclear weapons is incompatible with basic human values and the positive development of human civilization is as old as nuclear weapons themselves. It has always been acknowledged that an international security system based on the willingness of nations to commit mutual suicide in order to protect themselves is a suboptimum solution to the security dilemma. It is fraught with great risk to the world’s nations and peoples, and we should be ceaselessly striving for more rational and humane ways to achieve security.

The authors of *Abolishing Nuclear Weapons* do not address this most critical of reasons for reducing and eventually eliminating nuclear weapons. Instead, the unstated assumption seems to be “while nuclear weapons may not be a perfect means to security, we are stuck with them and we better not seek to change the roles they play too seriously until we are certain that better means can be created or that the nature of international politics can be changed.” Like many others, I disagree that this is the proper armchair from which to explore alternatives to an international system that relies on nuclear weapons as the ultimate guarantee of security.

The title of chapter 1, “Establishing the Political Conditions to Enhance the Feasibility of Abolishing Nuclear Weapons,” clearly implies, for example, that some fundamental aspect of our political landscape or of reality itself must be changed before real strides toward the elimination
of nuclear weapons are feasible. This is a theme that is carried throughout the essay. The premise is that no reasonable mind would proceed toward nuclear disarmament unless the nature of the “political reality” were first changed.

This is where the essay’s commitment to predict what future conditions might be necessary to eliminate nuclear weapons becomes obstructionist. The most important point is that there are strong practical reasons for taking steps now to reduce the risks created by the existence of nuclear arms. These steps are in the national security interests of many states and of the United States and Europe in particular. They may be consistent with the goal of eliminating nuclear weapons and, indeed, significantly increase the likelihood of achieving that goal, but they are not dependent upon achieving it. To pursue these objectives, addressed in detail below, there is no need to change the nature of politics or military relations. To the contrary, the pursuit of international security and well-being would be advanced by immediately taking some specific steps short of nuclear abolition.

The Increasing Risks of Nuclear Deterrence

The famous January 2007 article by William J. Perry, George P. Shultz, Henry A. Kissinger, and Sam Nunn, “A World Free of Nuclear Weapons,” strongly advocates that governments take concrete steps now toward the elimination of nuclear weapons. These former leading statesmen have been joined by Mikhail Gorbachev, former president of the USSR, and the Seven-Nations Initiative (Norway, Australia, Chile, Indonesia, Romania, South Africa, and the United Kingdom) to pursue the eventual elimination of nuclear weapons. As pointed out by the authors of Abolishing Nuclear Weapons, others recently supporting this objective include British prime minister Gordon Brown, Indian prime minister Manmohan Singh, and four former UK defense and foreign ministers.

In their essay, Perry, Shultz, Kissinger, and Nunn assert that nuclear deterrence is “increasingly hazardous and decreasingly effective.” In essence, they reject the prevailing belief within national security establishments that nuclear weapons still provide powerful security benefits in the evolving international security environment. Theirs is an unprecedented challenge to the existing nuclear order, and their arguments deserve serious analysis. In many ways, they are consistent with traditional critiques of the risks of nuclear deterrence. But they also go deeper to demonstrate why nuclear deterrence is more unstable in the current environment than in the Cold War and why continued nuclear proliferation is likely to exacerbate rather than attenuate these instabilities, increasing the risks yet further.
Nuclear deterrence is increasingly hazardous because a large surplus of nuclear weapons and materials left over from the Cold War is, in some cases, not adequately secured. In addition, an entirely new threat in connection with these weapons and materials has emerged in the form of extremist groups that are willing to carry out catastrophic terrorist attacks. Several states that are acquiring nuclear weapons or increasing existing arsenals are located in conflict-prone regions and have limited financial and technical resources to devote to nuclear security.

Nuclear deterrence is decreasingly effective because the conditions that enabled mutual deterrence during the Cold War have changed. In today’s world, nuclear-armed states share disputed borders, have limited experience with nuclear weapon safety and security, and have vulnerable early warning and nuclear weapon control capabilities. Moreover, nuclear deterrence cannot effectively reduce the chance of nuclear terrorism. The more states acquire nuclear weapons for “deterrence,” the more they will also risk providing weapons and materials to terrorists who wish to carry out a nuclear attack. These realities refute the view held most notably by Kenneth Waltz that nuclear weapons provide concrete benefits for states and will have a stabilizing influence on the international system.¹

The authors of Abolishing Nuclear Weapons do not give enough emphasis to the transformed nature of the security environment and the implications of that transformation for traditional nuclear strategies. Strategic thought on nuclear arms evolved within a global security environment that no longer exists. That security environment was defined by a single primary state adversary, whose threat of nuclear attack against the United States and its allies could be successfully deterred by a reciprocal threat of nuclear retaliation.

Today, a terrorist nuclear attack is thought to be much more likely than an exchange of nuclear weapons with another state. The interest and efforts of terrorist networks to acquire nuclear weapons are well known, and their willingness to conduct a nuclear attack, if they possess the capability, is not in doubt. The al-Qaeda terrorist network has not been deterred from committing attacks against the United States, Great Britain, several other North Atlantic Treaty Organization (NATO) countries, Pakistan, and Israel. All of these states possess nuclear arms or are in alliance with nuclear powers.

In early 2008, the U.S. Defense Intelligence Agency director, Lt. Gen. Michael Maples, said in congressional testimony with National Intelligence Director Mike McConnell that al-Qaeda had regenerated at least some of
its robust research and development effort and was once again trying to
develop or obtain chemical, biological, radiological, and even nuclear
weapons to use against the United States and other enemies. This assess-
ment was shared by Russian officials. That means that while nuclear
weapons continue to offer some security benefits to their possessors, their
existence in the age of global terrorism also creates a very real security
liability for all states.

Threats from a growing terrorist movement are undeterrable by exist-
ing means. The key uncertainty in the new security environment is not
whether the United States and its allies will be attacked by terrorists but
whether the terrorists will acquire the means to move from conventional
to nuclear explosives, thus making their inevitable attacks of strategic
consequence. Here, the significant trends run in a negative direction. More
nuclear weapons materials are being produced; more knowledge relevant
to the construction of a nuclear weapon is being dispersed; and terrorist
organizations are gaining the capability to mount increasingly sophisti-
cated attacks involving larger numbers of militants.

The threat of nuclear terrorism is likely to be an enduring condition
of the global security environment for at least thirty to forty years. This
is because there is no prospect of ending the allure of political extrem-
ism and terrorist violence as a means for sub-state actors and movements
to fulfill their objectives. Unfortunately, the trend in terrorist violence is
toward larger, more spectacular attacks with devastating consequences, an
outcome that would be possible with even rudimentary nuclear weapons.
There is also no prospect of making the global inventory of nuclear
weapons and weaponusable nuclear materials completely secure from
terrorists who are intent on acquiring them, especially considering that the
inventory is so large and dispersed—and still expanding. Finally, should
terrorists acquire the means to carry out a nuclear attack, the chances are
low that feasible defensive capabilities can be developed.

Denial Versus Deterrence
The implications of the new security environment should change the
criteria states use to evaluate the risks and benefits for all their nuclear
weapon policies. The primary criteria should now be: “How does this
aspect of nuclear posture or force structure affect the possibility that terror-
ists could acquire a nuclear weapon or the fissile materials to build one?”
The effect of a policy or force structure decision on nuclear deterrence still
needs to be considered because other states possess nuclear weapons, and
it is critical that the disincentives to use them remain as strong as possible. But because terrorists are not influenced by the logic of deterrence, this question is not as vital as it was during the Cold War.

To prevent nuclear attack by terrorists and sub-state actors requires denying them the ability to acquire nuclear weapons and materials. The priorities and requirements of a denial strategy are vastly different from those of a nuclear deterrent strategy.

A denial strategy places priority on achieving absolute minimal stockpiles throughout the world and preventing their spread to other states. Inherent in a denial strategy is the need for the most effective security possible for these weapons and materials. However, as mentioned above, absolute security can never be achieved. In fact, there are no international legal standards for protecting nuclear weapons and materials. Methods for securing nuclear weapons and materials are left to the discretion of each state, with the result that security varies enormously, from excellent to appalling. Not only are there no binding standards, there is no central information repository: Neither the International Atomic Energy Agency (IAEA) nor any other organization is empowered to monitor security for nuclear materials or to compile comprehensive, up-to-date information on physical security procedures worldwide. Nor are there any enforceable penalties for a nation whose nuclear assets are poorly secured.

This problem is particularly acute if the countries that are newly acquiring nuclear weapons have technical and financial constraints, internal political instabilities, large cadres of extremists within their borders, or a history of interactions with extremists or black marketers. Unfortunately, one or more of these characteristics is shared by most nations that are seeking nuclear weapons now, such as North Korea and Iran, and by those that might seek such weapons in coming years, among them Saudi Arabia, Syria, Egypt, South Korea, Taiwan, and Indonesia. If nuclear weapons and weapon-usable nuclear materials are permitted to spread to countries that are unable to secure them, and if no international authority has the right to enforce the highest security standards, the chances that some of these materials will fall into the hands of terrorists would increase dramatically.

Transforming Nuclear Strategy

The authors could have made a stronger argument for how vastly reduced nuclear arsenals and other steps on the path to zero can strengthen a denial strategy and reduce the risks of nuclear terrorism. Indeed, the elimination of all nuclear weapons and nuclear materials that are directly usable in making weapons could ultimately guarantee the success of a denial
strategy, because terrorists would then not have the opportunity to steal these materials.

However, some states, not unreasonably, see their nuclear arsenals as deterring a significant risk of aggression by potential adversaries, and concerns regarding nuclear terrorism are not sufficient incentive to give up their arsenals. In addition, as long as some states possess nuclear arms, others will want them to deter a nuclear attack, even if the chances of an attack are extremely low. The authors could have pointed out that this core deterrence function could be performed by nuclear forces and supporting infrastructure that are sized and postured in a manner that minimizes their vulnerability to terrorists. Such criteria would require fundamental changes to the configuration of current nuclear arsenals.

By focusing instead on the abstract goal of zero, the essay loses sight of the more attainable and beneficial goal of reaching an alternative global nuclear security structure that is both more stable and less prone to nuclear terrorism. This could be a structure in which nuclear weapons still exist but play a greatly diminished role in national security strategies and are operationally deployed, if at all, in a configuration that reduces the chances that they could be stolen by terrorists or used by accident or miscalculation. Numerous specific proposals for actions are consistent with this vision. In fact, there is a fairly strong international consensus, first expressed at the 1995 NPT Review Conference, on the core list of actions needed to change the nature of nuclear weapons in the world, to reduce the chances of their further spread to other states, and to improve the likelihood that they can ultimately be abandoned as instruments of national strategy. Recommended steps often include:

- Declare that the sole purpose of U.S. nuclear weapons is to deter and, if necessary, respond to the use of nuclear weapons by another country
- Commit to not resuming nuclear testing and to ratifying the Comprehensive Test Ban Treaty
- Negotiate a verifiable global fissile material production ban
- Negotiate further reductions in U.S. and Russian arsenals to fewer than 1,000 warheads each, including deployed, spare, and reserve warheads
• Declare all warheads above this number to be in excess of military needs, move them into secure storage, and begin dismantling them in a transparent manner

• Provide the highest possible standards of security for all stocks of weapons and weapons materials

• Place excess military fissile materials under IAEA or other international verification; convert the fissile material from dismantled nuclear weapons into materials available for the manufacture of low-enriched uranium and mixed-oxide nuclear reactor fuel; and offer these materials to discourage the proliferation of uranium enrichment and plutonium reprocessing capabilities

• Build a global regulatory authority that has a mandate for monitoring security standards for nuclear weapons and fissile materials and for providing assistance to improve those standards

• Develop verification capabilities necessary to ensure compliance with nuclear disarmament agreements

• Withdraw U.S. nuclear weapons from Europe and negotiate a treaty among all nuclear powers that nuclear weapons will not be based outside their national territories

Transformation in nuclear strategy and deep reductions in nuclear arms (possibly leading to zero) becomes feasible when powerful nations define it to be in their self-interest and then apply the full range of their military, economic, and political power to achieve it. Of the actions recommended above, the United States since 2000 has either objected to several core elements or has expended no effort to achieve them. Other nations, too, have paid only lip service to some of these goals, not pursuing them as high-level policy objectives. In the post-9/11 environment, there are strong, practical, security arguments for doing so now. If tangible diplomatic energy were applied toward these objectives, the shape of the debate and the perception of what is possible in terms of creating an alternative nuclear security structure would change immediately.

It is not necessary for all states to simultaneously embrace the abolition of nuclear weapons to realize the benefits of some of the objectives listed above and advocated by many observers, including those mentioned in
these comments and by the authors of *Abolishing Nuclear Weapons*. How much further down the path to an alternate nuclear security structure could we be if the United States and other states had aggressively sought, rather than opposed, ratification of the CTBT, negotiation of a Fissile Material Cut-Off Treaty (FMCT), additional reductions in nuclear arsenals, the strengthening of negative security assurances, and a changed posture of operationally deployed nuclear forces?

The power of leadership and diplomatic coercion that could be brought to bear by a coalition of powerful states should not be underestimated. One might look at the recent U.S. initiative to exempt India from non-proliferation export controls as an example of how decades of consistent policy by many states can be transformed in a very short time. Once the United States defined the nuclear trade exemption for India to be in its interest, it not only changed more than thirty years of American policy and law, but it also successfully lobbied dozens of other countries to accept a new approach to India.

A similar dynamic might make the transformation of nuclear forces and postures more attainable than many might think. Many states might be willing to begin implementing steps toward an agreement to prohibit nuclear weapons without absolute confidence that it would be enforced. After all, the vast majority of nations do not possess or seek nuclear weapons. They are likely to support a serious experiment at nuclear disarmament even if it is ultimately unsuccessful. The only way to know is to try.

**Specific Comments**

Without detracting from the overall contribution that *Abolishing Nuclear Weapons* makes to the international dialogue, I do want to respond to some of its specific arguments. Several relate to the conditions the authors place on real steps toward zero, such as the claim that “in order to persuade others to put down their nuclear arms… the US would have to display a willingness to eschew unilateral or small-coalition military intervention.” It would also need “to prevent or end egregious violations of international laws and norms.” To the contrary, many states might not give up their nuclear weapons or nuclear option unless they had confidence that the United States or other powerful states, alone or in a coalition, would continue to act against such violations.

The authors also state, “The eight nuclear-armed states will not be able to collectively envisage a prohibition of nuclear weapons until conflicts centering on Taiwan, Kashmir, Palestine, and (perhaps) the Russian periphery are resolved, or at least durably stabilized.” I disagree. There
is nothing, including these disputes, preventing states from “envisaging” nuclear disarmament. The question is whether they are willing to take steps consistent with nuclear disarmament even while these disputes remain unresolved. The answer here is clearly yes. China has so declared many times, and because the UK and France are not involved in the listed disputes, these conflicts are unlikely to be a key factor in determining their arsenal size or force posture. Even the United States could arguably maintain its security commitment to Taiwan with conventional deterrence or merely the ability to respond in kind if attacked with Chinese nuclear weapons. This could be done with an arsenal a fraction of the size possessed by the United States today.

Finally, the suggestion that key international elements would insist on “perfect” verification before adopting a prohibition on nuclear weapons amounts to a foregone conclusion that prohibition is unattainable. The history of arms control and international diplomacy clearly demonstrates that “perfect” verification cannot exist. Nevertheless, many treaties and agreements have been reached and successfully maintained without it. This is partly because technical verification is only one of the means by which states develop confidence in treaty compliance. A nuclear weapon ban would require the highest standards of verification achievable, relying on multiple means, but verification measures can never be “perfect.”

On a related topic, the authors correctly highlight the potential for societal verification of a nuclear weapon ban and identify it as an area for further research. This kind of informal, unofficial verification should be viewed as a necessary but insufficient layer in a multilayered verification system to provide confidence in states’ compliance with a nuclear arms ban. Other layers would include the specific transparency, monitoring, and inspection procedures agreed to as the core means of verifying a nuclear disarmament treaty. An additional layer would be the national technical means and all-source intelligence analysis that each state party to the treaty would employ for its own confidence and potential use to raise or resolve compliance issues. Verification approaches might also include multilateral assessment of a nation’s bona fides and behavior with regard to treaty obligations.

Integrated throughout each of these layers of verification should be a defined set of indications and warning (analogous to the Cold War concept of monitoring an adversary’s actions to get the earliest possible warning of plans or preparations for attack) that could be constantly checked for
evidence of noncompliance or breakout. In the area of established verification procedures, indication or warning of noncompliance might be found as the result of discovering an unauthorized activity during an on-site inspection or data exchange. Verification efforts at the level of national all-source intelligence capabilities might detect some physical action or series of internal communications that indicate a country was violating or planning to violate its treaty obligations. At the level of societal verification, a domestic nongovernmental organization might report evidence that government officials were telling nuclear facility managers they would not be penalized for failing to cooperate with nuclear arms inspectors.

**Conclusions**

The current historical juncture still provides a window of opportunity to conduct a great strategic experiment. The strategy should not necessarily be the abstract goal of abolishing nuclear weapons; it should be improved global nuclear security. Waypoints between the current role of nuclear weapons and their elimination are likely to yield improved security, to be more achievable, and to be even more stable than some notions of zero. The United States and its allies can greatly reduce their nuclear arsenals and the role nuclear weapons play in their national security strategies without compromising their security. These steps could further de-emphasize the utility of nuclear weapons; strengthen the taboo against their use; prevent nuclear terrorism; and reiterate a commitment to the ultimate goal of nuclear disarmament consistent with treaty obligations. That, in turn, would help determine how much, if any, extra diplomatic and strategic leverage would be generated for inducing and compelling other states to take similar measures or to abandon efforts to acquire nuclear weapons. It would also provide a sense of whether such steps could begin to positively transform the nature of international strategic discourse. Given the other transnational global security challenges inevitably facing the international community in the twenty-first century, it is an opportunity that cannot afford to be missed.
Note