



CENTER FOR INTERNATIONAL SECURITY AND COOPERATION

P-5 Nuclear Doctrines and Article VI

October 16-17, 2007

**Center for International Security and Cooperation
(CISAC)
Stanford University**



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Foreword.....	5
Project Report: Can the NPT Consensus be Renewed?	7
Introductory Comments.....	41
History	
NPT Article VI Origin and Interpretation.....	45
Ambassador Thomas Graham, Jr.	
The Origins of the NPT Article VI.....	63
George Bunn	
National Statements	
America’s Nuclear Posture.....	69
Ambassador Linton F. Brooks	
Comments on Linton Brooks’ “America’s Nuclear Posture”.....	89
George Perkovich	
Russian Nuclear Posture: Capabilities, Missions, and Mysteries Inside Enigmas.....	95
Alexei G. Arbatov	
French Nuclear Policy Under Sarkozy: More of the Same?	123
Bruno Tertrais	
British Nuclear-Weapon Policy, Doctrine, and Outlook.....	137
Appendix: Abolishing Nuclear Armories: Policy Or Pipe Dream?.....	145
Michael Quinlan	

A South African Perspective on the Nuclear Postures of the Five NPT Nuclear Weapons States.....151
Jean du Preez

China’s Nuclear Posture and Article VI.....173
Gu Guoliang

Putting a Stop to Nuclear Madness.....187
Roddam Narasimha

Nuclear Disarmament

Steps Toward Nuclear Disarmament.....199
Hans Blix

The Instability of Small Numbers Revisited: Prospects for Disarmament and Nonproliferation.....217
Charles L. Glaser

Comments on “Steps Toward Nuclear Disarmament” by Hans Blix and “The Instability of Small Numbers Revisited: Prospects for Disarmament and Nonproliferation” by Charles L. Glaser.....231
Roger Speed

Nuclear Disarmament Verification: Issues and Possibilities.....237
Paul C. White

Thoughts on Verification of Nuclear Disarmament.....249
William H. Dunlop

Appendices:

Appendix 1: P-5 Conference Agenda.....253

Appendix 2: P-5 Conference Participant List.....255

Appendix 3: The Treaty on the Non-Proliferation of Nuclear Weapons (NPT).....259

April 8, 2008
Michael May

Foreword

This report and the contributed papers are the result of a project sponsored by the Norwegian Ministry of Foreign Affairs with funding from the Flora Family Foundation and of an associated workshop held October 16–17, 2007, at Stanford University. The Center for International Security and Cooperation in Stanford’s Freeman Spogli Institute for International Studies, which carried out the project and hosted the workshop, expresses its gratitude to both.

Workshop participants included experienced former statesmen and academics and others with extensive experience in nuclear weaponry and arms control at both the policy and technical levels. The contributed papers from the participants follow the Project Report. The workshop agenda is in Appendix 1. A list of participants can be found in Appendix 2. We are grateful for their attendance and contributions.

Discussion during the two-day workshop was extremely rich and represented a number of informed and different points of view. In a number of places in our report, we refer to viewpoints presented by one or more participants, noting their names in parentheses. Unfortunately, we cannot hope to summarize all the important and relevant points made, and we apologize to those participants who may feel that a relevant contribution has been slighted. We refer the reader to the papers for a fuller picture of the various contributions. The three authors are solely responsible for the conclusions of the Project Report and any omissions.

Can the NPT Consensus be Renewed?

By Michael May, Martine Cicconi and Kristina Yang*

I. Introduction

The nuclear Non-Proliferation Treaty (NPT) embodies the view that the fewer the states that have nuclear weapons, the lower the numbers of nuclear weapons, and the less the reliance on nuclear weapons for security, the better the chance of avoiding nuclear war. It limits the number of state parties having nuclear weapons (NWS) to the five having them at the time the NPT entered into force in 1970. It also calls for “negotiations in good faith” to eliminate nuclear weapons entirely and indeed toward “a treaty on general and complete disarmament under strict and effective international control.”¹ The treaty prohibits the NWS from transferring nuclear weapons or assisting non-nuclear weapons states (NNWS) in acquiring nuclear weapons and prohibits the NNWS from acquiring nuclear weapons or receiving such assistance. It also provides for the acceptance of safeguards to verify fulfillment of treaty obligations; it preserves the right of all parties to civilian nuclear applications; and it obligates parties to “facilitate ... the fullest possible exchange of equipment, materials, and scientific and technological information for the peaceful uses of nuclear energy.”

The NPT has not been observed to the letter but, in its essential provisions, it has been largely successful. Of the 185 parties, several ended nuclear weapon programs then under development. Four states (South Africa, Ukraine, Kazakhstan, Uzbekistan) that had nuclear weapons abandoned them and joined the treaty as NNWS. Only one NNWS (North Korea) has exercised its right to withdraw from the treaty. Approximately a half-dozen NNWS parties did start nuclear weapon programs but then were convinced to

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¹ The proposals for general disarmament have not been seriously discussed since the 1960s. In 1961, the United States submitted a plan for general and complete disarmament following calls for a new Geneva Disarmament Conference by the United Nations General Assembly. See U.S. Department of State, Publication 7277: *Freedom from War: The U.S. Plan for General and Complete Disarmament in a Peaceful World* (Washington, 1961). The U.S. plan has never been withdrawn but has been largely ignored for more than four decades.

abandon them. Four non-party states have nuclear weapons (India, Israel, North Korea, and Pakistan). The great majority of the NPT parties are in good standing with their obligations and responsibilities, and the NPT supports a number of beneficial bargains among its parties.

At the same time, since the NPT entered into force, old challenges remain unresolved and new challenges have arisen. The world has changed since 1970. Outside the major powers as they existed then, technical capabilities have greatly increased, insecurities have not been resolved, and some threatened states inside and outside the NPT have resorted to nuclear weapon programs to alleviate those insecurities. The United Nations Security Council (UNSC), which was designed to provide a common response to threatened states, has failed to do so in key instances, for example, Iran when it was attacked in 1980 by Iraq. Furthermore, domestic politics in several states have supported acquiring or retaining nuclear weapons.

The consensus underlying the NPT, while still alive and considered important, has been challenged in recent years by events such as the diffusion of nuclear and supporting capabilities. It also has been set back by the policies of both some of the NWS and some of the NNWS parties to the treaty and by the actions of states that are not parties to the treaty. The treaty itself places different obligations on different parties and the debate over just what those obligations entail and who has failed to meet them has been and remains contentious. A few points however are generally, albeit not universally, agreed.

1. While all the NPT member NWS have cut their nuclear arsenals or, in the case of China, kept them at a very low level, they also consider that, so long as nuclear weapons or superior threatening conventional forces remain in the world, their own nuclear forces constitute an essential element of their security. None has devised a clear road map to nuclear disarmament called for by the treaty in Article VI.
2. Four of the NWS—the United States, Russia, France, and the United Kingdom—have further broadened the application of nuclear deterrence to include state sponsors of weapons of mass destruction (WMD) terrorism, whether nuclear, chemical, or biological.
3. Several NNWS—including Iran, Libya, and North Korea—accepted aid to nuclear weapon programs in violation of Article II. This assistance came from the A.Q. Khan network, headed by the senior nuclear scientist of a non-NPT nuclear power.
4. Several NNWS hid these and other, possibly civilian but nevertheless nuclear, activities in violation of Article III. Iraq's covert nuclear weapons program, which was destroyed during and immediately after the first Gulf War (1990-91), violated both Articles II and III.
5. The withdrawal of North Korea (DPRK) from the treaty after it had received nuclear assistance from NPT parties calls into question the adequacy of Article X.
6. The prospective U.S.-India agreement on civilian nuclear applications, which currently has a doubtful future, could be thought to violate Article I and would

7. The possible expansion of nuclear power and associated sensitive installations such as enrichment and reprocessing plants calls into question the effectiveness of present safeguards and the pace at which improved safeguards are being introduced.
8. The four nuclear-armed states outside the NPT raise questions about whether the NPT is adequate to deal with the perceived security dangers in the world.

Nevertheless, it is important not to lose sight that, in most regions of the world, the NPT has done what it was supposed to do: help prevent the emergence of new nuclear weapons states, reduce nuclear arms races, and help develop civilian applications of nuclear energy. No one in a position of responsibility is arguing that the NPT is not needed and many argue that it is central to our collective security. Yet, the consensus behind the treaty remains under assault, including, in the view of many, from the United States, the country that had been most effective in bringing it into being and making it permanent. The present report attempts to make a contribution to resolving this quandary.

Report on P-5 Nuclear Doctrines and Article VI

This report is the result of a project and workshop held October 16-17, 2007, which was sponsored by the Norwegian Ministry of Foreign Affairs with funding from the Flora Family Foundation. The Center for International Security and Cooperation in the Freeman Spogli Institute for International Studies at Stanford University, which carried out the project and hosted the workshop, expresses its gratitude to both.

Workshop participants included experienced former statesmen and academics and others with extensive experience in nuclear weaponry and arms control at both the policy and technical levels. The workshop agenda can be found in Appendix 1. A list of participants can be found in Appendix 2. We are grateful for their attendance and contributions. The contributed papers from the participants follow the appendices.

Discussion during the two-day workshop was extremely rich and represented a number of informed and different points of view. In a number of places in this analysis and summary, we refer to viewpoints presented by one or more participants, noting their names in parentheses. Unfortunately, we cannot hope to summarize all the important and relevant points made, and we apologize to those participants who may feel that a relevant contribution has been slighted. We refer the reader to the papers for a fuller picture of the various contributions. The three authors are solely responsible for the conclusions and any omissions.

This report has four objectives:

1. To analyze the question posed by the sponsors of this project: How can the NWS, which are also the permanent five members of the UNSC, help rebuild the NPT consensus?
2. To summarize and highlight the principal points made by the participants most directly relevant to that question.
3. To identify policies, particularly but not exclusively P-5 policies, that will lead to a renewed effective NPT consensus.
4. To point the way to future research.

We start with an analysis of the several NPT bargains in Chapter II. In that chapter, we discuss the state of the major bargains that are either explicitly or implicitly a part of the NPT. In Chapter III, we analyze the major challenges to the NPT consensus. In Chapter IV, we examine the pathways to fulfilling NWS obligations under Article VI, since progress or lack of it along these pathways constitutes a major point of contention between NWS and NNWS parties to the treaty. In Chapter V, we outline possible policies that could help rebuild the NPT consensus. In Chapter VI, we offer suggestions for further research on the issues raised by this analysis.

This paper makes many references to the several NPT articles. Rather than paraphrase the articles on each occasion, the full text of the NPT is given in Appendix 3.

II. The Many NPT Bargains

The NPT embodies a central asymmetric bargain between the NWS and the NNWS: The NNWS will abstain from acquiring nuclear weapons while the NWS will assist them with the civilian use of nuclear energy and themselves negotiate in good faith toward nuclear disarmament. The treaty also has come to include several other bargains under its umbrella, with different costs and benefits to different state parties, for instance the bargain among NNWS not to start nuclear arms races among themselves (Quinlan). In this chapter we examine some of those bargains and discuss how they have been challenged by recent events.

NPT-Supported Bargains

Some bargains have grown in importance. Articles I and II have contributed to security in some, though not all, regions of the world. A European Union in which two members are NWS and the others are not has come to be accepted as stable, despite early predictions that it would not be.² Departure from the status quo there would be not only a challenge to the NPT but also a challenge to the peaceful European order as a whole. In Latin America, after some years of evolution, the states have, in effect, a nuclear-weapon-free zone (NWFZ) under the aegis of the NPT and they rely on its acceptance while planning for growth in civilian applications. On the other hand, there is no such acceptance of the nuclear status quo in East Asia, where the DPRK withdrawal broke a bargain not only with the NWS but also with their NNWS neighbors Japan and South Korea. This status quo also does not exist in South Asia, where the NPT does not apply; nor in the Middle East, where, aside from Israel, all states are members of the NPT, yet there is no accepted security structure and several states, including Saudi Arabia, Egypt, and some of the Gulf states, are reconsidering their nuclear policies in the light of developments in Iran and their overall security situations. While no overt or (so far as is publicly known) covert move toward a nuclear weapon program has been made in those states, potentially dual-use civilian nuclear programs are under consideration.

Articles III and IV have underwritten an international supply chain for enrichment and reprocessing services that involves both NWS and NNWS, along with the acceptance and implementation of safeguards measures that have grown in effectiveness, if only slowly.³

² John Mearsheimer, "Back to the Future: Instability in Europe After the Cold War," *International Security*, 15.1 (1990): 5-56.

³ The IAEA developed and began to institute the Additional Protocol after revelations of illicit nuclear activities in Iraq and North Korea surfaced in the early 1990s. The effort enhances the safeguards regime designed to ensure states' compliance with their NPT obligations. The Additional Protocol requires states to increase the information provided to the IAEA, expands the number of facilities open to inspectors, augments the Agency's capacity for short-notice inspections, and gives the IAEA the right to use environmental sampling to detect nuclear material. As of January 22, 2008, 86 NPT states have implemented the requirements of the Additional Protocol, and another 30 have declared their intent to do so. "The 1997 IAEA Additional Protocol At a Glance," *Arms Control Association*, February 15, 2008, <http://www.armscontrol.org/factsheets/IAEAProtocol.asp>.

Expansion of nuclear power would place added burdens on safeguards and, by the same token, on a robust NPT consensus (Graham, Blix, Hecker). Absent such consensus and the reciprocal political and economic obligations that it entails, proposals for limiting, internationalizing, or imposing more intrusive safeguards on sensitive facilities such as enrichment plants may not be realizable. NNWS from Brazil to Iran to Japan have signaled their doubts on this score. The political linkage among the various NPT bargains will become more important should nuclear power expand and with it the number of sensitive dual-use facilities. We return to this point in the latter chapters of this paper.

The Article II-Article VI Bargain

The bargain that requires NNWS to give up nuclear weapons, while the NWS promise to move toward nuclear disarmament, is both central and asymmetric. That asymmetry is a political and strategic consequence of the time the treaty was negotiated (Graham). For the bargain to remain viable, both its strategic and political aspects must be tended to and updated as needed.

Tending to the strategic aspect necessitates that NNWS parties to the NPT, so long as they abide by the treaty and do not threaten other states, must not feel threatened by the nuclear weapons of the NWS, nor indeed by conventional forces, since nuclear weapons can be an effective counter to superior conventional threats (May, Tertrais). Achieving this has proved difficult. During the Cold War, because of the alliances backed by nuclear weapons on both sides, these “negative security assurances” were hedged.⁴ Since then, four of the five NWS have remained unwilling to take nuclear weapons completely and clearly “off the table” in the case of NNWS parties complying with the NPT. Perhaps paradoxically, the end of the Cold War, by seeming to lessen the possibility of threat escalation that would have attended any use of nuclear weapons, has led several governments to conclude that nuclear weapons have become more usable.⁵ Several workshop participants, including the authors of this report, stated the view that unambiguous non-use no-threat security assurances from the NWS to the NNWS in compliance with the NPT and U.N. obligations regarding WMD terrorism⁶ would be a significant step toward rebuilding the NPT consensus. Implementing such assurances poses difficulties, however. This issue is taken up again in Chapter IV.

⁴ All NWS, aside from China, reserved the right in their assurances to use nuclear weapons to respond to attacks by non-nuclear weapon states undertaken in alliance or in association with an NPT nuclear weapon state. This policy was restated in a November 1997 Presidential Decision Directive: “The United States reaffirms that it will not use nuclear weapons against non-nuclear-weapon States Parties to the [NPT] except in the case of an invasion or any other attack on the United States, its territories, its armed forces or other troops, its allies, or on a State toward which it has a security commitment, carried out or sustained by such a non nuclear-weapon State in association or alliances with a nuclear-weapon State.” See for further discussion James A. Russell and James J. Wirtz, “Negative Security Assurances and the Nuclear Posture Review,” *Strategic Insights*, 1. 5 (2002).

⁵ Four of the five NWS (all but China) have declared that they might use nuclear weapons against states that assist WMD terrorism, whether nuclear or not. Perhaps the broadest extension of nuclear doctrine was made by Russia. See Nikolai Sokov, “The Russian Ministry of Defense’s White Paper: The Nuclear Angle,” *Nuclear Threat Initiative*, 2003, <http://www.nti.org/db/nisprofs/russia/weapons/whitepap.htm>.

⁶ The main such resolutions are UNSC 1373 and 1540.

Uncertainty about the future and the anarchic character of international relations plays a role in all the NWS decisions to continue to possess and indeed to modernize their nuclear forces, albeit at much reduced levels. These decisions constitute a major challenge to the Article I-Article VI bargain and are examined in detail in the next chapter, which is devoted to challenges to the NPT consensus. Nevertheless, some impressive reductions and self-imposed limitations in numbers have taken place in all five NWS, as detailed in Chapter IV on the paths to disarmament. That chapter also takes up the dilemma that the first few or perhaps the first one or 200 nuclear weapons make the essential strategic difference between NWS and NNWS, so that major reductions from very high levels, while desirable, may not make much strategic difference.

Tending to the political aspect of the NWS-NNWS bargain continues to prove as difficult as tending to the strategic aspect: The political aura of nuclear weapons seems to outweigh their military utility. Tending to the political aspect would require NWS progress on Article VI (Graham, Bunn) as well as de-emphasis of the utility of nuclear weapons not only in declaratory policy but also in such coded references as “all options are on the table” (Perkovich). It would also require that the NWS, led by the United States, make it clear in words as well as deeds that they are committed to reducing the numbers and salience of nuclear weapons and that their nuclear weapons are deterrent weapons of last resort, which will not be used to impose their views on the NNWS. All NWS, and the United States and Russia in particular, are some distance from meeting those requirements, as the discussion in the next chapter, Chapter III, makes clear.

Interestingly, Article VI considerations seem to play a larger role in the decisions of the two NWS with the smallest nuclear forces, the United Kingdom and China, and little or none in the decisions of the two NWS with by far the largest forces. Ambassador Blix noted in this connection that “treaties do lock countries in, and that’s their beauty—the strong prefer freedom of action, but this is shortsighted and they need to realize that sacrifices are needed to lock in others and create stability”—as well as predictability and enforceability (Quinlan).

Participants from the NNWS noted the lack of progress on the Comprehensive Test Ban Treaty (CTBT), Fissile Material Cut-Off Treaty (FMCT), and on No-First-Use (NFU) and, beyond those, the lack of an agreed overall plan among the NWS to proceed toward nuclear disarmament.

The CTBT was emphasized as the most essential step for Article VI progress, diagnostic of intention to proceed on further progress. The U.S. turn away from the CTBT starting with the U.S. Senate rejecting ratification in 1999 and continuing with the Bush administration aversion to arms control treaties that limit its military capabilities is seen as leading to a loss of international priority for arms control in general (Arbatov, others). The indirect consequences of loss of U.S. leadership in this area—consequences such as loss of informed personnel, devaluation of all but the most immediate nuclear issues, and loss of consensus on other cooperative security matters, such as countering terrorism and safeguarding an expanding nuclear industry—are seen as even more important than any direct loss of security attendant on abandonment of those treaties (Arbatov). Brooks

predicted that this state of affairs would be temporary and the CTBT might be resurrected and ratified by the next U.S. administration, but much would depend on how some key bilateral relations such as those between the United States and Russia and the United States and China would evolve.

While the CTBT was considered a necessary, if not sufficient, step toward the fulfillment of Article VI, the desirability of other steps such as NFU was more contentious. These steps are discussed in Chapter IV.

Conclusion

The NPT bargains, on one hand, have assisted in the peaceful management of nuclear weapons issues in regions of the world where other factors made for peace. The bargains also underlie a generally successful international civilian nuclear industry, but more comprehensive safeguards will be required as it and the general base of technical knowledge and competence expand. On the other hand, the NPT bargains have not helped much, if at all, in regions where underlying strategic, developmental, and political factors undermined security and made for wars, such as the Middle East and South Asia. Strengthening and updating the NPT bargains is required to keep them viable and that will require a robust NPT consensus, which in turn must be based on an agreed understanding among the parties about what elements of consensus are desirable and feasible. Such an agreed understanding is at present only partial even among the five NWS.

Perhaps the most useful conclusion from the workshop discussion of NPT bargains was that they were politically interdependent. It may well be that, in theory, Europe and Latin America will remain peaceful and non-nuclear and that international peaceful nuclear application trade can thrive regardless of NWS progress on Article VI. But, from a political point of view in many state parties, these beneficial situations have ties to NWS behavior and further needed progress on them can be facilitated by perceptions of NWS adherence to their obligations under the bargain.

III. Challenges to the NPT

Despite the value of the bargains just described and the optimism generated by reductions in weapons and delivery systems, serious challenges exist to renewing a consensus on the NPT regime. Some of these arise from strategic perceptions, some from the domestic political perspectives in various countries, some are rooted in the current state of some interstate relations, and some stem from the nature of the broader international situation. We explore each of these challenges in this chapter.

Strategic Perceptions

For the leadership in all NWS, nuclear forces continue to constitute an essential part of security against an uncertain future. This was clearly stated for the United States and Russia by Brooks and Arbatov respectively. This view is echoed in France in statements by both former and current French presidents Jacques Chirac and Nicolas Sarkozy.⁷ Uncertainty about the plans of the United States and Russia, as well as about nuclear proliferation elsewhere, increases the value of the nuclear hedge for the other NWS. As noted by Bruno Tertrais, the abandonment of the (Anti-Ballistic Missile) ABM Treaty and the rise of international terrorism are just some of the uncertainties that lead France to believe that an emergent threat to Europe is not a far-fetched proposition, and to resist disarmament as a result. The United Kingdom based its decision to maintain the Trident system and extend the lifetime of its nuclear force on the uncertainty and potential danger of the still anarchic character of the international environment (Quinlan). China supports the conclusion of an international legal instrument on the early realization of the Article VI goal of complete prohibition and thorough destruction of nuclear weapons, but it admits that if the reliability and credibility of its nuclear deterrent force is harmed or neutralized (e.g., by an effective ABM or first-strike force), it will have to take countermeasures to preserve the credibility of its nuclear deterrent force. (Gu Guoliang).

Pertinent to the NWS-NNWS relations, these uncertainties have led to the expansion of most of the NWS declaratory doctrines: With the exception of China, all of the NWS have extended their declaratory nuclear deterrent policies to apply to non-nuclear weapons states supporting WMD terrorism, whether nuclear, biological, or chemical. Thus, the earlier Cold War negative security assurances now have broader, not narrower, exceptions. However, the broadening of declaratory policies has not so far translated into force posture changes.

⁷ Chirac said, in January 2006, “The leaders of states who use terrorist means against us, as well as those who would consider using, in one way or another, weapons of mass destruction, must understand that they would lay themselves open to a firm and adapted response on our part. This response could be a conventional one. It could also be of a different kind,” Molly Moore, “Chirac: Nuclear Response to Terrorism is Possible,” *The Washington Post*, January 20, 2006. President Sarkozy has since re-affirmed France’s nuclear position. See paper by Bruno Tertrais in this report.

Political Perspectives

Few of the nuclear weapons states currently assign a high priority to nuclear issues, which means that a greater political effort will be needed to rebuild the NPT consensus. In the United States, top levels of the current administration have paid little attention to the need to resolve nuclear issues affecting an NPT consensus (Brooks). This attitude goes beyond the current administration: It is not politically advantageous for U.S. leaders to be seen as engaging in “passé efforts at Cold War-style arms control” (Ashton Carter). This creates a vicious circle, since Russian leaders require the assumption of an equal relationship that bilateral negotiations help create in order to make progress. Though nuclear weapons continue to be an important concern in Russia (Arbatov), an effective consensus on the nuclear issues relevant to the NPT will require a significant re-prioritizing of those issues politically. Unfortunately, political developments since the end of the Cold War make it likely that any re-prioritizing that takes place will be more divisive than consensual.

In France, the debate has remained unchanged for many years, and the new president appears unlikely to drastically alter traditional policies (Tertrais). While Britain recently engaged in debates on the value of maintaining its deterrent, the issue ultimately came down to a continuation of past practices (Quinlan). China is modernizing its nuclear forces, but its leaders remain committed to policies of no-first use and a small defensive deterrent—policies the country has followed since the 1960s (Gu).

In addition, in most nuclear-armed states within and outside the NPT, nuclear weapons are seen not only as guarantors of some sort against possible unknown dangers but also as indicative of great-power status. As a result, arms control treaties are not conceived or defended publicly as steps toward disarmament, and nonproliferation efforts have not impacted force structure decisions.

With the end of the Cold War, nuclear conflict among the NWS has grown increasingly unlikely. Nonetheless, as some participants stated (Blix, others), nuclear weapons policies remain driven by a Cold War-era mentality of mutual distrust, which encourages the maintenance and development of a strong nuclear arsenal. In that view, the existence of these arsenals itself represents one of the greatest sources of mutual mistrust and concern among nuclear states, and this mistrust in turn encourages the perpetuation of a fear-driven nuclear arms race.

Interstate Relations

United States and Russia. Perhaps the most crucial interstate relationship in this respect is that between the United States and Russia. Throughout the conference, numerous speakers including Gu, Tertrais, and Arbatov noted that progress on Article VI must begin with these two states. In Russia, “there is a rising concern about Russia’s future

capability to penetrate and overcome possible U.S. ballistic missile defense systems, much exacerbated by the tensions over the American plan to deploy (Ballistic Missile Defense (BMD) sites in Poland, the Czech Republic, and possibly Ukraine, Lithuania, and Georgia. All existing forces, systems, and future strategic arms programs are assessed foremost from the angle of their ability to counter various echelons of potential U.S. and NATO BMD” (Arbatov). A lasting, major point of contention is NATO expansion. Arbatov noted that the United States “grossly underestimates the impact of NATO expansion, especially to Ukraine, on Russia.” “An even deeper problem is that the United States and Russia have been scaling back efforts to develop and sustain a network of mutual cooperation and transparency. ... This creates an environment in which the probability of misunderstanding and misinterpretation is too large to ignore.”⁸ Conversely, the United States remains frustrated by Russia’s refusal to press Iran to relinquish its enrichment activities, as well as what the U.S. government views as its halfhearted cooperation on nuclear terrorism (Carter). So long as the United States and Russia focus on different priorities than rebuilding the NPT consensus, with the United States unwilling to abandon the political perception of autarchy in security matters, and Russia disinclined to perpetuate the asymmetry of current ties, the strained interstate relationship will stand in the way of the progress necessary to generate agreement on nuclear issues.

United States and China. The relationship between the United States and China is not (currently) as acrimonious as that between the United States and Russia, but it also challenges efforts to rebuild the NPT consensus. Unlike the U.S.-Russian relationship, tensions between Washington and Beijing arise less from specific issues of contention than from general concerns on both sides about each other’s intentions, concerns that lead to mutual distrust. U.S. intelligence agencies continue to predict a Chinese nuclear buildup that does not take place: As noted by Brooks and May, some U.S. policymakers have been awaiting the Chinese nuclear buildup since the 1960s. Apprehension created by concerns about Chinese capabilities underlies statements in the Nuclear Posture Review, which suggest that the American nuclear deterrent is designed to “dissuade” potential competitors from seeking parity with the United States (Brooks), an idea that contradicts the commitment to work toward disarmament. Here also, the U.S. BMD deployment poses a problem for a lasting strategic nuclear understanding: “China has made it clear in its defense white papers and other official statements that it endeavors to ensure the security and reliability of its nuclear weapons and maintains a credible nuclear deterrent force. In other words, if the reliability and credibility of China’s nuclear deterrent force is being harmed or neutralized, China will have to take countermeasures to preserve the credibility of its nuclear deterrent force.” (Gu).

United States and India. For different reasons, the United States’ growing ties to India may also block efforts to restore the NPT consensus. By agreeing to supply civilian nuclear fuel and technologies to India in 2005, the Bush administration took the unprecedented step of allowing nuclear commerce with a state outside of the NPT. The agreement raises questions about what Indian policies on arms control, reductions, and non-proliferation will be and about whether Washington’s endorsement of India as a

⁸ Pavel Podvig, “Russia and the Prompt Global Strike Plan,” PONARS Policy Memo No. 417.

responsible nuclear state will help or harm the NPT. As noted by William C. Potter, India missed an opportunity during negotiations with the United States to demonstrate its commitment to disarmament by showing flexibility with regard to the CTBT and FMCT. Several participants argued that India's behavior has been more consistent with that of a weapons state than a member of the Non-Aligned Movement, as it has repeatedly blocked language that would strengthen disarmament obligations. According to Narasimha, India's position is that it has and will continue to demonstrate commitment to Article VI, but that negotiations for a commercial fuel agreement were not the place to begin discussions on global disarmament. From India's perspective, the NPT reflects an inherently unequal bargain between haves and have-nots and the decision to supply fuel to India is a step toward equalizing the nonproliferation regime, which was necessary to rebuild the consensus. Narasimha further said, "Many Asian countries have come to the conclusion that the NPT bargain is less and less relevant to their concerns." That view was not challenged by the other participants.

Beyond misgivings about India's commitment to disarmament, the Indo-U.S. agreement sparked fears of repercussions that threaten to undermine the NPT regime. These concerns stem from the fact that, by agreeing to deliver fuel to India, the United States may have tacitly endorsed sales of nuclear materials to other countries that lack full-scope safeguards. At the very least, the agreement introduced an element of dissent on the subject in the Nuclear Supplier's Group (NSG). According to Potter and Graham, several states, particularly France and Russia, are eager to take advantage of the relaxation of NSG rules to begin selling fuel to states without full-scope safeguards.

United States and the Middle East. Insecurities that detract from the NPT consensus are particularly pronounced throughout the Middle East, where there is one nuclear-armed non-NPT state, Israel; at least two states that attempted to acquire nuclear weapons in contravention of their obligations as NNWS parties to the NPT, Iraq and Libya; and one state, Iran, which offers a dual challenge to the NPT regime, having hidden some possibly nuclear weapons-related activities in the past in contravention of Article III while building sensitive dual-use facilities under the aegis of Article IV. By so doing, Iran has not only challenged some NWS, which together with their allies are attempting to stop these developments, but also their NNWS neighbors, which are reacting by renewing consideration of their own, possibly dual-use nuclear programs.

Iran's stepped-up nuclear program may be due in no small part to the country's isolation when it was attacked by Iraq in 1980, as Israel's program in the 1960s and 1970s was prompted by the several attacks it suffered from its Arab neighbors. Thus the solution to the Iran challenge and the later ones that may follow (Carter referred to a possible "phalanx" of proliferators) may lie on a reliable overall security arrangement in the Middle East, an arrangement that the conference participants did not attempt to define. Several participants expressed doubts about the wisdom of the current strategy of the EU-3 and the United States on Iran however, noting that demanding that Tehran give up enrichment before meaningful negotiations can begin is an approach destined to fail (Blix). Blix also proposed a Nuclear Enrichment and Reprocessing Free Zone in the Middle East. Other suggestions included relying on tightened IAEA inspections of

isotopic uranium flows, offering to Iran a non-aggression pact and other creative, non-punitive incentives in exchange for cessation of its dual-use activities, and seeking wider support for sanctions among the states parties by demonstrating greater commitment to Article VI obligations (Arbatov, Blix, Carter, Quinlan). The participants did not support the use of force.

The recent intelligence finding to the effect that Iran stopped its nuclear weapon program (but not its potentially dual-use enrichment program) in 2003 was released after the conference. For the purpose of this paper, two lessons may be drawn. One is that the recent finding replaces what had been a “high-confidence” finding reached in 2005. This reinforces the view that the work of international inspectors in-country, backed by intelligence and other resources, may have more lasting value than national intelligence findings. The second is that pressure and threats may have played a role in stopping at least temporarily an illegal weapons program, but they did not stop an enrichment program that, however worrisome, was founded on an interpretation of Article IV of the NPT that is supported by many. Thus, treating the NPT as valid international law and seeking consensus interpretations may provide a more durable basis for effective international action than unilateral interpretations.

Other Factors Challenging the Nonproliferation Regime

Conventional Threats. The development of nuclear weapons in Israel, Pakistan, North Korea, and, potentially, Iran, together with earlier developments in other countries, demonstrates that proliferation is often powerfully tied to asymmetries in conventional capabilities and the possibility of existential conventional threats. These threats usually come from neighbors but they can also come from the projection forces of more distant states, particularly the United States. As described by Glaser, its superior conventional forces and threats to use its capabilities against adversaries may encourage proliferation and encumber disarmament efforts by motivating states that cannot compete with U.S. conventional forces to develop nuclear arsenals. Nuclear weapons are something of an equalizer, as noted by, among others, the late Professor W.K.H. Panofsky: While they may not confer “victory” in any sense, they may make a more powerful threatening state’s victory so Pyrrhic as to effectively deter it. This indeed was the earliest argument put forward in favor of nuclear deterrent postures⁹ and a consequence of this argument is that neither nonproliferation nor nuclear disarmament can be stably maintained unless conventional threats sufficiently serious to threaten the existence of a state or regime are also eliminated (May, Tertrais).

Thus, nuclear weapon decisions are not isolated from broader security considerations and the nonproliferation regime must take this into account if it is to remain effective. Perhaps the most legally straightforward way to do this is to tie nuclear nonproliferation to the guarantees inherent in the United Nations Charter and in particular to the Security Council’s role in taking under advisement and eventually taking action to defend states that have been attacked. This would require a rejuvenation of the UNSC that may not be

⁹ Jacob Viner, “Symposium on Atomic Energy and Its Implications,” *Proceedings of the American Philosophical Society*, 90.1, January 1946.

in the cards, but intermediate steps, such as security guarantees, to relieve the kinds of insecurities that can lead to nuclear weapon acquisition may be possible and in some cases effective. The NWS, by virtue of being also the permanent members of the UNSC, are uniquely positioned to take action in this direction, should the impediments described in the previous sections of this chapter be overcome. Indeed, in a subsequent chapter of this report on consensus-building policies, the NWS/P-5 states play a central role.

Expanded Civilian Nuclear Programs. The possibility of expanded civilian nuclear programs raises questions about the adequacy and practicality of Article IV. While views about the cost-benefit balance of expanded nuclear power ranged from negative (Carter) to positive (Siegfried Hecker, May), the fact remains that with more nuclear power plants come more nuclear knowledge, more sensitive nuclear installations such as uranium enrichment and plutonium separation plants, and more plutonium. The expansion of nuclear power will be determined by economic, strategic, and environmental assessments that are beyond the reach of NPT-related initiatives. What an NPT consensus can drive is agreement on policies to manage nuclear power, whether or not expansion occurs, in a way that minimizes the risk of misuse. Reaching such agreement will be difficult in any case, as differing national perspectives on the economics and environmental impact of electric power come into play. An NPT consensus on the rights and the obligations inherent in the Article IV bargain would allow states parties to focus on effectively safeguarding sensitive plants and providing for their security as well as managing plutonium securely rather than debating differing economic and environmental perspectives, as has been done without much progress to date. Some noted in addition that there is a need to prevent states from taking advantage of Article IV benefits and later withdrawing from the NPT as provided for in Article X.

International Terrorism. The rise of international terrorism, coupled with increasing demand for energy, has also sparked debates about the adequacy of Article III. With the threat of nuclear terrorism come both enhanced motivation for cooperation and new criticism about the adequacy of the safeguards regime conceived by the NPT. The technological means of much tighter safeguards on reactors, enrichment plants, and separation plants exist. Those means would require much more intrusive monitoring of processes such as degree of enrichment per stage or cascade and others that are protected for commercial or security reasons. The current difficulty the IAEA is encountering in determining the enrichment levels at the Natanz plant in Iran illustrates the political problems, but it is noteworthy that similar difficulties are encountered at plants owned by URENCO or at Resende in Brazil. Once again, a determined consensus of the parties is needed here to break through to agreement on meaningful improvements. The NWS are the natural leaders of such a consensus but they can only do so if they gain credibility by meeting their own commitments under the NPT.

Conclusion

No common view was detected among the NWS regarding the nature and desirability of a renewed NPT consensus. For Russia, and probably for China as well, though that was not clearly stated, U.S. military expansion (including but not limited to NATO expansion)

exacerbates uncertainty and instability and limits the possibilities for reaching consensus. For them and for France and the United Kingdom, memories of their vulnerability to devastation in two World Wars underlie a conservative view of how and when to proceed on disarmament. In the United States, the least vulnerable of today's great powers, progress toward a consensus has been held up by a unilateral ideology, an expansive concept of U.S. privileges in world affairs, and a belief unsupported by evidence that U.S. expansive military behavior including its nuclear declaratory policies does not influence the proliferation incentives of NNWS.

While other challenges to a renewed NPT consensus exist, much of the future prospect depends on the relationship between the United States and Russia. That relationship in turn is governed more by such exogenous factors as NATO expansion and Russian behavior in its southern tier of states, including Iran, than by the merits of a renewed consensus on the NPT. Thus the future of a common good—an effective NPT consensus—is hostage to the future of contests for individual advantages, not an unusual situation. What will unblock this situation is unclear. It may be that a new U.S. administration or a dramatic and unwelcome event will bring about the needed change. It may also be that a more modest consensus can be built on politically feasible proposals, for instance at the 2010 NPT Review Conference. Some ideas for such proposals came out of the conference and are presented in Chapter V.

IV. Possible Paths to Nuclear Disarmament

Introduction

The policies, strategic views, and politics in the NWS as well as in the other nuclear-armed states make it clear that none of them will agree to nuclear disarmament in the near or medium term, that is, over the next decades. Policies, views, and politics are all subject to change, of course, but the best guess is that, absent some traumatic event, they will not change soon. As a result, nuclear weapons will have to be managed peacefully for some considerable time and the question regarding Article VI is how best to reconcile the obligations and bargains that depend on it.

Opinions differ on whether full commitment to disarmament, even though it is distant, is most likely to lead to the best management of nuclear weapons¹⁰ or whether commitment to intermediate steps only is best.¹¹ There is wide agreement, on the other hand, that commitment to the right intermediate steps is part of a good nuclear weapons management policy, in part because such commitments and the resulting agreements are seen to bolster the chances for renewed consensus on the NPT as a whole.

Nevertheless, by requiring NWS to “pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control,” Article VI represents a prominent and contentious NPT political bargain, which lends itself to differing interpretations by different NPT parties and often different parts of the same government. Some NNWS heretofore in compliance may question the NWS commitment to that bargain and use this stance to justify a selective disregard of NPT provisions. On the other hand, the NWS and perhaps most of the NNWS have policies that support the view that the practical goal of the NPT and other arms control measures is and for the foreseeable future remains to manage nuclear weapons rather than get rid of them (Brooks, Carter, May, others) and that a process making for “acceptable” progress toward the goals of Article VI is the best that can be achieved. As a result of these differences, a re-examination of the potential paths toward nuclear disarmament, of what constitutes “acceptable progress,” and of what goals are realistic is an essential part of analyzing what the NWS and other states can do to rebuild the NPT consensus.

In what follows, after a review of the current state of progress on Article VI, we discuss the possible and preferable end points of that progress; verification issues connected with nuclear disarmament; the relationship of progress on Article VI to nuclear proliferation; and the relationship of nuclear arms to conventional threats. We conclude with an evaluation of feasible and desirable steps to fulfillment of Article VI obligations.

¹⁰ Henry Kissinger, et al., “A World Free of Nuclear Weapons,” *Wall Street Journal*, January 4, 2007.

¹¹ Harold Brown, “New Nuclear Realities,” *The Washington Quarterly* 11.1 (2008) 7-22.

Current State of Progress on Article VI

Although nuclear disarmament was incorporated into the NPT in 1970, the United States and the Soviet Union continued to engage in an arms competition, which led to levels of nuclear arms that were nearly universally considered to be too high. Effective nuclear arms reductions occurred only in the Soviet Union's last years or following its collapse. Since the early 1990s, both the United States and Russia have made significant reductions in the size of their nuclear arsenals, eliminating several classes of nuclear delivery vehicles and decreasing the number of deployed, nonstrategic and smaller nuclear weapons. Under the terms of the START I Treaty, by 2012 the United States will decommission more than 75 percent of the nuclear warheads it possessed at the height of the arms race (Brooks). The numbers of nuclear warheads and delivery systems are scheduled to decrease much further in coming years. The Strategic Offensive Reductions Treaty (SORT) signed in Moscow in 2002 is to reduce the number of operationally deployed nuclear warheads to a third of that allowed under SALT I to an aggregate number not exceeding 1,700–2,200 for each party, still at least an order of magnitude more than any other country (Brooks). Article VI considerations played little or no role in these reductions according to informed participants.

France has reduced its nuclear armaments by two-thirds and interprets Article VI strictly as encompassing general disarmament, but deeper cuts and total disarmament are very distant prospects, requiring major changes in the world security situation (Tertrais). The United Kingdom has reduced its nuclear forces to “almost certainly” the lowest level of any NWS, only 160 declared weapons, and has also “relaxed the level of readiness at which its force is held” (Quinlan) with one deployed submarine with a less than full load of warheads not at short notice to fire. Reductions in the United Kingdom were motivated in part by Article VI considerations and the British government has regularly reaffirmed its fundamental acceptance that the eventual goal should be to abolish all nuclear weapons and that the United Kingdom was ready to discard its own capability when others did so. China, with its historically small nuclear arsenal, has been unwilling to decrease its stockpile until the states having the most nuclear weapons reduce down to numbers commensurate with China's own, but it has supported other disarmament efforts, including the de-alerting and de-targeting of existing nuclear weapons and the CTBT (Gu). China's fundamental goal is to deter other countries from using or threatening to use nuclear weapons against it. It subscribes to NFU and negative and positive security assurances for NNWS and has the smallest and least modern long-range nuclear forces.

All of the NWS governments have either ratified the CTBT or accepted an indefinite suspension on nuclear testing since the end of the Cold War (Brooks).

At the same time, many goals important to the NNWS and some NWS remain unaccomplished. These include ratification of the CTBT and FMCT; NFU and NSA

pledges¹²; the elimination of short-range and nonstrategic weapons; strict controls on fuel enrichment; and the imposition of maximum security on all nuclear weapons and fissile materials worldwide (Blix).

NFU pledges were seen by participants in a variety of lights: as having little value because they could be so easily reversed in an emergency, as a desirable incentive to adhere to the NPT if the NFU pledge were extended by all NWS to all NNWS states parties observing their obligations (Arbatov), or as a critical element, along with security assurances, of the new deal needed to recreate the NPT consensus (Graham, Gu, du Preez). Some believed that politicians should be encouraged to commit to such policies in order to increase political pressure against nuclear use—and thus make nuclear weapons tactically obsolete (Scott Sagan). Others felt that NFU and NSA policies made in peacetime are of little use during times of crisis, when the public and government alike are more interested in a swift military response than in honoring past policies (Quinlan, Brooks, Tertrais). It was noted also that NFU and NSA policies, even if only statements of intent perhaps not expected to be completely credible under all possible conditions, have some constraining influence on military planning and political dynamics in a crisis (Sagan). In this regard, India's 2003 statement that it had the right of first use against a chemical or biological attack on its troops anywhere seemed to contradict its general support for NFU (Sagan, Potter). It also highlights the troubling dichotomy between older and widely supported steps to satisfy Article VI obligations and what several governments view as the need to deter state-assisted WMD terrorism.

It was noted that verifiable adherence to NFU could lead the way to verifiable abandonment of any launch-on-warning posture (LOW) (Arbatov) although the difficulty or impossibility of verifying NFU may make this point moot. Incidents like the B-52 Minot-Barksdale incident and the recent revelations about the failure to put Permissive Action Links (PALs) on U.K. weapons underscore the small but real danger of accidental or unauthorized uses of nuclear weapons in the existing NWS as well as in other nuclear-armed states (Sagan). How to improve that situation involves balancing a number of diplomatic, technical, and operational risks. Measures that reduce the risk under conditions of relaxed relations, such as separating nuclear warheads from launch vehicles where possible, or exchanging observers, also could heighten a crisis if one state or another reduces a perceived vulnerability by undoing those measures, steps that could otherwise be kept secret. There is currently no agreement on what solutions are politically feasible and would reduce risks under most conditions. "Solutions" are at best able to reduce rather than eliminate the risks and will vary with the particular set of nuclear forces involved. They were not discussed at the workshop.

So-called nonstrategic and short-range nuclear weapons have not been included in reduction agreements since the end of the Cold War, although their deployments outside the country of origin have been ended aside from a small number of U.S. weapons in NATO hands. Unilateral steps to reduce the large numbers of such weapons, as well as the large numbers of so-called "reserve" weapons, have been taken but bilateral and

¹² Of these commitments, only the CTBT is a negotiated document with agreed text that could be ratified by the United States. None of the others has a text agreed to by all parties.

multilateral agreements are hampered by the difficulty of verifying the numbers of weapons kept in storage and not deployed. The numbers are believed to remain large and could pose a terrorist threat as well.

Stricter controls on fuel enrichment and the imposition of maximum security on all nuclear weapons and fissile materials worldwide typify the measures to improve and update the implementation of Article III that must be part of a renewed NPT consensus and at the same time have proved slow and difficult to carry out. Such measures, some of which impose additional costs on private firms and governments, could benefit all NPT parties participating in civilian nuclear applications but need a strong and lasting political consensus of the states concerned in order to move forward. A perception on the part of some NNWS that NWS compliance with Article VI is unsatisfactory will make it that much more difficult to obtain such a consensus. This is one of the key linkages among the NPT bargains, one that is likely to prove increasingly important as time goes on.

End Points: Absolute Zero or Small Numbers

If reductions in the numbers of nuclear weapons are to continue, two potential outcomes are possible: Nuclear states may pursue complete nuclear abolition (“absolute zero”) or simply aim to create a significantly reduced nuclear force (“small numbers”).¹³ There was no agreement on which outcome would be best, with some participants insisting that absolute zero is necessary to ensuring worldwide safety from nuclear threats and others suggesting that small numbers would be the safer and more obtainable alternative. Central to this disagreement is the debate over the marginal utility of disarmament and its complement, the marginal utility of nuclear possession.

The power of nuclear weapons to deny victory to a superior adversary, or make that victory prohibitively costly, leads to the conclusion that the utility of nuclear weapons rises sharply with possession of a few weapons and much more slowly thereafter, until numbers are so high as to constitute a security threat of their own. As with all such neat theories, this one leaves out many important factors, such as the fact that the danger posed by nuclear weapons, to others as well as to their owner, depends on many factors besides their number. Nevertheless, this diminishing marginal utility embodies a basic fact about nuclear weaponry. It also leads to a paradox.

Due to diminishing marginal utility, a state that has a single nuclear weapon has a much more dramatic advantage over a nation with none, compared to the advantage a state with 500 weapons has over a state with 200 (Glaser). As a result, every state has an incentive to be the lone holdout to absolute disarmament, which makes it highly unlikely that absolute zero will be reached (Glaser). It is impossible, at least currently, to verify that states have achieved absolute zero and do not retain a capability to rearm in the future (see next section). Therefore the only way to achieve verification and overcome the

¹³ Graham argues that there is a third alternative—“virtual zero.” While he believes that absolute zero is the appropriate goal, Graham believes that until the problem of lost fissile material is resolved (likely far in the future), virtual disarmament is all that can reasonably and practically be obtained.

holdout problem would be to alter the state of international relations until all nations trust each other enough as to be completely transparent to one another. This is a highly unlikely outcome (Glaser). Thus, under foreseeable circumstances, absolute zero is, in that view, an impractical and dangerous goal: Doing so would create strong incentives for cheating and rearmament. It may be better for states to disarm to some agreed optimal level to be determined and maintain that plateau indefinitely (Quinlan) instead of working toward absolute zero.

The opposing school of thought concurs that improved verification is necessary for absolute disarmament but believes nonetheless that absolute disarmament is the preferred outcome (Graham, Speed). This theory argues that, since the utility of a nuclear force does not depend or depends only weakly on numbers, a reduction that still permits the existence of some nuclear weapons worldwide will not significantly improve international security and stability over what exists now. Whatever the number of nuclear weapons, “the existential threat brought on by state rivalries with their nuclear arsenals would not disappear” and “the inequalities between the have and have-not nuclear states would still exist” (Speed). As a result, absolute zero is the optimal goal.

A compromise between these two views envisages sequestering all nuclear arsenals under a single international regulatory body. This would allow states effectively to go to zero without eliminating the benefits of nuclear deterrence and encouraging rearmament (Brooks). Setting up such a body would itself require a different state of international relations, however, so that this solution suffers from the same problem as the attainment of the complete transparency required for satisfactory verification of total disarmament. Speed proposes, as a possible program to that end, first renouncing the role of nuclear weapons as instruments of policy and reducing stockpiles to very low levels and then sequestering all national nuclear arsenals in their home countries “in dispersed hardened bunkers” under UNSC control. He notes that “[s]uch a system would remove the incentive to cheat, since no political or military advantage would likely be gained, and it would induce a united world reaction against the cheater.”

Verification of Nuclear Disarmament

No matter what the ultimate goal of nuclear disarmament may be, all nuclear states must be convinced that they can accurately verify the remaining arsenals of their peers at any given step of the disarmament process. This verification may prove difficult for a number of reasons. The major ones were spelled out by scientists at the three weapons laboratories, Paul White of Los Alamos National Laboratory (LANL), Bill Dunlop of the Lawrence Livermore National Laboratory (LLNL), and Patricia Falcone of the Sandia Laboratories. They are as follows:

1. Inspectors are generally unable to establish baseline arsenal estimates: Nuclear weapons are small and easily hidden; accurately measuring and tracking the movement of all weapons-usable materials produced in the last six decades is next to impossible, given the uncertainties in the production and storage processes

themselves. With no reliable baseline estimate, flow measurements can provide only estimates of whether a stockpile has increased or decreased.

2. With or without a baseline estimate, a complete verification process would have to track nuclear weapons throughout their life cycles, from production through deployment and storage to dismantlement.
3. A complete verification process would also have to ensure that nuclear states do not have the ability to recreate dismantled nuclear weapons.
4. States are unwilling to declassify sensitive information about their nuclear production processes and forces. Yet on-site intrusive inspections of production, maintenance, testing, and other facilities would be necessary to accomplish the steps outlined above.

Transparency attempts pertaining to dismantlement in the 1990s in the United States proved very difficult to carry out politically and were never reciprocated. Nevertheless, in the past, the United States and Russia have devised a number of indirect verification methods to partially overcome the difficulties noted above. However, “significant technical and procedural creativity” will be required if the international community is to continue pursuing the verification of nuclear arsenals as a part of the disarmament process. The current view of the experts present was that zero was unverifiable and verification of very low numbers would require major technical advances as well as unprecedented political breakthroughs to achieve a high probability that any significant violation would be observed, the usual verification standard. Of course, the higher the number of weapons allowed, the easier it is to meet that standard.

It is much easier to verify numbers of deployed delivery systems, as was required in arms control agreements of the past. Such systems are physically much larger and require much more obvious activities to keep them operational. Complete abolition of nuclear-capable delivery systems would still be difficult and reversible, given the existence of dual-capable delivery systems such as aircraft and naval crafts. Nevertheless, reductions to very low numbers of deployed delivery systems should be verifiable in the sense defined above, given agreements that permit adequate on-site access and monitoring.

Nuclear Disarmament and Nonproliferation

Article VI, along with Article I, which restricts transfers and ended proposals such as the NATO multilateral force, represent the treaty’s few restrictions on the activities of NWS. NNWS who signed away their sovereign right to acquire nuclear weapons found the treaty more acceptable because of the Article VI limitations on the right of nuclear nations to maintain their arsenals (Graham). Although NNWS were tolerant of the difficulties of working toward nuclear disarmament during the U.S.-Soviet Cold War, some NNWS have expressed frustration over a perceived lack of “good faith” disarmament efforts in the 15 years since the end of the Cold War (Blix, Narasimha). This frustration may lead some NNWS to reconsider their voluntary agreement to NPT terms, either by adhering less closely to NPT requirements or by withdrawing from the NPT altogether (Blix, Sagan) or, more probably, by not fully participating in the various measures needed to update Articles III, IV, and X to meet current needs. From this

viewpoint, there is thus an indirect but important connection between Article VI compliance and rebuilding a consensus on the NPT.

At the same time, the existence of a direct link between Article VI compliance and NPT adherence has been challenged by a number of observers, who point out that nuclear disarmament and proliferation are not always inversely correlated. During the height of the U.S.-Soviet arms race, for example, a number of nuclear-capable states including Brazil, Germany, Japan, South Africa, and Sweden chose voluntarily to forgo nuclear weapons (Josef Joffe, Graham). After the end of the Cold War, both the United States and Russia began to eliminate the nuclear arsenals of other former Soviet states and to create bilateral arms reduction programs. Yet, at the same time, threshold states in unstable regions, including Iran, Iraq, North Korea, and Pakistan, were actively pursuing nuclear agendas (Arbatov, Joffe). It seems unlikely that even the voluntary abolition of nuclear weapons in the any of the NWS, uncoupled with locally meaningful security measures, would have dissuaded those states from their attempts at proliferation (Tertrais, Pavel Podvig, others). Whether the non-NPT parties India and Pakistan would have pursued nuclear weapons in the face of serious NWS disarmament efforts is less clear: India could have been influenced by such efforts and Pakistan in turn would have been influenced by India's actions. Article VI noncompliance may represent an excuse for these states to pursue their independent nuclear goals (Arbatov) or such "excuses" may in fact matter in states that have complicated domestic politics and could constrain nuclear ambitions (Sagan).

The link between Article VI compliance and nonproliferation may thus be an indirect one: Perceived Article VI noncompliance may contribute to proliferation and NPT nonadherence by denying the global community the ability to maintain the international consensus necessary for containing threshold states (Brooks). The global community was unable to craft a strong, cohesive response to Iran's nuclear efforts, for example, partly because some non-nuclear states were reluctant to criticize a fellow non-nuclear state for allegedly failing to adhere to NPT terms when nuclear states themselves were perceived to be guilty of the same behavior (Steve Stedman). Additionally, Article VI compliance creates more balance between NWS and NNWS responsibilities, and this balance may give non-nuclear states the political cover needed to convince their publics that the NPT is not an arbitrarily discriminatory document that fails to benefit their interests (Graham).

Some workshop participants proposed the unconventional theory that disarmament may contribute to proliferation. Some states may be best dissuaded from pursuing nuclear agendas if they are guaranteed positive nuclear protection by their NWS allies (Tertrais). Supplying positive nuclear protection, i.e., extending nuclear deterrence to those allies more clearly, may in turn limit disarmament efforts. This theory should be examined in greater detail in particular cases, since each case will have different consequences for the NWS nuclear forces. At the current and foreseen levels of forces, the point is mainly academic.

No one knows, of course, what "would have" happened had the course of history been different and the NWS embarked on a serious program aimed at total or near-total nuclear

disarmament once the Cold War and its arms race ended. Such a program would have strengthened the consensus against possession of nuclear weapons among the great majority of states parties (Graham, Blix, others) and thereby would have increased the pressure to abstain on would-be proliferators.

The conclusion that emerged from conference discussions on this point is that whether NWS adherence or nonadherence to Article VI affects proliferation depends on circumstances. On the other hand, maintaining the NPT consensus in a world where nuclear capabilities are ever more available will in all likelihood require the NWS to make progress toward nuclear disarmament. It was agreed from the various points of view represented (and indeed by national leaders everywhere) that the NPT is at one and the same time central to security, in trouble, and discriminatory. Since it provides the only available legal basis for stemming the proliferation of nuclear weapons and could not be redone from scratch today, it follows that it should be saved. Saving it is likely to require linking progress from the NWS on Article VI to progress on needed but unpopular measures such as restrictions on enrichment facilities.

Nuclear Disarmament's Impact on Conventional Forces

Nuclear policies and postures themselves must fit into a nation's overall security strategy. States must address the link that may exist between nuclear forces and conventional forces in maintaining a peaceful world order. Since the development of nuclear weapons, the world has not experienced a single war between nuclear-armed powers that historically had readily gone to war against each other, except for a minor war between India and Pakistan in 1999. This suggests that nuclear deterrence has had a powerful effect on international stability (Brooks, Quinlan). If there is indeed a causal relationship between nuclear deterrence and the relative peace of the nuclear era, nuclear states interested in pursuing disarmament must ensure that they can maintain international stability in a world without nuclear weapons (Brooks, others).

One of the compelling reasons for a state to acquire or deploy nuclear weapons has been the fear of having to defend itself against another state's superior conventional military (Tertrais, May). If nuclear weapons are effectively banned, states may increase their conventional military forces to achieve the same degree of deterrence and protection, as their nuclear forces were perceived to achieve (Tertrais). If so, a conventional arms race could result and would be even more dangerous than a nuclear arms race both because conventional forces—unlike nuclear forces—are not constrained by diminishing return to size (Tertrais, May) and because it could also lead to a renewed effort by non-nuclear states to obtain nuclear capabilities. While this traditional security dilemma may no longer be relevant in some areas of the globe, especially Europe, it remains important in unstable regions elsewhere (Blix).

It may be that the only way to prevent a conventional arms race in a denuclearized world involves changing the global order to rely on a more effective super-national government than has ever been achieved (May, Blix). This will not happen soon: Most states, especially the more powerful ones, are unwilling to cede sovereignty to a higher

authority. Even if states were willing to participate in a super-national government, it would be extremely difficult to organize such a body effectively due to the heterogeneous and often-clashing political goals of its constituent states (Arbatov). Thus the question how to reconcile the need to reduce demand for nuclear weapons with plans to actually eliminate them, when doing so may exacerbate the insecurities that cause states to want nuclear weapons, remains an open one. Reductions beyond what can be accepted and sustained from a security standpoint may increase the already present risks that some states will cheat and maintain their arsenals or maintain a capacity to rearm.

States that foresee the possibility of future engagements in which its conventional military may be outnumbered, such as Israel, may be especially interested in reserving the option of using nuclear weapons to deter would-be attackers. The United States, on the other hand, has the largest military force in the world and is unlikely to be outnumbered in any engagement to which it commits its full military backing (Quinlan). This suggests that if the United States is willing to commit to increased non-nuclear security assurances to other nuclear states, nuclear weapons may become less important to managing the security risks of states with smaller conventional armies.

Conclusions: Next Steps to Nuclear Disarmament

The next steps in that nuclear disarmament process are the ones noted earlier: entry into force of the CTBT, further and eventually multilateral and verified arsenal reductions, a nuclear weapon materials production ban, and the implementation of NFU treaties together with meaningful security assurances for states in compliance with the NPT. Continued R&D on verification methods for low numbers of nuclear weapons and of delivery systems is also an essential part of the steps to nuclear disarmament. The NWS have pledged at various times to work toward this. Currently, however, they place little priority on such efforts and, perhaps aside from the United Kingdom, there is little or no official study of where they may eventually lead.

The diminished salience of the nuclear threat has led to a low priority for taking on the political costs of achieving the intermediate steps along the nuclear disarmament process, such as entry into force of a CTBT and stronger negative security assurances. At the same time, there is general agreement that progress on the intermediate steps toward fulfilling commitments under Article VI would be helpful to rebuild a NPT consensus. The key impediment to nuclear disarmament continues to be the perceived and perhaps real value, as seen by NWS and some NNWS and non-NPT parties, of nuclear weapons as deterrents to attacks. The reality of this imputed value does nothing to diminish the inequality of the NPT bargain, in fact, quite the contrary. This tension is clearly unresolved.

There is some hope for progress despite the obstacles noted here. Concerns over proliferation in the Middle East and elsewhere in Asia have made rebuilding the NPT consensus, and with it furthering progress on Article VI compliance, more politically attractive. Since the failure of the NPT Review Conference in 2005, a number of both governmental and private agents have called for a renewed commitment to that end. If the United States and Russia are willing to work together, despite their other differences, and

with other concerned states inside and outside the NPT, the prospect of progress on nuclear disarmament will be on firmer ground than it has been in many years. While the end point remains distant and controversial, the intermediate steps and the momentum of the process may be sufficient, given the dangers of further proliferation in the Middle East and of nuclear terror, to recreate an effective NPT consensus that could deal with the current incarnation of the nuclear threat.

V. Consensus-Building Policies

We—governments, commercial firms, and many others—will have to manage nuclear weapons for a long time to come. Full nuclear disarmament is far distant and hinges on building a more lawful, secure, and transparent international order. Meanwhile, nuclear weapons, weapons-usable materials, and the knowledge to use them will continue to exist. Nuclear power plants will continue to generate plutonium, which in turn may be used as fuel and, therefore, subject to the uncertainties associated with processing and transport. National insecurities and national politics will continue to generate incentives to acquire nuclear weapons or an option to acquire them. The NPT has been useful in limiting nuclear dangers and providing at least the beginning of a foundation for international law as it pertains to some of the most central problems of our era. The issue of how to build a consensus about the NPT that remains valid under current and foreseeable conditions. Therefore, it is an essential part of how to manage nuclear weapons without nuclear war or other catastrophe.

As the past 60 years have exemplified and as could be expected given the many varied interests involved, there is no shortcut to this management issue—not nuclear superiority, not nuclear deterrence, nor nuclear abolition. Successful management must rely on a set of complementary approaches that can be agreed on broadly and durably because they serve the interests of the national and commercial interests involved. The NPT has been and, in the view of all or nearly all participant governments, continues to be such an approach. The consensus behind it, though damaged by actions of both NWS and NNWS, continues to exist.

What policies then, on the part of the P-5 and others, would support and help strengthen this consensus in ways that are compatible with the political and strategic realities as they are perceived by the governments that need to support the consensus? We believe there is a set of mutually supportive policies that will achieve this objective. None are new; all require more substantial political support. They may be best examined by categorizing them under the NPT articles they are designed to support, together with an additional category not referred to explicitly in the NPT: that of dealing with the root causes of nuclear weapons demand.

Though an article-by-article approach provides a degree of clarity in presentation, the articles of the NPT support politically interdependent bargains. Thus NNWS acceptance of NWS progress on Article VI may be tied to their continuing to accept their obligations under Article II and new obligations under Article III. Furthermore, discharging obligations under Article II may depend on reaching a satisfactory status quo among neighbors, perhaps guaranteed by the NWS, who are also the P-5 of the UNSC. Fully discharging obligations of various states under Article IV to facilitate development of civilian applications depends on agreeing to adequate implementation of safeguards under Article III. Maintaining rights to withdraw under Article X may depend in the future on accepting internationalization of sensitive facilities designed to fulfill obligations to facilitate development of civilian applications under Article IV.

Policies in Support of Articles II and VI

As discussed in the previous chapter, the linkage between the fulfillment of NNWS obligations under Article II and that of NWS obligations under Article VI may be questioned in a number of specific cases. At the same time, the two articles are linked politically: Agreeing to Article II is a loss of sovereignty for the NNWS in exchange for perceived economic, strategic, political, and moral benefits, and NWS progress on Article VI strengthens and validates the perceptions of political and moral benefits. Indeed, it can be argued that progress on Article VI is linked politically with fulfillment of obligations under other Articles as well; as technological knowledge spreads, and especially if nuclear power becomes more widely used, NNWS may have to accept more stringent and intrusive verification provisions under Article III. Then, again, progress under Article VI lessens the perceived disparity in treatment of NWS and NNWS, especially if the NWS' progress on Article VI is monitored by equally intrusive verification. The two articles are also linked from a security standpoint in that more robust security arrangements and better adherence to international law lessens the demand for keeping or acquiring nuclear weapons. Thus, on several counts NWS progress on fulfilling their obligations under Article VI helps maintain a consensus on the NPT.

In our view and that of most, if not all, of the conferees, the following package of policies would provide evidence of progress on Article VI and strengthen incentives to adhere to Article II. None are new and perhaps not all are feasible immediately, but the groundwork exists for all of them to become feasible in the near future.

1. The NWS should abandon advertising the possible use of nuclear weapons to support policy goals other than national survival. Leaving nuclear weapons “on the table” enhances the military value of those weapons and weakens the crucial taboo against any use of nuclear weapons that has held for 60 years. Since the NWS are also in the main the strongest conventional military powers and since nuclear weapons could act as equalizers in many military situations, for instance easily destroying much more valuable assets such as bases and ports, abandoning the use of nuclear weapons except as weapons of last resort in exchange for strengthening adherence to Article II is probably a good bargain from the military standpoint alone, as well as a step to diminish the disparity between NWS and NNWS.¹⁴
2. The NWS should enter into a formal and, if possible, joint agreement not to use nuclear weapons against NNWS that are in compliance with their obligations under Article II. The Cold War exceptions to the negative security assurance guarantees offered by the United States and now copied by others such as India are obsolete. Such an agreement would be different from a blanket NFU policy; it would not apply to other NWS or to the four nuclear-armed states outside the NPT. It would reinforce the concept of the NNWS as a community that is exempt from nuclear attack, at least by the NWS, as well as the notion that, so far as the NWS are concerned, nuclear weapons are mainly good to deter nuclear attack. Of

¹⁴ See the paper by George Perkovich in this volume for further elaboration of this point.

course, such a formal obligation, like any treaty, can be broken in an emergency. But the NPT and associated agreements must be seen as a foundation for an international legal order to deal with the nuclear danger, and laws in the long-term benefit of all parties are the first step toward such an order, even if they can be broken.

3. Those NWS that have not ratified the CTBT (the United States and China) should do so (India and Pakistan too). The United States is the obvious leader in this, since China has indicated it would ratify if the United States did. The CTBT, while questionable during the Cold War, now costs very little militarily, and it costs the United States particularly little, given its lead in both nuclear test results and computational and non-nuclear test capabilities. The technological capability to detect any militarily significant nuclear test has now existed for some years. At the same time, entry into force of the CTBT would have significant symbolic value in strengthening the NPT consensus.
4. The United States and Russia should make their planned reductions in numbers of strategic deployed nuclear weapons more transparent and permanent. They should supplement this step with verifiable agreements to reduce the number of nonstrategic non-deployed weapons. Verifying the remaining numbers of nonstrategic non-deployed weapons is difficult, as noted by the verification panel at the conference (White, Dunlop, Falcone), but, as it also noted, with political agreement, the technology could support militarily significant verification.
5. Following the previous step, the United States should convene a committee of the NWS to consider how to proceed on further reductions to levels that would be verifiable and avoid the possibility of meaningful breakout. That level may be different in different countries and, in any case, is not now known with any certainty. Thus, these next steps are not for the immediate future. Yet laying the political and technical groundwork for them now would help strengthen the NPT consensus.

Policies in Support of Articles III and IV

Article III provides for the acceptance of safeguards to verify fulfillment of treaty obligations. Article IV preserves the right of all parties to civilian nuclear applications and obligates parties to “facilitate ... the fullest possible exchange of equipment, materials, and scientific and technological information for the peaceful uses of nuclear energy.” These two articles are linked both because the safeguards called for in Article III are for the most part imposed on the civilian facilities provided for in Article IV and because the expansion of nuclear power, in particular, will bring with it an expansion of reprocessing and enrichment plants, which can support both civilian and military applications. They are also linked, in practice if not formally, to the much more recent UNSC 1540, adopted in response to the threat of WMD and in particular nuclear terrorism, which requires all states to pass and implement laws banning transfer of WMD and relevant technologies and materials to non-state actors: non-state actors could get the needed technologies and materials from either military or civilian nuclear facilities.

In light of these linkages, the following package of policies would help update the NPT to meet current contingencies and, thereby, would strengthen the consensus underlying the NPT.

1. Control of Dual-Use Facilities. Verification of the absence of a nuclear weapons program has now been carried out by the IAEA in several widely different cases: South Africa in a cooperative mode on the instance of its joining the NPT as an NNWS; Iraq under war or occupation conditions; North Korea and Iran partially under conditions that might be described as not fully cooperative and occasionally hostile; and others. Nuclear weapon programs are very difficult to detect at two stages: the initial laboratory, pre-production stage, and the stage after nuclear weapons or weapons-usable materials have been obtained and the production and military delivery parts of the program are dormant or abandoned. In between, a nuclear weapons program of any military importance requires plants and other technical and military facilities that are difficult or impossible to hide completely from intelligence assets and in-country inspectors, although many details can be hidden, as was the case in Iraq. Technologies exist to greatly enhance the capabilities to determine whether a dual-use program is part of a nuclear weapon program. For instance, it is technically possible to determine whether a centrifuge cascade is manufacturing reactor or weapon material. These techniques are intrusive however, and the IAEA has had difficulty applying even simple ones, not only in Iran but also in states that are not suspected of nuclear weapons ambitions, such as Brazil, and in commercial facilities, such as URENCO. A major if difficult policy initiative that could be sponsored by all interested NPT parties and may bolster consensus as civilian nuclear applications expand to different states would establish criteria for considering that building or acquiring sensitive facilities meet the requirements of Article III and would make the assistance and facilitation called for in Article IV dependent on meeting these criteria. These criteria would be technical, not economic or political, other than that the recipient state must have met its obligations under the NPT and UNSC 1540: Economic criteria depend on such local factors as overall energy policies, sunk costs, relative costs, and others that are subject to judgment and do not generally lead to consensus, while political factors differ from state to state. This recommendation is independent of whether future sensitive facilities should be “internationalized,” limited to the states that have them now, or some other political arrangement, but is needed in any case.
2. Securing Nuclear Weapons-Usable Material. Article III has been applied mainly to NNWS. With the possibility of terrorism assisted by proliferation, NWS as well as NNWS may be considered to have an obligation under Article III to properly secure their nuclear weapons and nuclear weapons materials such as excess plutonium and highly enriched uranium (HEU). According to the most recent assessment,¹⁵ this goal is only partially achieved. The main unsecured sources are surplus nuclear weapons materials and research reactors fueled by HEU. The

¹⁵ Matthew Bunn and Anthony Weir, “Securing the Bomb 2007: Next Steps in Keeping Nuclear Weapons and Materials Out of Terrorist Hands” (The Belfer Center, Harvard University, October 2007). Available at <http://www.nti.org/securingthebomb>.

United States, Russia, and other states are engaged in improving the situation but much remains to be done. Policies to prevent or limit proliferation and policies to prevent nuclear weapon materials from falling into the wrong hands are linked politically, operationally, and technically. Much the same security culture, legal apparatus, aware, concerned leadership, and concrete precautions are needed to exercise adequate stewardship in both situations. The present Global Initiative and the 2010 Review Conference could both serve as vehicles leading to better and more uniform stewardship on the part of both NWS and NNWS.

3. Relations With Non-NPT Parties. Relations with states outside the NPT, such as the agreement under consideration by the United States and India, can pose a threat to the NPT consensus. In that case, a desire for perceived strategic advantage broke an explicit ban on nuclear exports to states that have not adopted full-scope safeguards and trumped the concept of NNWS in good standing being the sole beneficiaries of assistance in civilian nuclear applications from NPT members. It would bolster the NPT consensus if India were to undertake to meet all NPT obligations as if it were a member, as France did for 20 years (suggested by Quinlan). It is unclear at this stage how much negotiating room remains in the U.S.-India agreement or even whether the agreement will enter into force.

Policies Aimed at Lessening Demand for Nuclear Weapons

Nuclear weapons do not exist in a security vacuum. They were acquired and deployed in several cases under conditions of war or threats of war. While the NWS may be the countries currently least threatened by conventional war, all of them are concerned that the situation may not be permanent, just as a number of NNWS and nuclear-armed states outside the NPT have reason to fear conventional attacks today. In addition, reducing numbers of nuclear weapons may heighten perceived vulnerabilities to conventional war in some NWS, as discussed in the previous chapter. Reducing conventional war threats is therefore part of reducing the demand for nuclear weapons, albeit maybe not the only factor. This is the most difficult long-term problem related to rebuilding and maintaining the NPT consensus.

It is noteworthy that the states that called for and have steadily supported the NPT consensus are themselves part of effective security arrangements, whether explicitly or not. Europe, home to the largest number of nuclear-capable states, is the main example, followed by South America. It is in the regions of Asia where no such arrangement exists or is politically possible at present and where economic and technical capabilities are growing that the NPT consensus is weakest—as attested by the fact that all of the nuclear-armed states outside the NPT and most of the NNWS thought not to be in compliance with their obligations under the NPT are in Asia. The NPT regime may indeed not have taken the Asian problems adequately into consideration (Narasimha).

Steps are slowly being taken to remedy this situation, but events may outrace them. Negotiations of some or all NWS with Iran and North Korea, negotiations between Pakistan and India, and a peace process involving Israel and its neighbors are needed if the demand for nuclear weapons in Asia is to be durably lessened and the NPT consensus

is to extend in those regions. Doing so is particularly important as the Asian share of global wealth and technological knowledge continues to increase in proportion to its population.

Beyond this, the most important role that a stronger NPT consensus can play is to reinforce the NPT, with all its imperfections, as a foundation for an international legal order that would extend enforceable law to that most dangerous of security issue, the nuclear threat. No nuclear abolition can take the place of a consensus on legal rules because no abolition can be permanent unless the will exists to keep it so and the security, economic, and political incentives are in place to support that will. The packages of policies proposed in this chapter have value in themselves in the authors' view, but their main purpose is to extend the consensus on effective and fair legal rules for which the NPT and the associated regime can serve as a foundation.

VI. Some Topics for Further Research

We identify six topics for further research based on the presentations and discussions at the Stanford workshop of October 16–17, 2007. They are surely not the only possible such topics but we believe they are of significant importance for the renewal of the NPT consensus.

1. **NWS Nuclear Postures.** To what extent are the NWS (other than China) wedded to nuclear postures that envisage nuclear weapon use for less than ultimate deterrence or defense? The same question can be asked of Israel, India, and Pakistan (and North Korea if it does not follow through on its pledges). To what extent are the NWS nuclear plants tied to non-nuclear interstate rivalries such as NATO expansion or the Taiwan question? To what extent are they aimed at deterring state support of WMD terrorism?
2. **NWS Compliance With Article VI.** Improved compliance with Article VI on the part of the NWS is politically linked with an effective NPT consensus, a consensus needed to allay nuclear dangers under current conditions. While there is disagreement about the end point of a nuclear disarmament process, there is agreement, among workshop participants and other commentators, that progress is desirable. This leads to the question of what intermediate stages of disarmament (arms reductions, reductions in readiness, the CTBT, and others) will be considered secure and stable by the NWS and other states concerned, such as states that may rely on an NWS nuclear umbrella. In particular, how realistic is the prospect of a greater role for the U.N. or the UNSC in this regard?
3. **Improving Safeguards.** Nuclear power facilities are currently being installed in a number of countries and more widespread use is a distinct possibility. Such wider use will lead—indeed is already leading—to more potentially dual-use facilities, such as enrichment and reprocessing plants. Present safeguards on those plants are not sufficient to distinguish unambiguously between civilian and potentially military use. Technical possibilities for improvement exist but are resisted in part to protect commercial secrets. Studies of the linked technical, economic, and political problems associated with expanded safeguards on such facilities would pave the way for the agreements needed to update Article III to deal with today’s and tomorrow’s civilian nuclear world
4. **Instability in a Multipolar Nuclear World.** The issue of the possible instability inherent in a multipolar world of small nuclear arsenals or zero nuclear weapons needs serious study. Certainly there may be dangers of breakout and fears that fewer weapons pose less deterrent effect. But fewer weapons also could mean less effective first strike capabilities against powerful conventional deterrent forces. How steeply do “returns” to numbers of nuclear weapons diminish?
5. **Reducing Nuclear Demand.** The demand for nuclear weapons is driven both by insecurity and by politics, domestic and international. Some workshop participants advocated stronger NWS pledges of No-First-Use and more encompassing negative security assurances for NPT parties in good standing.

This leads to such questions as what assurances are the NWS willing and able to give; what constitutes “good standing” and who is to judge; how to reconcile the need to reduce demand for nuclear weapons with plans to actually eliminate them when doing so may exacerbate the insecurities that cause states to want nuclear weapons; and what assurances can be given when the demand for nuclear weapons stems from fear of superior hostile conventional forces.

6. **Verification of Low Numbers.** Whatever the end point of arms reductions may be, considerable technical progress and progress in transparency agreements is needed to verify low numbers of nuclear weapons and delivery vehicles for them. Some of this research is technical and best done at laboratories, but much is also in the political arena and will depend on country studies.

INTRODUCTORY COMMENTS DELIVERED OCTOBER 16, 2007

Michael May

The question before us is what can the P-5 Nations (five permanent members of the United Nations Security Council) do to rebuild the Non-Proliferation Treaty (NPT) consensus. The NPT consensus was always contentious but it has frayed in recent years on several counts. Foremost perhaps, the P-5 themselves are modernizing their nuclear forces and four have broadened nuclear deterrence to apply to non-nuclear states supporting weapons of mass destruction (WMD) terrorism. Thus, the United States has stated, using a familiar euphemism for nuclear weapons, that “[i]f a weapon of mass destruction is used against the United States or its allies, we will not rule out any specific type of military response.”⁽¹⁾ The United Kingdom and France have reserved the right to respond to an act of nuclear terrorism by using nuclear weapons against state sponsors of such attacks.⁽²⁾ The Russian leadership has stated that it will not rule out the use of preventive force against such state, though again it has not specified that nuclear weapons will be used.⁽³⁾ Only China has not officially changed its nuclear doctrine in that direction and it too is modernizing its nuclear forces.

These policies are against at least the spirit of Article VI and do little to rebuild the NPT consensus, however understandable the goal of preventing WMD terrorism and deterring states that possess nuclear weapons and nuclear weapons materials from cooperation with terrorist organizations. The threat to use nuclear weapons in response to chemical or biological attacks, made by the United States and others, is also contrary to pledges made at previous NPT review conferences.

The positions of four of the P-5 with regard to nuclear weapons use are not the only obstacles standing in the way of a revitalized NPT consensus. The several non-nuclear weapon states parties to the NPT that received assistance from the A.Q. Khan network violated Article II. The Iran situation points up sharply the long-standing tensions between the obligations under Article IV on the one hand and those under Articles II and III. The Democratic People’s Republic of Korea (DPRK) history until the DPRK withdrew from the NPT is a history of evasion of Articles II and III. After the DPRK withdrew from the NPT, its history raises questions about the adequacy of Article X. A number of observers believe that the nuclear agreement between the United States and India is contrary to the obligations of the United States under Articles I and II.⁽⁴⁾

¹ Richard Boucher, “Daily Press Briefing,” U.S. Department of State, Washington, D.C., February 22, 2002.

² See Jacques Chirac, Address on France’s Strategic Forces, Landivisiau, France, January 19, 2006, and Department of Defense, “The Future of the United Kingdom’s Strategic Deterrent,” Government of the United Kingdom, London, December 2006, p. 19.

³ Nikolai Sokov, “The Russian Ministry of Defense’s White Paper: The Nuclear Angle,” Nuclear Threat Initiative, October 2003, <http://www.nti.org/db/nisprofs/russia/weapons/whitepap.htm>.

⁴ See <http://www.stimson.org/southasia/?SN=SA20051212930> for references on that point of view.

Underlying these challenges lay at least two new developments and one old problem. The new developments are, first, the growing availability of nuclear and allied non-nuclear technologies to states and perhaps to terrorist groups and, second, the increasing worldwide demand for electricity, which is likely to lead to new nuclear reactors and the associated sensitive enrichment and reprocessing facilities. The old problem is the continued recourse by states to wars and threats of wars, which, whatever their rationale, provide a major incentive for the threatened states to avail themselves of nuclear deterrence if they can—and more can today than when the NPT was negotiated and entered into force.

While the obstacles are substantial, incentives to rebuild the NPT consensus are strong as well. The principal motivation lies in the conjunction of the wider availability of nuclear technologies with the continued anarchy and unpredictability of the international system. Early in the nuclear age, Einstein noted that the invention of nuclear weapons “changed everything except our modes of thinking and thus we drift toward unparalleled catastrophe.” For a time, the stability of the Cold War seemed to give him the lie. But that stability was artificial and bound to be temporary. It was founded on the limited availability of nuclear technologies in the early years, together with the robustness of key alliances in the wake of World War II. Neither of those restraints could last, and indeed the end of the Cold War has given rise to a new era of proliferation. In the last decade, more new nations have tested nuclear weapons than in any decade since the NPT came into force.⁽⁵⁾ Given that trend, it would seem that nothing short of an unparalleled consensus could curtail the momentum toward further nuclear proliferation.

What would an effective consensus be about? First, it would involve more states than the P-5, including non-nuclear weapon states and the nuclear-armed states outside the NPT. Second, the safeguards provided by the NPT regime would have to be updated and strengthened. As many of those here have argued, improving the safeguards regime may require a combination of strategies, including revising the techniques the IAEA uses to verify compliance with its regulations, expanding the agency’s authority to crack down on noncompliant states and establishing, through some form of fuel sales or leasing, a new arrangement to minimize the number of nations engaged in uranium enrichment or plutonium reprocessing.⁽⁶⁾

Building a new consensus would, third, also require the most heavily armed nuclear weapon states (NWS) to move more decisively on arms reductions and avoid all but ultimate reliance on nuclear deterrence. Significant consensus was reached in the final statements at the 1995 and 2000 NPT review conferences, especially on the CTBT and

⁵ For the dates on which the various weapons states tested, see “The Nuclear Testing Tally,” *The Arms Control Association*, February 2007, <http://www.armscontrol.org/factsheets/nucleartesttally.asp>.

⁶ For proposals on legal avenues to improve safeguards, see Pierre Goldschmidt, “Mechanisms to Increase Nuclear Fuel Supply Guarantees,” Carnegie International Nonproliferation Conference, Washington, D.C., November 7-8, 2005, p. 2-6. For a review of possible arrangements for international fuel banks, see Mohamed ElBaradei, “Towards a Safer World,” *The Economist*, October 2003. See also DOE Office of Public Affairs, “Department of Energy Announces New Nuclear Initiative,” Washington, D.C., February 6, 2006. Also see Chaim Braun and Michael May, “International Regime of Fresh Fuel Supply and Spent Fuel,” *The Nonproliferation Review*, 13.1; Ashton Carter and Stephen La Montagne, “A Fuel Cycle Fix,” *The Bulletin of the Atomic Scientists*, 62.1.

the NPT 13 steps. Many, perhaps a majority of state parties to the NPT are likely to demand a return to those undertakings. At the least, a consensus of the NWS about what can be achieved among these steps is needed.

Such consensus is necessary and will be difficult to achieve. Yet by itself it does not compensate for the fact that nuclear deterrence is coveted by some of the most vulnerable states now outside the consensus. So, fourth and perhaps most important and difficult, the demand for nuclear weapons would have to be addressed.

Many prominent scholars and policymakers have noted the importance of addressing the reasons states build nuclear weapons, specifically, security concerns, and their desire to enhance their international status. Given the latter reason, addressing demand will require an effort to reduce the political value of nuclear weapons. Alleviating the former motivation, on the other hand, may necessitate a broad reassessment of the role of military force in international relations. In my view, the NPT consensus cannot be rebuilt without also rebuilding the consensus forged after the World War II catastrophes that led among other things to the United Nations Charter.⁽⁷⁾ That consensus has collapsed in some of the most vulnerable and dangerous regions of the world and states there must rely on themselves and allies for self-defense. Their insecurity provides them with an incentive to build nuclear weapons, which no treaty can overcome until those very real security concerns are addressed.

We are, needless to tell this group, nowhere near the kind of consensus that would replace wars and threats of wars with a viable security arrangement. We may move toward it slowly as we realize the danger of the alternatives and the need to address jointly the other problems faced by our planet. Or we may not and it may take another catastrophe before a durable and effective consensus can be forged, if then. While no one can foresee which will happen, it is clear that without the P-5 and other states no consensus can be rebuilt toward either strengthening the NPT or addressing the demand for nuclear weapons.

It would be useful therefore to outline what feasible preliminary steps, aimed at restricting supply, updating incentives for adherence, and allaying demand for nuclear deterrents, could be proposed at the next NPT Review Conference or in another venue by interested member states. The 13 steps are a good start. They include, as known to this audience, ratification of the CTBT and further reduction of nuclear forces and of the dangers of accidental or inadvertent use. Additional steps include adoption of the Additional Protocol and others; expansion of the IAEA's verification and inspection authority especially and automatically for states found in noncompliance with their NPT obligations; explicit provisions for safeguarded civilian nuclear supplies; and more effective implementation of relevant U.N. resolutions such as UNSC 1540. Other proposals, recently promoted, emphasize punitive measures to penalize further illicit

⁷ War is most clearly delegitimized in the Preamble to the U.N. Charter and also in Article 2 (3, 4). See also, United Nations, General Assembly, 25th Session, "Declaration on the Principles of International Law Friendly Relations and Cooperation Among States in Accordance with the U.N. Charter," October 24, 1970. For a recent assessment of lawful and unlawful uses of force, see Natolino Ronzitti, "The Expanding Law of Self-Defense," *Journal of Conflict and Security Law*, Winter 2006.

procurements, safeguards violations, and questionable sources of financing. But all of those steps have proved and will prove ineffective when a state believes itself sufficiently threatened and unable to call on reliable UNSC or other help. Rebuilding the NPT consensus therefore requires also the much more difficult task of reducing demand by credibly improving the security of all states that comply with NPT rules and observe the relevant provisions of the U.N. Charter.⁽⁸⁾ Rebuilding the NPT consensus therefore may require a new look at reassurance measures for states that comply with NPT rules and observe the relevant provisions of the U.N. Charter.⁽⁹⁾

The question posed by the sponsor of this project, the Norwegian Ministry of Foreign Affairs, and the topic of this workshop “What can the P-5 do to rebuild the NPT consensus?” goes to the heart of this quandary. To discuss this question in the light of the realities of today, we have invited this distinguished group, which includes members of all five nuclear weapons states as well as a nuclear-armed state non-party to the NPT and two non-nuclear states. We will also hear from speakers on the history, possible paths and obstacles to nuclear disarmament, and a panel on verification issues.

I take this opportunity to add my thanks to the Norwegian Ministry of Foreign Affairs and to the Flora Family Foundation for their support for this work.

⁸ For an assessment of the need to address the demand side of proliferation, see George Perkovich et al., *Universal Compliance: A Strategy for Nuclear Security*, The Carnegie Endowment for Peace: Washington, D.C., 2005, p. 127-129; Robert E. Hunter, “The Iran Case: Addressing Why Countries Want Nuclear Weapons,” *Arms Control Today*, December 2004; and Thomas Graham, “The NGO’s and the Track II Process: An Effective Tool For Disarmament,” International Seminar on Disarmament, Lima, Peru, December 1999. Also see Sverre Lodgaard, “The Russell-Einstein Manifesto Fifty Years Later,” in *Addressing the Nuclear Threat: The Russell-Einstein Manifesto Fifty Years On*, ed. Jeffrey Boutwell (The Pugwash Conferences on Science and World Affairs: Washington, D.C., December 2005).

⁹ For a review of the history and current state of negative security assurances, see George Bunn and Jean du Preez, “More Than Words: The Value of U.S. Non-Nuclear- Use Promises,” *Arms Control Today*, July/August 2007.

NPT ARTICLE VI ORIGIN AND INTERPRETATION

Ambassador Thomas Graham, Jr.

Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a Treaty on general and complete disarmament under strict and effective international control.

—Treaty on the Non-Proliferation of Nuclear Weapons, Article VI

Soon after the end of World War II, as a symptom of the Cold War, which commenced shortly thereafter, a vast nuclear arms race between the United States and the Soviet Union came into being. The United States conducted its first atomic weapon test in April 1945 and a few weeks later used nuclear weapons against the Japanese cities of Hiroshima and Nagasaki. The Soviet Union carried out its first nuclear test in 1949. The bomb used against Hiroshima had an explosive yield of 12.5 kilotons, the equivalent of 12,500 tons of TNT. This weapon completely devastated the city of Hiroshima, killing some 200,000 people out of a total population of approximately 330,000.¹ But with the first thermonuclear weapon tests by the United States and the Soviet Union just a few years later in the early 1950s, nuclear test explosions were in the megaton range—1 million tons or more TNT equivalent—roughly 1,000 times more powerful than the bomb that destroyed Hiroshima.

During the Cold War and thereafter, the United States built some 70,000 nuclear weapons, the Soviet Union, 55,000, and at the peak the United States had 32,500 weapons in its stockpile, the Soviet Union some 45,000.² And there was a perceived risk that these weapons might simply spread all over the world. During the Kennedy administration there were predictions that there could be more than two-dozen nuclear weapon states in the world, with nuclear weapons integrated into their national arsenals by the end of the 1970s. Early on, President Kennedy displayed an intense interest in nonproliferation. On the eve of his inauguration, in January 1961, the president-elect asked outgoing Secretary of State Christian Herter which nations were candidates to join the nuclear club. Herter replied, “Israel and India.”³ To the end of his brief presidency, President Kennedy tried hard to restrain the Israeli program, perhaps concluding that if the United States could not restrain its ally Israel, how would it say no to Germany? And if Germany had sought nuclear weapons, the Cold War might have turned hot.

1. Richard Rhodes, *The Making of the Atomic Bomb* (Simon & Schuster, 1986), pp. 713, 734.

2. Robert S. Norris and William M. Arkin, “NRDC Nuclear Notebook, Global Nuclear Stockpile, 1945–2000,” *Bulletin of the Atomic Scientists*, March–April 2000.

3. Jeffrey T. Richelson, *Spying on the Bomb* (W. W. Norton, New York, London), p. 254.

If such anticipated proliferation had in fact happened, there could indeed have been far more than two-dozen nuclear weapon states in the world today. Mohamed ElBaradei, the director general of the International Atomic Energy Agency, expressed this concern in 2004 when in a speech in Washington, D.C., he said, “The danger is so imminent ... not only with regard to countries acquiring nuclear weapons but also terrorists getting their hands on some of these nuclear materials—uranium or plutonium.”⁴ Thus, potentially every significant conflict could have brought with it the risk of going nuclear, and it might have become impossible to keep nuclear weapons out of the hands of terrorist organizations, they would have been so widespread.

Thus, from the earliest days of the nuclear era, it was clear that it was necessary to prevent the spread of nuclear weapons. On November 17, 1945, the partners in the Manhattan Project, the United States, the United Kingdom, and Canada proposed the establishment of a United Nations Atomic Energy Commission for the purpose of “entirely eliminating the use of atomic energy for destructive purposes.” In 1946, the United States put forward the Baruch Plan, which would have put all nuclear research under international ownership and control.⁵

But these early attempts to achieve agreement on nuclear armaments and to prevent the spread of nuclear weapons did not succeed. The Cold War had begun, and negotiating with the Soviet Union was exceedingly difficult. Over time, the United Kingdom, France, and China joined the ranks of nuclear powers. In the early 1960s, the search for peaceful applications of nuclear technology brought the possibility of generating electricity with nuclear power reactors, and by the mid-1960s such reactors were operating in five countries. Generally speaking, each power reactor of the 1,000-megawatt class using conventional uranium fuel generates on average enough plutonium to fabricate in the range of 25 nuclear bombs per year. And it was estimated in the mid-1960s that in 20 years there could be more than 300 nuclear power reactors operating around the world. (Today's number is more than 400 and with the “nuclear renaissance” in the next 20 years this number could be much higher).⁶

By 1961, when President Kennedy became so concerned about nuclear weapon proliferation, the United States had 22,229 nuclear weapons in its arsenal, the Soviet Union, 2,450, and the United Kingdom, 50,⁷ and as stated there were fears of considerable increases in the numbers of weapons as well as the numbers of states with nuclear weapons beyond this. It seemed clear that, if the diversion of nuclear materials from peaceful purposes to weapon programs could not be halted by a system of international safeguards, and if an increasing number of nations as a result came into possession of a nuclear arsenal, the risk of nuclear war as a result of accident, unauthorized use, or escalation of conventional conflicts would significantly increase.⁸ As a result further steps began to be taken in response to this

4. Mohamed ElBaradei, speech in Washington, D.C., June 2004, reported in editorial, *Washington Times*, June 25, 2004.

5. *Arms Control and Disarmament Agreements*, 1990 ed., (United States Arms Control Disarmament Agency), p. 89.

6. *Ibid.*, p. 89.

7. Norris and Arkin, *op. cit.*

8. *Arms Control and Disarmament Agreements*, *op. cit.*, p. 89.

increasingly dangerous situation; for example in 1957, Canada, France, the United Kingdom, and the United States proposed several measures in the United Nations Disarmament Commission including a commitment “not to transfer out of its control any nuclear weapons, or to accept transfer to it any such weapons” except for self defense.⁹

The watershed was in 1961 when the United Nations General Assembly unanimously passed a resolution, introduced by Ireland, which called on all states to conclude an international agreement prohibiting the transfer or acquisition of nuclear weapons.¹⁰ More specifically, the Irish resolution called for an international agreement whereby “the nuclear states would undertake to refrain from relinquishing control of nuclear weapons and from transmitting the information necessary for their manufacture to states not possessing such weapons, and ... states not possessing nuclear weapons would undertake not to manufacture or otherwise acquire control of such weapons.”¹¹

In view of the unanimous approval of the “Irish Resolution” in 1961 by the General Assembly and the importance given to nonproliferation in the proposals submitted by the United States and the Soviet Union at the Eighteen Nation Disarmament Committee in Geneva (ENDC, later the Conference of the Committee on Disarmament, or CCD, and for many years now, the Conference on Disarmament, or CD), the Irish delegation saw little need for further action by the United Nations General Assembly on nuclear disarmament. The Irish delegation hoped that this resolution had paved the way for rapid agreement on nuclear nonproliferation.¹² But such was not to be the case; for several years there was no progress at the United Nations or at the ENDC. However, during the 20th session of the U.N. General Assembly in 1965, the subject was taken up again. A resolution on the nonproliferation of nuclear weapons was adopted for the first time since 1961. This resolution called for the negotiation of an international treaty to prevent the proliferation of nuclear weapons based on the following five principles:

- (a) The treaty should be void of loopholes that might permit nuclear or non-nuclear powers to proliferate, directly or indirectly, nuclear weapons in any form.
- (b) The treaty should embody an acceptable balance of mutual responsibilities and obligations of the nuclear and non-nuclear powers.
- (c) The treaty should be a step toward the achievement of general and complete disarmament and, more particularly, nuclear disarmament.
- (d) There should be acceptable and workable provisions to ensure the effectiveness of the treaty.

9. Ibid., p. 90.

10. Ibid.

11. Mohamed I. Shaker, *The Nuclear Non-Proliferation Treaty, Origin and Implementation, 1959–1979* (Oceana Publications, Inc., London, Rome, New York, 1980), p. 933.

12. Ibid., p. 35.

(e) Nothing in the treaty should adversely affect the right of any group of states to conclude regional treaties in order to ensure the total absence of nuclear weapons in their territories.¹³

The eight nonaligned members of the ENDC (which included Egypt, Sweden, and India, all prominent in disarmament matters) had some weeks previously that year placed on the record of the ENDC their view that "... measures to prohibit the spread of nuclear weapons should ... be coupled with or followed by tangible steps to halt the nuclear arms race and to limit, reduce, and eliminate the stocks of nuclear weapons and the means of their delivery." Ambassador Mohamed I. Shaker, in his definitive work *The Nuclear Non-Proliferation Treaty, Origin and Implementation, 1959–1979*, opines that this "joint memorandum can be considered as the immediate origin of principle (b)."¹⁴ And he also notes that the phrase "coupled with or followed by" therein was intended to strike a balance between those states such as India and Sweden that were advocating that a nonproliferation treaty should be coupled with other measures and those states that would support such an outcome but would settle for something less.

This is important; as Shaker later points out, Article VI must be read in light of not only principle (c) on disarmament, which is obvious, but also principle (b) on balanced obligations. Thus, the achievement of nuclear arms control and disarmament measures are not only important in themselves but they are also a step toward an equitable balance of obligations between the NPT (Non-Proliferation Treaty) nuclear weapon states-parties and the NPT non-nuclear weapon states-parties.¹⁵ Put another way, the NPT is based on a central bargain that balances the obligations of the two sets of parties. Most of the world, the NPT non-nuclear weapon states parties, undertake to never acquire nuclear weapons and in return the five NPT nuclear weapon states (the United States, the United Kingdom, Russia, France, and China) pledge unfettered access to peaceful nuclear technology and to pursue nuclear disarmament negotiations aimed at the eventual elimination of their nuclear stockpiles. This latter obligation is set forth in Article VI of the NPT, and it is thus important to understand Article VI as well in the context of three NPT preambular paragraphs, which in summary call for the cessation of the nuclear arms race, nuclear disarmament, a comprehensive test ban, and the elimination of nuclear weapons from national arsenals, in much the same way that Article VIII of the NPT provides for review conferences to assure that the purposes of the preamble as well as the provisions of the treaty are being carried out.¹⁶

Article VI was of course negotiated largely at the insistence of non-nuclear weapon states in the ENDC, and prominent among them were the eight nonaligned members referred to above. Their joint memorandum led to principle (b) and of course also to principle (c), since it addressed nuclear disarmament. But as indicated, behind the facade of the joint statement there was a significant difference of view among delegates as to how to accomplish nuclear disarmament and balanced obligations. India and Sweden separately wanted a "package" solution that linked nonproliferation to a variety of measures, including security assurances, a freeze in nuclear weapon production, a comprehensive test ban, and a

13. *Ibid.*, p. 37.

14. *Ibid.*, p. 55.

15. *Ibid.*, p. 556.

16. *Ibid.*, p. 561.

termination of production of fissile material for military purposes. One of the strongest advocates of this approach was India, which wanted an article in the treaty under which negotiations to reduce existing nuclear stockpiles would take place.¹⁷ Other states, such as Romania, favored a provision by which the nuclear weapon states would undertake to adopt “specific nuclear disarmament measures.”¹⁸ As neither of these approaches was acceptable to the United States or the Soviet Union, Mexico proposed an alternative, which was an obligation “to pursue negotiations in good faith” to achieve nuclear disarmament, and this obligation is what is found in Article VI.¹⁹ Many delegates did not believe that this represented balanced obligations, but it was all they could get at the time, and it was their hope that these balanced obligations would be later achieved under the pressure of periodic review conferences.

What then was to be the content of the negotiations to be pursued in good faith? As said, in 1965 India and Sweden had proposed a “package” solution linking nonproliferation with several measures, including security assurances, a freeze on the production of nuclear weapons, a comprehensive test ban, and a cutoff of all production of fissionable materials for military purposes.²⁰ Other delegations, such as Mexico and Romania, during the negotiations also pressed for commitment to such specific measures. These issues remain central ones to the success of the NPT regime to this day. Nuclear disarmament and the ending of the nuclear arms race were the main goals, and this is reflected in the preamble to the NPT in paragraphs 8 and 11, which speak of ending the arms race, nuclear disarmament, the cessation of the manufacture of nuclear weapons, and eliminating nuclear weapons from the arsenals of states. There was one specific measure, however, that many delegations wanted included as an objective above all others—if the nuclear weapon states could not significantly reduce their nuclear weapon stockpiles in the near future, at least they could stop conducting explosive tests of nuclear weapons. Sweden proposed for the January 1968 NPT draft treaty a reference to seeking the discontinuance of all test explosions of nuclear weapons,²¹ and this was included in the final treaty text as preambular paragraph 10.

Also, during the negotiations in responding to the dissatisfaction of some of the non-nuclear weapon states, the co-chairman of the NPT negotiations, the United States and the Soviet Union, repeatedly pointed to paragraph 3 of Article VIII on review conferences and its link to Article VI. The review conferences were to be a testing ground for the progress achieved by the nuclear weapon states in the field of arms control, and therefore the review conferences were charged to “review the operation” of the treaty to assure “that the purposes of the preamble and the provisions of the treaty are being realized.”²² The two co-chairmen were of the view in 1968 that the future viability of the NPT depended on the results achieved in this field.²³

17. *Ibid.*, p. 568-569.

18. *Ibid.*, p. 570.

19. *Ibid.*, p. 571.

20. *Ibid.*, p. 508.

21. *Ibid.*, p. 576.

22. Treaty on the Non-Proliferation of Nuclear Weapons, Article VIII, 3.

23. Shaker, *op. cit.*, p. 578.

The NPT was opened for signature on July 1, 1968, and at the first meeting of the ENDC following the NPT's being opened for signature—August 15, 1968—the two co-chairmen presented an agenda for the ENDC as a compromise between those states that had wanted commitments in the NPT to specific measures and those that did not. The nuclear part of this agenda read as follows.

Further effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament.

Under this heading members may wish to discuss measures dealing with the cessation of testing, the non-use of nuclear weapons, the cessation of production of fissionable materials for weapon use, the cessation of manufacture of weapons and reduction and subsequent elimination of nuclear weapon stockpiles, nuclear free zones, etc.²⁴

The co-chairman's agenda also included non-nuclear measures, such as proposals on chemical and biological weapons, arms control on the seabed, and general and complete disarmament.

The non-nuclear weapon states held their own conference in Geneva in August–September 1968 and prepared their ENDC agenda. The resolution adopted by this conference listed the following proposed agenda items:

- (a) The prevention of the further development and improvement of nuclear weapons and their delivery vehicles.
- (b) The conclusion of a comprehensive test ban treaty, as an important step in the field of nuclear disarmament, and as a matter of high priority.
- (c) Reaching agreement on the immediate cessation of the production of fissile materials for weapons purposes and the stoppage of the manufacture of nuclear weapons.
- (d) The reduction and subsequent elimination of all stockpiles of nuclear weapons and their delivery systems.²⁵

Again, it is important to note that throughout the NPT negotiations the two co-chairmen, particularly the United States, consistently emphasized the relevance of the review conferences to the achievement of measures to halt the nuclear arms race and nuclear disarmament.²⁶ But the non-nuclear weapon states believed that their more specific approach was consistent with the spirit and letter of Article VI of the NPT. And also in their view, there was no point in negotiating non-nuclear measures affecting all states when it was the nuclear weapon states that were expected to fulfill their obligations under Article VI in the field of nuclear weaponry as a quid pro quo for the renunciation of nuclear weapons by the non-nuclear weapon states before non-nuclear measures would be pursued.²⁷

24. *Ibid.*, p. 579.

25. *Ibid.*, p. 579–580.

26. *Ibid.*, p. 872.

27. *Ibid.*, p. 580.

A reference to security assurances should be included in this discussion. Security assurances fall into two categories, “positive” assurances of aid and protection to a state threatened or attacked by nuclear weapons and “negative” assurances consisting of pledges of the nonuse of nuclear weapons against non-nuclear weapon states. Banning the use of nuclear weapons and assurance of the security of non-nuclear weapon states were among the steps set forth by the eight nonaligned members of the ENDC in a 1966 further joint memorandum on nonproliferation²⁸ addressing measures that could be included in a nonproliferation treaty.

In 1966, the Soviet Union indicated that it would support the inclusion in a nonproliferation treaty “a clause on the prohibition of the use of nuclear weapons against non-nuclear states parties to the treaty, which have no nuclear weapons in their territory” (thereby exempting several key U.S. allies such as Germany). This became known as the Kosygin proposal.²⁹ However, the view that developed among the three nuclear weapon states participating in the negotiations—the United States, the United Kingdom, and the Soviet Union, as well as some of their allies—concluded that security assurances were too complicated to include in the treaty itself and instead proposed an associated Security Council resolution. Several countries had introduced proposals to include an NPT article on negative assurances, and one country had proposed a provision on positive assurances in the treaty.

In March 1968, the three nuclear states circulated a draft Security Council resolution at the ENDC. It was debated shortly afterwards in the General Assembly. There was considerable dissatisfaction expressed by a great number of states in the General Assembly with the content of the draft, and, in an attempt to assuage their discontent, the three nuclear weapon states added to the NPT draft the final preambular paragraph, which refers to the fact that, pursuant to the Charter of the United Nations, states are required to refrain from the threat or use of force. The draft resolution was passed by the Security Council on June 19, 1968, as Resolution 255. It contains largely general language about positive assurances being realized through the Security Council mechanism. At the above-mentioned Conference of Non-Nuclear Weapon States a few months later, a search for a better formula for security assurances was not successful, but in its declaration the conference emphasized the need for “an early solution of the question of security assurances in the nuclear era.”³⁰

Thus, it can be said that, based on the negotiating history of the NPT and the immediate aftermath of its signing, Article VI meant to the non-nuclear weapon states participating first and foremost a comprehensive nuclear test ban and, in addition, reductions in nuclear weapons worldwide leading to their eventual elimination from the arsenal of states, a cutoff of all production of fissionable material for military purposes, and at least effective negative security assurances (in other words in large part the “package” proposed by both India and Sweden in 1965).

One last issue in this regard from the 1968 period that should be mentioned here is Article X, 2, on NPT duration. The United States and others had pressed for a provision for

28. *Ibid.*, p. 473.

29. *Ibid.*, p. 474.

30. *Ibid.*, p. 477.

indefinite duration for the NPT, as was the custom with respect to other arms control/nonproliferation treaties. But important states involved in the negotiating process were unwilling to agree to this for the NPT. These states included Germany and Italy. Among the concerns expressed were the commercial impact of the NPT safeguard system, the potential effectiveness of the NPT, and the prospects for widespread membership. Therefore, it was agreed that 25 years after entry into force of the treaty, the states parties would meet and decide by majority vote the ultimate duration of the NPT. In this regard an aide-mémoire sent to the ENDC in November 1967 by the Swiss government said, in part, referring to the issue of the duration of the nonproliferation treaty under negotiation, “The non-nuclear weapon states certainly cannot take the responsibility of tying their hands indefinitely if the nuclear weapon states fail to arrive at positive results in that direction” (the adoption of specific measures aimed at a limitation of armaments).³¹

The first NPT Review Conference in 1975 produced a strong reaffirmation of support for the treaty by the parties. It also expressed solid support for IAEA safeguards and recommended that greater effort be made to make them universal and more effective.³² However, progress on Article VI by the nuclear weapon states was regarded as disappointing, and a complete impasse was reached on the test ban. At the end of the general debate, the conference chairwoman, Inga Thorsson, summed up the position of the non-nuclear weapon states to the effect that the agreement on a comprehensive test ban was recognized as the most divisive element in the efforts toward general disarmament.³³ Some 20 non-nuclear weapon states proposed adding a protocol to the NPT mandating a test moratorium until France and China joined the treaty and after that a comprehensive test ban. This was rejected by the nuclear weapon states and, in order to permit agreement on a conference final document, Thorsson gaveled through a presidential statement as a compromise, among other things expressing the desire of the conference that a test ban treaty be concluded as soon as possible.

The second review conference in 1980 was similar to 1975, only worse. There was a continued strongly held view of a majority of the parties that the nuclear weapon states had not lived up to their Article VI obligations. The nonaligned NPT members insisted on commitment by the nuclear weapon states to a comprehensive test ban treaty and, failing to achieve that, blocked conference agreement on a final document. This was so, even though substantial agreement was reached in other areas such as peaceful uses and safeguards.

At the 1985 conference, a final document was agreed upon by the pasting together of disparate views, primarily on Article VI issues using the on-the-one-hand/on-the-other-hand approach. Once again there was substantial agreement on peaceful uses and safeguards issues. The evaluation of post-1970 progress toward achieving Article VI arms control and disarmament goals revealed the significant disappointment among non-nuclear weapon states parties and produced considerable criticism of the treaty. In particular, virtually all non-nuclear weapon states parties present supported immediate negotiations on, and the urgent inclusion of, a comprehensive test ban treaty.

31. *Ibid.*, p. 861.

32. *Arms Control and Disarmament Agreements*, op. cit., p. 95.

33. *Shaker*, op. cit., p. 630.

The fourth NPT Review Conference in 1990 ended in failure, even though once again there was substantial agreement on peaceful uses and safeguards. In the last days of the conference, many non-nuclear weapon states parties insisted on a commitment from the nuclear weapon states to a comprehensive test ban treaty, and the nuclear weapon states were unwilling to agree to this. As a result, as in 1980, a final document could not be agreed upon. In addition to the test ban issue, the need for security assurances figured prominently in the debate, and, for the first time, the effectiveness of IAEA safeguards began to be questioned in the context of growing concerns about Iraq.³⁴

In the spring of 1995, the long-awaited NPT Review and Extension Conference took place. In the words of Article X.2 of the treaty, “Twenty-five years after the entry into force of the treaty, a conference shall be convened to decide whether the treaty should continue in force indefinitely, or shall be extended for an additional fixed period or periods. This decision shall be taken by a majority of the parties to the treaty.” This was without question the decisive moment for the NPT, and the outcome would turn primarily on how the Article VI issues were dealt with. The United States from the beginning of the run-up to the conference took a position for indefinite extension, wanting to make the NPT permanent like all other multilateral arms control/nonproliferation treaties. Approximately 110 of the then 175 states parties were non-nuclear weapon states parties considered to be in the nonaligned camp, and states in this group as well as a number of other non-nuclear states were of the view that the nuclear weapon states had not fulfilled their Article VI obligations. The NPT was a bargain; they had lived up to their side of the bargain, but the nuclear-weapon states had not lived up to their side—disarmament. As a result, most of these states were highly reluctant to agree to extend the NPT indefinitely, believing that if they did, they would lose all leverage over the nuclear weapon states and that the nuclear weapon states would never carry out their Article VI obligations.

The key manager of the Review and Extension Conference was Ambassador Jayantha Dhanapala, a supremely able diplomat from Sri Lanka who was elected president of the conference. The delegation that played the pivotal role was South Africa. South African Foreign Minister Alfred Nzo, in his speech on the first day of the conference, supported indefinite extension but proposed the establishment of benchmarks for disarmament progress linked to the permanent extension of the treaty. This provided the impetus to Ambassador Dhanapala to create a presidential consultations group, essentially to address the Article VI issues. The task of the consultations group was to develop an agreed document on arms control and nonproliferation objectives that all parties—including the nuclear weapon states—would agree to in the context of a strengthened and permanent NPT. There would also be a document enhancing the NPT review process to permit the annual monitoring of disarmament progress. The group was established in the second week of the four-week conference held in New York in April–May 1995.

Ambassador Dhanapala’s goal in this procedure was to see if we could find a way to make an indefinite extension more attractive to those states-parties that still wanted a shorter-

34. Jayantha Dhanapala, *Multilateral Diplomacy and the NPT, An Insider’s Account* (United Nations, 2005), p. 21.

term extension. If the main concern of many of the NNWS related to the fear of the loss of "leverage" over the NWS on disarmament, I felt that there might be some alternative ways for the NNWS to retain or perhaps even to expand that leverage. Limiting the extension was, in short, not the only means available to achieve such a goal—and the Treaty's review process offered the key to enhancing accountability.³⁵

Prior to the 1995 conference, there had been a long negotiation to update NPT security assurances, which would take the form of a new U.N. Security Council resolution on this subject. This negotiation was held in Geneva. Most nonaligned states were primarily interested in legally binding negative assurances as one of their quid pro quos for renouncing nuclear weapons. In 1994, 12 Non-Aligned Movement (NAM) states introduced a draft treaty on positive and negative security assurances in the CD. However, France—because of the importance of ambiguity in their nuclear doctrine—and Russia were strongly against explicitly making the negative assurances legally binding. Under the Treaty of Tlatelolco, the Latin American Nuclear-Weapon-Free-Zone Treaty, non-nuclear parties enjoy a legally binding negative security assurance from all five nuclear weapon states as a result of signature and ratification of Protocol II to the treaty by all five such states. The same is true for non-nuclear parties to the Treaty of Raratonga, the South Pacific Nuclear-Weapon-Free-Zone Treaty, as well the Treaty of Pelendaba, the African Nuclear-Weapon-Free-Zone Treaty. Thus, more than 100 non-nuclear NPT parties have the benefit of legally binding negative security assurances through these regional treaties but not through the NPT itself (although the United States has not yet ratified the South Pacific and African treaty protocols).

The draft resolution on security assurances was completed in Geneva and forwarded to New York. It was unanimously adopted by the Security Council but only after a vigorous debate.³⁶ In 1978 at the United Nations Special Session on Disarmament, the United States, the United Kingdom, and the Soviet Union all had pledged not to use nuclear weapons against non-nuclear weapon states parties to the NPT except in defense against an attack by any such state in alliance with a nuclear weapon state (in other words: nonuse except in the case of, in effect, nuclear war). These three statements in 1978 were not intended to be legally binding but were national declarations only. The new U.N. Security Council Resolution 984 expanded somewhat on Resolution 255 from 1968 and the 1978 statements. However, the security assurances themselves were outside the body of the 1995 resolution in the form of national statements again and were designed to be not legally binding. The language of the negative assurances followed those made in 1978, adding France, which was not a NPT party in 1978, and associating China, which had long followed a no-first use of nuclear weapons policy. Thus, the language of the security assurance in the statements of the United States, the United Kingdom, Russia, and France was identical; China's was different. Resolution 984 took note of these statements. Not resolved in all this is the issue of when does a non-nuclear weapon state cease to be "party" to the NPT and forfeit the protection of the negative security assurances. North Korea clearly did when it withdrew from the NPT in 2003 but, for example, what is the status of a state accused by some but not all NPT parties

35. *Ibid.*, p. 48.

36. U.N. Security Council Resolution 984, April 11, 1995.

of a material breach of the treaty but which claims to still be a party? Russia, France, and the United Kingdom did not address this matter in their statements, but the United States in its statement not only tightly linked its statement to NPT indefinite extension but also asserted that in accordance with international law parties to the NPT “must be in compliance with [the treaty] in order to be eligible for any benefits of adherence. ...”³⁷

A number of NAM countries were distressed at the form of the negative assurances. They had long wanted legally binding assurances, indeed since 1968. Nevertheless, even though the nuclear weapon states did not regard these assurances as legally binding, they were very important to non-nuclear weapon states and essential to the agreement to indefinitely extend the NPT, as indicated by the United States in its statement. After all, if such states were to permanently forswear nuclear weapons, the least their nuclear-weapon treaty partners could do would be to promise to never attack them with nuclear weapons. There was no qualification to this nonuse commitment (such as for an attack with chemical or biological weapons), with the exception, as noted, of an attack by a non-nuclear weapon state party in alliance with a nuclear weapon state, a holdover from Cold War days of competing superpower alliance systems. These assurances in 1995 were most solemnly made, in association with a resolution of the U.N. Security Council, and indefinite NPT extension depended upon them. The next year, 1996, the World Court implied that these assurances should be considered as on the same basis as the protocols to the nuclear-weapon-free-zone treaties, the treaties of Tlatelolco and Raratonga (Pelendaba had just been signed), which unquestionably are legally binding.³⁸ The British and French governments have always regarded these commitments to be of special seriousness because of their form and the circumstances under which they were given.

At the Review and Extension Conference, the presidential consultations group continued its work after the second week of the conference. The countries included on this advisory committee were Algeria, Australia, Canada, China, Colombia, Egypt, France, Germany, Hungary, Indonesia, Iran, Japan, Malaysia, Mexico, the Netherlands, Poland, Romania, the Russian Federation, Senegal, South Africa, Sri Lanka, Sweden, Venezuela, the United Kingdom, and the United States. These countries represented all the nuclear weapon states, the leaders of the various regional groups, and other countries that conference president Ambassador Dhanapala believed had significant points of view that should be represented.³⁹ By the end of the second week of the conference, it was clear that a majority of the NPT states parties favored indefinite NPT extension. Early in the third week, on May 5, the Canadian representative, Ambassador Chris Wesdahl, introduced a resolution for indefinite extension without conditions, sponsored by 105 states parties, easily a majority. Thus, Ambassador Dhanapala’s efforts began to focus less on securing indefinite extension and more on achieving it by consensus, in the most positive way for the NPT regime, and therefore what would accompany indefinite extension as its political price, “indefinite

37. *Non-Proliferation Treaty (NPT) Briefing Book* (MCIS/CNS), April 2007 ed., Section L, Security Assurances, page 3, accessed September 3, 2007, http://cns.miis.edu/research/npt/briefingbook_2007/index.htm.

38. International Court of Justice, *Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons*, July 8, 1996, p. 18.

39. Dhanapala, *op. cit.*, p. 46.

extension plus,” as he put it.⁴⁰ On April 21, South Africa circulated a working paper setting forth several proposals that it wished to see attached to a decision on indefinite extension. The paper identified five substantive goals to be included: a comprehensive test ban treaty, a fissile material cutoff treaty, security assurances, strengthening IAEA safeguards, and nuclear disarmament.⁴¹ Once again, these objectives followed the proposals of India and Sweden in 1965, part of the inspiration for NPT Article VI. The South African paper built on the general proposal of South Africa of April 19 of various “principles” of nuclear nonproliferation and disarmament in a strengthened review process to be in effect the “quid” for the “quo” of a conference decision indefinitely extending the NPT for the great benefit of all countries.

Ambassador Dhanapala assembled the “package” that would accompany a legally binding decision on indefinite extension, by consensus. This package, which would be “politically binding,” was intended to be the price for indefinite extension and would consist of a resolution on “Strengthening the Review Process” and “Principles and Objectives for Nuclear Non-Proliferation and Disarmament.” The package was approved by the presidential consultations group by consensus, and Ambassador Dhanapala was authorized to propose the three decisions to the conference plenary: “Strengthening the Review Process” (decision 1); “Principles and Objectives for Nuclear Non-Proliferation and Disarmament” (decision 2); “Extension of the Treaty on the Non-Proliferation of Nuclear Weapons” (decision 3). The enhanced review process provided for Preparatory Committee meetings in three of the four years prior to each five-year NPT Review Conference and these Preparatory Committee meetings were specifically authorized to monitor progress on the principles and objectives or, in other words, Article VI. The three decisions were approved by the conference by consensus on May 11, 1995.

Ambassador Dhanapala made clear that his use of the terms “legally binding” and “politically binding” in no way diminished the nature of decisions 1 and 2 as the basic “price” for NPT indefinite extension by consensus. Decision 2, like 1 and 3, was approved by all NPT states parties and should be considered a clear articulation of the meaning of Article VI, both as a central part of the basic NPT bargain of 1968 and the political justification for NPT indefinite extension in 1995. It binds all NPT states parties and is ignored at peril to the NPT regime.

In the words of Ambassador Dhanapala:

By “politically binding” I did not mean that the two decisions were only intended to apply to the present policies of the states parties, nor did I wish to imply that they would be in some way discretionary in terms of future policies. Just as decision 3 placed the indefinite extension on a firm legal foundation, so too were decisions 1 and 2 intended to strengthen the treaty’s political foundation. I am convinced beyond any doubt whatsoever that without this political foundation—which at the last minute of the conference was expanded to include the Middle East resolution—the states parties would never have been able to agree to the indefinite extension without a vote. I

40. *Ibid.*, p. 48.

41. *Ibid.*

thought it reasonable that a treaty addressing such weighty issues would benefit from a reinforced foundation.⁴²

The following is the text of the Article VI section of the “Principles and Objectives” decision as well as the section on security assurances.

The achievement of the following measures is important in the full realization and effective implementation of Article VI, including the program of action as reflected below:

(a) The completion by the Conference on Disarmament of the negotiations on a universal and effectively verifiable Comprehensive Nuclear Test Ban Treaty no later than 1996. Pending the entry into force of a Comprehensive Test Ban Treaty, the nuclear weapon states should exercise utmost restraint.

(b) The immediate commencement and early conclusion of negotiations on a non-discriminatory and universally applicable convention banning the production of fissile material for nuclear weapons or other nuclear explosive devices, in accordance with the statement of the special coordinator of the Conference on Disarmament and the mandate contained therein.

(c) The determined pursuit by the nuclear weapon states of systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goals of eliminating those weapons, and by all states of general and complete disarmament under strict and effective international control.

... Noting United Nations Security Council Resolution 984 (1995), which was adopted unanimously on April 11, 1995, as well as the declarations of the nuclear weapon states concerning both negative and positive security assurances, further steps should be considered to assure non-nuclear weapon states party to the treaty against the use of threat of use of nuclear weapons. These steps could take the form of an internationally legally binding instrument.⁴³

The Comprehensive Test Ban Treaty was signed in 1996 at the United Nations General Assembly with the United States being the first country to sign. However, in subsequent years negative developments for the NPT regime overshadowed positive ones. In 1998, both India and Pakistan carried out a series of nuclear weapon tests, declaring themselves to be nuclear weapon states and undermining the NPT regime from the outside. In April 1999, NATO issued its Strategic Concept outlining a nuclear doctrine that continued to assess nuclear weapons as essential in meeting NATO security needs, implicitly retaining the first use of nuclear weapons option, essentially contrary to the 1995 NPT security assurances statements. The following year, Russia announced its new National Security Concept, which included a provision for the first use of nuclear weapons. In October 1999,

42. Ibid., p. 50–51.

43. Thomas Graham, Jr., and Damian J. La Vera, *Cornerstones of Security, Arms Control Treaties in the Nuclear Era* (University of Washington Press, Seattle and London, 2003), p. 114.

came the most grievous blow, the rejection by the U.S. Senate of the Comprehensive Test Ban Treaty, the most important element of Article VI, the long-term “litmus test” of nuclear-weapon-state compliance with Article VI.

Against this backdrop the NPT parties came together again at the 2000 NPT Review Conference in an attempt to rescue the NPT regime. Led by the New Agenda Coalition of six non-nuclear weapon states, Brazil, Egypt, Ireland, Mexico, New Zealand, South Africa, and Sweden, and assisted by solid leadership from the United States, the NPT states parties agreed on a final document that set forth specific “practical steps for the systematic and progressive efforts to implement Article VI” of the treaty, along with the disarmament section of the 1995 Principles and Objectives document. Importantly, the nuclear weapon states agreed to an “unequivocal undertaking” for the total elimination of nuclear weapons,⁴⁴ thereby breaking the link with general and complete disarmament. The practical steps were intended to reinforce Article VI and afterwards became known as the “13 steps.”

In summary, the 13 steps include the following:

The conference agrees on the following practical steps for the systematic and progressive efforts to implement Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons and paragraphs 3 and 4(c) of the 1995 Decision on “Principles and Objectives for Nuclear Non-Proliferation and Disarmament.”

1. The early entry into force of the Comprehensive Nuclear Test Ban Treaty.
2. A moratorium on nuclear test explosions until entry into force of that treaty.
3. The necessity of negotiations on a fissile material cutoff treaty, which is multilateral and is internationally and effectively verifiable with a view to its completion in five years.
4. The establishment at the CD of a subsidiary body to deal with nuclear disarmament.
5. The principle of irreversibility to be applied to nuclear arms control and disarmament measures.
6. An “unequivocal undertaking” by the nuclear weapon states to accomplish the total elimination of their nuclear arsenals as required by Article VI.
7. The early entry into force of the START II treaty and the conclusion of a START III treaty as soon as possible while strengthening the ABM Treaty as a “cornerstone of strategic stability.”
8. The completion of the Trilateral Initiative among the United States, the Russian Federation, and the IAEA.
9. Steps by all the nuclear weapon states leading to nuclear disarmament including a. through f. as follows:

44. Dhanapala, *op. cit.*, p. 90.

- a. further efforts by the nuclear weapon states to reduce their arsenals unilaterally
 - b. increased transparency with respect to nuclear weapon capabilities
 - c. further reduction of nonstrategic nuclear weapons
 - d. concrete measures to reduce the operational status of nuclear-weapon systems
 - e. a diminishing role for nuclear weapons in security policies
 - f. engagement of all the nuclear weapon states in the process leading to the total elimination of nuclear weapons
10. Arrangements by the nuclear weapon states to place fissile material no longer needed for weapon purposes under IAEA safeguards.
11. Reaffirmation of the ultimate objective of general and complete disarmament.
12. Regular reports, within the framework of the NPT enhanced review process, on progress in implementing Article VI and the 1995 Principles and Objectives document.
13. The further development of verification capabilities required to provide assurance of compliance with nuclear disarmament agreements.⁴⁵

But in the years following the 2000 NPT Review Conference, there has been little progress in implementing the 1995 statement of Principles and Objectives or the 13 steps. Indeed there has been little in terms of positive developments for the NPT regime at all. In December 2001 the new U.S. Nuclear Posture Review affirmed a need to keep nuclear weapons indefinitely and indicated that circumstances might arise when the United States might use nuclear weapons against non-nuclear weapon states parties to the NPT, contrary to its 1995 pledge. And, contrary to such pledge, all of the NPT nuclear weapon states except China maintained national policies of reserving the right to initiate the use of nuclear weapons even against non-nuclear weapon states parties to the NPT. North Korea withdrew from the NPT in 2003 and began to reprocess plutonium from spent fuel from its reactor. However, in early 2007, an agreement was reached among the United States, North Korea, South Korea, China, Russia, and Japan for North Korea to shut down its reactor and begin the process of eliminating its nuclear weapon program. In June the reactor was shut down and on September 2, 2007, North Korea promised to dismantle its entire nuclear program. This process is promising, but likely it will be many years before North Korea eliminates its estimated arsenal of 8 to 10 weapons. Iran is widely suspected of pursuing a nuclear weapon program from within the NPT regime, and little progress has been made toward a favorable resolution of this situation. On the plus side, Libya, in 2004, verifiably abandoned its nuclear weapon program, which had existed for many years but never had proceeded very far. The 2005 NPT Review Conference was the worst ever. This time, there was no final document

45. Graham and La Vera, *op. cit.*, p. 131–132.

and no agreement on Article VI issues, which had happened before, but for the first time there was no agreement on peaceful uses or safeguards, either. And the U.S. delegation took the position that, in effect, the 1995 statement of Principles and Objectives and the (2000) 13 steps are no longer relevant. The NPT regime appears to be under the risk of deteriorating and perhaps a comment by Ambassador Dhanapala should be considered here:

Of all the challenges ahead for the treaty, complacency is arguably the greatest to overcome, because the NPT is not implemented on autopilot. ... The “indefinite” extension of the treaty should not, therefore, be viewed as “unconditional,” despite many common but misleading assertions to the contrary. ... When the states parties were presented with a Canadian proposal for a simple unconditional extension, they chose instead to adopt a “package” of decisions that allowed the indefinite extension. ... Ultimately, the best guarantee against complacency is to be found in the level of confidence among the states parties in the basic legitimacy or fairness of the treaty—and here I have some concerns, for there is a persisting, widespread perception amongst many states parties that the fundamental NPT bargain is in fact discriminatory after all, as many of its critics have maintained.⁴⁶

Like most significant international agreements, the NPT is a political document more than a legal instrument. It is grounded in a basic bargain: Most of the world’s states, now some 182, pledge to never acquire nuclear weapons; in return, the five nuclear weapon states recognized by the treaty pledge to assist non-nuclear weapon states in peaceful nuclear technology and to pursue nuclear disarmament negotiations aimed at the ultimate elimination of their nuclear arsenals. This latter obligation is set forth in Article VI of the treaty and is necessary to avoid having the NPT appear entirely discriminatory. The NPT contemplates that one day all the states parties will be equal; none will have nuclear weapons. But “one day” is far off, and this is accepted and understood by all states parties.

However, giving up forever the most powerful weaponry ever created and joining a treaty that enshrines this principle is not a natural act for a sovereign state, and as this treaty permits a small number of states to have these weapons for many years in the future, it is a political necessity for many states, in order to create a semblance of equality among the treaty parties, not only to have a general article committing the treaty’s nuclear weapon states to eventual nuclear disarmament but also to achieve specific steps in that direction in the shorter term. Since early in the Cold War and still today, the possession of nuclear weapons has to a large degree distinguished “great powers” from other states. The United Kingdom, France, and India have all made clear that this was the rationale behind their nuclear arsenals.⁴⁷ But no major state wants to remain perceived as second class forever. Hence, political balance is essential to the survival of the NPT for the indefinite future.

Therefore, not only the general language of Article VI should be understood to be part of the NPT basic bargain but so should some of the nearer-term nuclear disarmament measures that the NPT negotiating parties had in mind in 1968 and that the NPT non-nuclear weapon states parties have had in mind ever since. These essential specific elements of

46. Dhanapala, *op. cit.*, p. 115-116.

47. Thomas Graham, Jr., *Common Sense on Weapons of Mass Destruction* (University of Washington Press, Seattle and London, 2004), p. 66.

Article VI have been well understood all along. They are a comprehensive test ban treaty (which is the subject of a treaty preambular clause), a fissile material cutoff treaty, deep reductions in nuclear weapons worldwide, and binding negative security assurances—once again, more or less the same as the central elements of the 1965 proposals of both India and Sweden. Now, nearly 40 years after signature of the NPT and 37 years after its entry into force, these specific objectives of Article VI, which are important to the viability of the NPT, remain largely unrealized. The NPT is not a gift from the 182 NPT non-nuclear weapon states to the five NPT nuclear-weapon states; it is a political and strategic bargain. The Article VI situation should be addressed and readdressed to continue to preserve a viable and effective NPT. As Ambassador Dhanapala said, the NPT does not run on autopilot.

THE ORIGINS OF NON-PROLIFERATION TREATY (NPT) ARTICLE VI

George Bunn

A 1961 U.N. General Assembly resolution sponsored by Ireland (with support from the United States) called for negotiation of a treaty in which nations having nuclear weapons would agree not to help other nations acquire such weapons. This treaty would also provide that nations not having nuclear weapons would agree not to acquire them.¹ Earlier similar resolutions had been adopted during President Eisenhower's administration, but no international negotiations to produce such a treaty had resulted.² At the beginning of the Kennedy administration in 1961, there was concern that, without such a treaty, more and more countries would seek nuclear weapons. At that time, only Britain, France, the Soviet Union, and the United States had them. China, however, tested a nuclear weapon in 1964.³

Before he was elected president in 1960, Kennedy had proposed legislation to create a new government agency to study and make recommendations on how to prevent the spread of nuclear weapons to more and more countries and how to provide for their control and reduction in the countries that had them.⁴ After Kennedy took office in 1961, he appointed a senior Republican statesman, John J. McCloy, to advise him on how to organize the federal government to deal with negotiations to limit and reduce nuclear weapons. I became a special assistant to McCloy.

Kennedy made preventing the spread of nuclear weapons to additional countries a major goal of his administration. However, most of the countries that then seemed likely to acquire soon the capability to make nuclear weapons were allies or friends of the United States.⁵ The Eisenhower administration had hoped to provide its European allies with enough responsibility for NATO decisions about nuclear weapons so that no NATO members beyond the United States, Britain, and France (which already had nuclear weapons) would seek them. Allied discussions had produced, by the end of the Eisenhower administration, a U.S. proposal for a NATO Multilateral Force (MLF) of naval destroyers with nuclear weapons supplied by the United States. These ships would be manned not just by Americans but also by NATO allies, particularly officers and seamen from the Western part of Germany. The idea was that if West Germany could confidently rely for its defense upon American nuclear weapons on MLF ships with crews that included German officers and seamen, they would not need to seek their own nuclear weapons.⁶

This idea had been discussed privately with NATO allies, particularly the government of West Germany. Satisfying the nuclear weapon desires of Britain and France was *not* the purpose of the MLF because, by 1960, the British and French had already acquired their own

1. See George Bunn, *Arms Control by Committee* (Stanford University Press, 1992), pp. 64–66.

2. See U.N. General Assembly Resolution 1576 (XV), December 20, 1960.

3. See Bunn, *Arms Control by Committee*, p. 68, Table 1.

4. See Remarks by Senator Kennedy at the University of New Hampshire, March 7, 1960, *Documents on Disarmament* (1960), pp. 58, 61.

5. See Bunn, *Arms Control by Committee*, p. 68, Table 1.

6. See Bunn, *Arms Control by Committee*, p. 64.

nuclear weapons. The West Germans were very interested, but no NATO consensus on such a plan had been agreed. When the Kennedy administration officials interested in achieving a nonproliferation treaty learned about the discussions with allies of an MLF plan by the Eisenhower administration, some of these officials became convinced that the Soviets would never agree to NPT language that would permit Germans and probably Italians to participate in the manning and operation of NATO MLF naval vessels having nuclear weapons—even if the captain of each ship and most of the weapon-handling personnel were Americans. However, there were also strong supporters of the MLF within the Kennedy and Johnson administrations. It took several years of discussions within these two administrations before President Johnson made a choice for an NPT over a NATO “nuclear multilateral force.”⁷

During 1961, Kennedy administration officials met with Soviet representatives on questions of nuclear nonproliferation and nuclear weapon reductions. These meetings produced a “Joint [U.S.-USSR] Statement of Agreed Principles for Disarmament Negotiations,” which, among other things, proposed eventual elimination of nuclear weapon stockpiles “under strict and effective international control.” It contained, however, no agreed statement on preventing additional countries from acquiring nuclear weapons.⁸

In the fall of 1961, Kennedy spoke to the U.N. General Assembly, proposing a ban on “the transfer of control over nuclear weapons to states that do not own them.”⁹ In that year, U.S. representatives worked actively to support a strengthening of a General Assembly “Irish Resolution” on nuclear nonproliferation, a resolution that was adopted unanimously that year.¹⁰ The Irish Resolution asked nations around the world to call for a treaty in which those nations that had nuclear weapons would 1) promise not to give them to any nation not having them and 2) promise not to assist such a nation in making them. The nations not having nuclear weapons would agree not to acquire them. The resolution did not call for the elimination of nuclear weapons in the four countries that then had nuclear weapons.¹¹ But the United States submitted to the General Assembly a plan that did. It called for “General and Complete Disarmament in a Peaceful World,” including, of course, eventual elimination of nuclear weapons. This proposed that reductions of nuclear and other important weapons should take place in three stages, with final elimination of nuclear weapons at the end of the third and last stage.¹² As a result of American-Soviet talks, the General Assembly called for the creation of an 18-Nation Disarmament Conference at Geneva that would focus on the negotiation of international agreements to control, reduce, and eventually eliminate nuclear and other major weapons.

7. Ibid., pp. 66-72.

8. See Report of the United States and the Soviet Union to the Sixteenth General Assembly on Results of Bilateral Talks, *Documents on Disarmament* (1961), pp. 439, 440.

9. Address of President Kennedy to the General Assembly, September 25, 1961, *Documents on Disarmament* (1961), pp. 465, 470.

10. See Bunn, pp. 64-66.

11. U.N. General Assembly Resolution 1665 (1961).

12. See Address by President Kennedy to the General Assembly, September 25, 1961, *Documents on Disarmament 1961*, p.465, 467; U.S. Declaration Submitted to the General Assembly: A Program for General and Complete Disarmament in a Peaceful World, *Documents on Disarmament, 1961*, p. 475.

For the new Geneva disarmament conference, the Americans and the Soviets each had prepared plans for general disarmament that called for eventual elimination of nuclear weapons as well as major reductions in other weapons.¹³ These proposals would also prohibit any country not having nuclear weapons from acquiring them but would require the four countries that then had them to eliminate their weapons by the end of third and last stage of disarmament. Instead of a treaty focusing on preventing the spread of nuclear weapons, such as the Irish Resolution had called for, these weapons would be controlled and reduced in a major treaty dealing with “general and complete disarmament.”

When the 18-Nation Disarmament Conference opened in Geneva in 1962, U.S. Secretary of State Dean Rusk met privately with Soviet Foreign Minister Andrei Gromyko—who expressed no interest in an American proposal for a nuclear nonproliferation treaty.¹⁴ The Cold War between East and West was in full swing, and earlier arms-reduction talks had not produced much agreement. Based on earlier talks with the Soviets, the U.S. delegation to the conference thought Gromyko was probably planning another propaganda battle in which the Soviet delegation hoped to win points from the eight nonaligned countries represented at the conference by again proposing the elimination of all nuclear and many other weapons pursuant to a Soviet-inspired treaty for “general and complete disarmament.”¹⁵ An anticipated propaganda battle on “general and complete disarmament” with the Soviets was one of the reasons the U.S. delegation had submitted its own draft plan for general and complete disarmament to the conference.¹⁶

A U.S. report to its allies at the Geneva conference about the Rusk–Gromyko talks produced a proposal from Italy, a member of the conference and an ally of the United States. The Italians proposed a simple agreement to be signed by countries not possessing nuclear weapons not to acquire them. Only those countries that did not have nuclear weapons would join this agreement. The Italian representative called this a “unilateral renunciation of nuclear weapons” by each non-nuclear weapon country, perhaps because withdrawal from the proposed agreement would be easy. Countries that joined the agreement would meet periodically to discuss how much the nuclear weapon powers had achieved toward nuclear disarmament. If one member of the proposed plan concluded that the progress toward nuclear disarmament by the nations with nuclear weapons was inadequate, that member could withdraw from its promise and acquire nuclear weapons. The United States wanted a much stronger obligation for the non-nuclear weapon signers of a future agreement.

The idea that any agreement of the nonaligned nations not to acquire nuclear weapons should be matched by agreement of the four nuclear-weapon-possessing nations to reduce and eventually eliminate their nuclear weapons became a familiar theme of the nonaligned nations in debates at the U.N. General Assembly. At the Geneva disarmament conference, the debates on “general and complete disarmament” that had begun in the General Assembly continued with lengthy plans for disarmament from the U.S. as well as the Soviet delegation.

13. See U.S. Blue Print for the Peace Race: Outline of the Basic Provisions of a Treaty on General and Complete Disarmament in a Peaceful World (U.S. ACDA 1962).

14. See Bunn, pp.66-67.

15. I had helped draft the American plan for “General and Complete Disarmament in a Peaceful World.”

16. See note 13.

Both the U.S. and the Soviet plans for “general and complete disarmament” dealt with nuclear proliferation as part of these much broader plans, not as an issue that could be dealt with separately from such disarmament.

After lengthy discussions between the Americans and the Soviets on implementing the Irish Resolution, plus lengthy discussions by the Americans with their allies, some of whom were still interested in creating a multilateral nuclear force, the U.S. delegation finally, in 1966, submitted a draft NPT to the Geneva conference. The Soviets then proposed their own version of such a treaty.¹⁷ Neither version contained a provision like NPT Article VI on nuclear disarmament, although both called for nuclear disarmament in the preambles to their drafts.

Serious private U.S.-Soviet negotiations looking toward what became the NPT had begun in 1965. Eventually, after debates and negotiations, identical U.S. and Soviet NPT texts were presented to the Geneva Conference. The two countries had achieved an agreement, and each had conferred with its allies as well as with the eight nonaligned countries represented at the Geneva Conference. The two NPT drafts contained *preambular* calls for nuclear disarmament and for general and complete disarmament. But neither draft proposed an NPT treaty article requiring negotiations to achieve nuclear arms reductions or disarmament.

Mexico made the first proposal for an NPT article requiring negotiations to achieve nuclear disarmament.¹⁸ India, a leader of the nonaligned countries in the NPT negotiations during this period, supported Mexico’s idea. Debate at the conference over possible drafts for this provision followed. So did American private discussions with our allies and with the Soviets on the text and how it should be worded. A joint U.S.-Soviet text including an Article VI on disarmament negotiations was finally proposed by the representatives of the two countries in January 1968. U.S. allies and nonaligned members of the conference suggested changes in that draft, and a final treaty text was presented to the conference by the U.S. and Soviet negotiators in March 1968.¹⁹ This final treaty text was then discussed in the U.N. General Assembly and signed by a great many countries on July 1, 1968.²⁰

China had tested nuclear weapons in 1964 and therefore had already qualified as a nuclear weapon state-party under the terms of the NPT. Research relating to how to produce nuclear explosions had been going on in India, and it was not prepared to sign the treaty.²¹ Otherwise, all the members of the Geneva Disarmament Conference eventually signed the NPT, including the seven nonaligned nations other than India that were conference members. The U.S. delegation believed that Article VI was one of the provisions that particularly attracted the nonaligned countries. Today, the treaty has been joined by almost all the nations of the world except for India, Israel, North Korea, and Pakistan, all of which have (or have had, in the case of North Korea) nuclear weapons.

17. See Bunn, *Arms Control by Committee*, pp.66-72.

18. Mohammed I. Shaker, *The Nuclear Non-Proliferation Treaty*, (Oceana Publications, 1989), v. 2, pp. 557-562.

19. See Bunn, *Arms Control by Committee*, pp.72-79.

20. See Bunn, *Arms Control by Committee*, pp. 98-101.

21. George Perkovich, *India’s Nuclear Bomb* (University of California, 1999), pp.104-105.

There are sometimes disagreements today over whether Article VI obligates NPT parties to negotiate now for “general and complete disarmament,” including of course nuclear disarmament, or whether Article VI is satisfied in today’s world with negotiations for lesser measures relating to the reduction of nuclear and other weapons. The first requirement of Article VI is “negotiations in good faith on effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament.” This clearly includes negotiations on specific freezes in the nuclear arms race and less-than-total reductions in nuclear arms. Indeed, in diplomatic parlance, the term “nuclear disarmament” includes not only the total elimination of nuclear weapons but also the elimination of significant numbers of nuclear weapons short of all. Therefore, Article VI can be satisfied initially by the negotiation of such steps. Given this meaning, Article VI calls for two alternative pathways toward zero: 1) negotiations on a treaty on “general complete disarmament” or 2) periodic negotiation of lesser agreements that include reductions of nuclear weapons, such as the Strategic Arms Limitation Talks (SALT) I and II, Strategic Arms Reduction Treaty (START) I and II, and Strategic Offensive Reduction Treaty (SORT). These have provided step-by-step nuclear reductions, one agreement at a time. But detailed proposals for general and complete disarmament have been made by both governments.²²

22. George Bunn and Roland Timerbaev, “Nuclear Disarmament: How Much Have the Five Nuclear Powers Promised in the Non-Proliferation Treaty?” (University Press & Lawyers Alliance for World Security, 1994), p. 11.

AMERICA'S NUCLEAR POSTURE

Ambassador Linton F. Brooks

Introduction

The current United States' nuclear posture has several components:

- An attempt, codified in the 2001 Nuclear Posture Review, to craft an appropriate nuclear policy for the post-Cold War world, a policy that redefines both the fundamental purposes of nuclear weapons and the relations between nuclear weapons and other elements of national power.
- A significant reduction in nuclear forces and weapons from the levels at the end of the Cold War, although the resulting levels are still significantly higher than those of any other state except for Russia.
- An effective repudiation of the development of any new nuclear weapons *capabilities*, coupled with a willingness to modernize existing forces under an assumption of the long-term retention of nuclear weapons.
- A continuation of the historic ambiguity over the specific circumstances in which the United States would actually employ nuclear weapons.
- A reduction, at least under the current administration, of the perceived utility and relevance of formal East-West arms control.

It is important to understand that, except for force structure and warhead levels, the current senior U.S. leadership has given little attention to nuclear issues since the first year of the current administration. Technical nuclear weapons experts crafted the posture and policies described herein with only limited input from the political leadership. It is only a slight exaggeration to say that at the Cabinet level the current attitude toward nuclear policy can best be characterized as one of indifference. The war on terrorism, Iraq, and the continued attempts to reform and transform the Pentagon have consumed the senior civilian and military leadership, while the nuclear policy issues that were so central during the Cold War are no longer perceived as crucial.

Fundamental Policy and the Nuclear Posture Review

Current American nuclear posture has been heavily influenced by history. The immense destructiveness of the weapons exploded on Hiroshima and Nagasaki made it obvious that nuclear weapons were qualitatively different from other weapons. Therefore, beginning with the 1945 publication of Bernard Brodie's seminal essay, "The Atomic Bomb and American Security," a theory evolved that these weapons existed either exclusively or primarily to deter war rather than to fight it. In 1959, Albert Wohlstetter's article, "The Delicate Balance of Terror," solidified the realization that the two superpowers were locked in a relationship of *mutual* deterrence. Americans eventually came to embrace the notion best expressed by Ronald Reagan: "A nuclear war cannot be won and must never be fought."

As it gradually developed, the American theory of deterrence had at least three components:

1. The United States had to be able to respond with overwhelming, devastating retaliation no matter how the nuclear exchange was initiated, even in the unlikely event of a surprise attack in peacetime with absolutely no warning.
2. That retaliation had to hold at risk something that our enemy valued, not simply what we would value in his place.
3. Nuclear deterrence was not just designed for nuclear attack but covered conventional attack on us or—importantly—on our allies.¹

In theory, these concepts applied to any potential enemy. In practice, they were applied almost exclusively to the Soviet Union.

These three conditions had specific practical implications for U.S. nuclear force structure. To be able to respond under any conditions of attack meant that as many weapons as possible had to be survivable. That led to submarines on patrol carrying submarine-launched ballistic missiles, to bombers on alert capable of taking off on very short notice, and to intercontinental ballistic missiles (ICBMs) maintained ready to launch before incoming warheads could arrive. These three components were collectively called the nuclear triad. They were interrelated in such a way to make a successful surprise attack essentially impossible. One component would always survive long enough to retaliate.

The second element of deterrence meant that U.S. weapons were not simply designed to destroy cities, despite the popular perception to the contrary. The United States believed that the Soviets valued the tools of national power and continuity of control by the Communist Party above all else. Thus, we evolved a targeting strategy that focused on military (especially nuclear) targets, leadership targets, and war-supporting industry.

The final aspect of our deterrent theory was that nuclear weapons must deter not only nuclear attack on the United States but also conventional attack on our allies, particularly NATO, Japan, South Korea, and Australia. For much of the Cold War virtually all Americans believed the conventional forces of the Soviet Union were overwhelmingly superior to those of the United States and our NATO allies. Thus NATO developed so-called tactical nuclear weapons fired by artillery or short-range missiles or delivered by fighter aircraft. These weapons had both a war-fighting purpose—to blunt a Soviet conventional attack—and the deterrent purpose of linking the central strategic forces of the United States with the defense of Europe.

When the Cold War ended and communism collapsed, the United States was left with extensive nuclear forces designed for large war with a single adversary and with a nuclear doctrine primarily designed to support such a conflict. Throughout the 1990s and into the early 21st century, strategists struggled with how to think about nuclear weapons as part of a broader attempt to understand the nature of the new world, a world that for most of the 1990s was only identified by what it was not and called the “post-Cold War world.”

1. A relatively recent development, discussed below, is expanding the purpose of nuclear weapons to the deterrence of rogue-state use of chemical and biological weapons.

In 2001, this struggle culminated in a fundamental conceptual reexamination of the role of nuclear weapons. That reexamination led to the December 2001 Nuclear Posture Review, which was intended to set forth the policy direction for U.S. nuclear forces over the next decade and beyond and represented the most sweeping conceptual change in nuclear thinking since the late 1970s, although its impact on nuclear force structure was much less dramatic.²

The Nuclear Posture Review reaffirmed that nuclear weapons remain a crucial element of U.S. national security strategy. But, consistent with the changed international environment, the review embraced a radical departure from the past and a fundamental rethinking of the roles and purposes of nuclear weapons. Among the many changes, four are most important.

- Instead of structuring day-to-day planning around Russia, the review concluded that the United States no longer needed to plan its nuclear forces as if Russia presented an immediate threat.
- Instead of treating nuclear weapons in isolation, the review considered them as an integrated component of U.S. military power, thus recognizing that nuclear means alone were inadequate for the security challenges the United States faces.³
- Instead of treating the future as static and predictable, the review recognized that requirements could change and that U.S. nuclear forces must be prepared to respond to those changes.
- Instead of assuming future threats could be precisely determined and thus could serve as the sole basis for sizing forces, the review established the need for a capabilities-based force to accomplish four distinct defense policy goals, described below.

The Nuclear Posture Review replaced the Cold War U.S. nuclear triad of bombers, ICBMs, and submarine-launched ballistic missiles with a conceptual new triad of strategic capabilities that consists of the following:

- non-nuclear and nuclear strike capabilities, with the traditional triad continuing to provide the nuclear capabilities;
- active and passive defenses, especially ballistic missile defenses; and
- the research, development, and industrial infrastructure needed to develop, build, and maintain nuclear forces and defensive systems.

All of these elements were to be tied together by robust command, control, communications, and intelligence capabilities. To implement this new, integrated approach, the president established a new Strategic Command, with responsibility for global strike—both nuclear and non-nuclear—and for integrating missile defenses with offenses.

Under this new approach, U.S. strategic capabilities, including nuclear forces, serve four defense policy goals.

2. There is no unclassified, public version of the Nuclear Posture Review. Extracts are available at <http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm>.

3. This aspect has often been misinterpreted as broadening the potential uses of nuclear weapons but in fact was intended to narrow them.

- First, to *assure* allies of our commitment to them and our ability to make good on that commitment. The implications of this goal are that forces must be effective, reliable, and clearly designed to respond to a broad range of contingencies, not just to a nuclear attack on the United States.
- Second, to *dissuade* potential adversaries from trying to match our capabilities or from engaging in strategic competition. This requires that we maintain a combination of forces and infrastructure so that no potential power except Russia can have any hope of matching our capability and thus will be dissuaded from attempting to do so.
- Third, to *deter* any threats that do emerge. This implies an ability to hold at risk those elements of power that a potential adversary values.
- Fourth, to *defend* against and *defeat* those threats that, for whatever reason, we do not deter.

Contrary to some reports, the new triad—and the Nuclear Posture Review generally—did not lower the nuclear threshold or give new prominence to nuclear weapons.⁴ Instead, the review continued the trend of the previous decade toward reduced reliance on nuclear forces. The new emphasis on ballistic missile defenses means that the United States will no longer be as heavily dependent on offensive strike forces for deterrence as it was during the Cold War. The strengthening of non-nuclear strike forces—including precision conventional strike and information operations—means that the United States will be less dependent than in the past on nuclear forces to provide offensive deterrent capabilities.

Force Structure Trends

While the intellectual constructs underlying the Nuclear Posture Review represent a significant departure from the past, the resulting nuclear force structure did not. Instead, the force structure emerging from the review reaffirmed decisions and trends from the 1990s.

When the Cold War ended, the United States chose to maintain all three legs of the nuclear triad, while reducing each significantly. For example, of the 1,050 ICBMs in service at the end of the Cold War, 450 Minuteman II missiles and 50 Peacekeeper (MX) missiles have been deactivated. This year the United States will begin removing an additional 50 Minuteman III missiles from service. The elimination of the Peacekeeper missile from the inventory is particularly noteworthy, since it was the most modern and capable ICBM in the U.S. arsenal and had been regarded as a mainstay of deterrence in the late 1980s.

Similarly, of 18 Trident ballistic missile submarines in service at the end of the Cold War, four have been removed from strategic service and converted to non-nuclear missions. In 1991, bombers were removed from their historic alert status, ready to launch in minutes. The number of nuclear-equipped bombers has been reduced, the capability to return the B-1

4. In part because the administration failed to clearly communicate its approach to Congress, the American people, and the international community, this assertion has been greeted with considerable skepticism, especially abroad. A 2006 study by Lewis Dunn for the Defense Threat Reduction Agency found widespread perceptions overseas that the United States had increased its emphasis on nuclear weapons.

bomber to nuclear use has been eliminated, and the United States is retiring one of its two types of nuclear-armed, air-launched cruise missiles.

More striking than these reductions in delivery systems has been the reduction in deployed warheads. President Bush set forth the current U.S. position on May 1, 2001, at the National Defense University:

We can, and will, change the size, the composition, the character of our nuclear forces in a way that reflects the reality that the Cold War is over. I am committed to achieving a credible deterrent with the lowest-possible number of nuclear weapons consistent with our national security needs, including our obligations to our allies. My goal is to move quickly to reduce nuclear forces.

As a result of this direction, the 2001 Nuclear Posture Review concluded that U.S. security could be assured by a gradual reduction to no more than 1,700–2,200 operationally deployed strategic warheads, a level later codified in the 2002 Treaty of Moscow. This new level is about a third of the 6,000 allowed under the 1991 START I Treaty. The Nuclear Posture Review numbers continue a trend toward reductions since the end of the Cold War, including the 1993 unimplemented START II Treaty (3,000–3,500 warheads) and the 1997 Helsinki Joint statement setting out parameters for a never-initiated START III negotiation (2,000–2,500 warheads).⁵ As pointed out earlier, with Russia no longer an immediate threat, U.S. deployed force levels are not driven by specific targeting requirements but by a combination of defense policy goals, other military needs, and plans for the new triad.

In addition to strategic forces, the United States maintains some nuclear weapons variously termed “tactical,” “theater,” or, most recently, “nonstrategic” nuclear weapons.⁶ During the Cold War these weapons, many of them deployed in Europe, compensated for conventional military shortfalls and linked the defense of NATO to the U.S. strategic arsenal. In 1991, the United States and its NATO allies unilaterally decided to retire all nuclear artillery shells, all nuclear warheads for short-range ballistic missiles, and all naval nuclear anti-submarine warfare weapons. Subsequently the United States has eliminated all of these weapons. The small number of nonstrategic nuclear weapons (all bombs) that remain deployed is less than one-tenth of the Cold War level.

Historically, deployed nuclear forces have always been supported by a reserve to hedge against uncertainty. Additional strategic warheads over and above those operationally deployed serve three purposes:

- to support routine maintenance of the stockpile including logistics spares and replacing warheads eliminated during routine destructive testing,

5. Because of differences in counting rules, the various numbers are not strictly comparable. The effective reduction from START I levels is at least as great as the numbers quoted above imply. As a further indication of the essential consistency of U.S. force structure policy, both the elimination of Peacekeeper and the reduction from 18 to 14 ballistic missile submarines (SSBNs) were planned by the previous administration.

6. This is an unfortunate term that arose in the Cold War to signify weapons excluded from arms control agreements. In contemporary political terms, all nuclear weapons are strategic.

- to hedge against unexpected geopolitical changes, and
- to guard against technical failures.

In May 2004, the president approved a plan that will dramatically lower the number of weapons retained as a hedge and thus will significantly reduce the total stockpile. As a result, by 2012, the United States' nuclear stockpile will be cut almost in half from that existing in 2001 and will be the smallest it has been since the Eisenhower administration. The weapons removed from the stockpile are being eliminated.

An important post-Cold War change has been ending the development of new nuclear capabilities. For decades, the U.S. nuclear weapons complex was organized to be continuously designing, developing, testing, and producing new weapons. In the last two decades, however, there have been no new nuclear weapons in development. Even adaptation of existing weapons has been curtailed. In the 1990s the B-61 bomb was modified to improve its ability to penetrate frozen soil, with the modified version designated the B61-11. A similar attempt by the current administration to modify either the B-61 or B-83 bombs to penetrate hard rock was rejected by the Congress. The program, called the Robust Nuclear Earth Penetrator, was ultimately abandoned by the administration. It appears clear, regardless of which party controls Congress, that there is no interest in new nuclear capabilities.⁷

The situation with delivery systems is more complex. There are no plans and no apparent interest in any new means of delivering nuclear weapons. The significant modernization of the 1980s means that there has been no need since the end of the Cold War to consider replacement ICBMs, bombers, or ballistic missile submarines, especially since the life of both Trident submarines and the missiles they carry has been extended. Although the United States has made no formal decisions, early discussions of replacements for all three legs of the triad are under way within the Department of Defense. This is consistent with the overall trend of maintaining but not expanding U.S. nuclear capability.

Targeting Trends

An important aspect of a state's nuclear posture is the selection of those targets to be held at risk as a deterrent and that would be subject to attack should deterrence fail. The United States discusses targeting policy only in the most general terms. Although many assume that deterrence is based on threatening to kill individuals in response to an attack, population as such has not been considered a legitimate target in U.S. thinking for several decades. Instead, the United States focused on military targets, leadership and control targets, and war-supporting industry. The United States stressed the fact that it did not target population "as such," although critics pointed out with some accuracy that it was impossible to attack leadership and war-supporting industry (both usually located in urban areas) without killing a very large number of people.

Planning generally assumed that any nuclear exchange would be extremely large, although the United States maintained the ability to tailor attacks by excluding or including

7. The Reliable Replacement Warhead, which does not entail any new military capabilities, may yet win approval. See the discussion below.

target categories and, near the end of the Cold War, increased its ability for flexible planning and targeting. The Nuclear Posture Review called for shortening the time between identifying a target and having an option available for attacking it. While there is little specific information available, the more complex post-Cold War world requires continued targeting flexibility and greater emphasis on smaller retaliatory options.

Declaratory Policy

Because nuclear weapons gain their utility without being used, government statements about their purpose and the circumstances under which they might, or might not, be used have special policy relevance.⁸ Authoritative statements in this area made on behalf of the United States are often designed to influence the behavior of potential adversaries or proliferators.

Since the beginning of the nuclear age, U.S. public statements have made it clear that nuclear weapons were unique and that their use would be appropriate only in the gravest of circumstances. For the last half-century, no U.S. leaders have regarded nuclear weapons as simply more effective military weapons available for normal military purposes. At the same time, the United States has maintained some ambiguity about the specific military circumstances in which it would consider nuclear use. In particular, the United States has consistently rejected a “no first use policy.” In part, this arose from the particular circumstances of the Cold War, when the United States perceived the Soviet Union as possessing a significant conventional military advantage and planners thought that nuclear weapons use might be necessary to halt a Soviet attack. But the United States also has a strong tradition of not limiting in advance the options available to a president. As a result, there has been a great reluctance to rule out any options in discussing a possible future nuclear use decision, even in situations where it is exceptionally unlikely that nuclear weapons use would be contemplated.

The United States has always sought to make it clear that its nuclear forces were intended to deter not only attack on the United States itself but also on its troops abroad and on its allies. Extended deterrence—the so-called “nuclear umbrella”—has been an important element of U.S. policy, both actual and declared, for decades. The best-known example, of course, is NATO:

The supreme guarantee of the security of the allies is provided by the strategic nuclear forces of the Alliance, particularly those of the United States.⁹

The United States has also made it clear that its deterrent is extended to allies elsewhere. For example, Secretary of Defense Rumsfeld “offered assurances of firm U.S. commitment

8. Much of this discussion is drawn from a June 18, 2007, briefing, “Project on U.S. Declaratory Policy Toward WMD Threats: Phase 1 Findings,” by John P. Caves, Jr., senior research fellow at the National Defense University’s Center for the Study of Weapons of Mass Destruction.

9. Excerpted from *The Alliance’s Strategic Concept*, approved by the heads of state and government participating in the meeting of the North Atlantic Council in Washington, D.C., April 23–24, 1999.

and immediate support to the ROK [Republic of Korea], including continuation of the extended deterrence offered by the U.S. nuclear umbrella, consistent with the Mutual Defense Treaty.”¹⁰ Most recently, following the October 2006 North Korea nuclear test, Secretary of State Rice reassured the Japanese of the continued applicability of the U.S. nuclear umbrella.

In addition to reassuring allies, the United States has also sought to use declaratory policy to discourage proliferation. This has taken two forms: a promise to assist non-nuclear states threatened with nuclear aggression (often called a “positive security assurance”) and a statement of restraint in using nuclear weapons against non-nuclear states except in certain circumstances (often referred to as a “negative security assurance”). The common formulation of these two assurances extending back to 1978 is as follows:

The United States affirms its intention to provide or support immediate assistance, in accordance with the [United Nations] Charter, to any non-nuclear weapon state party to the Treaty on the Non-Proliferation of Nuclear Weapons that is a victim of an act of, or an object of a threat of, aggression in which nuclear weapons are used ...

... The United States reaffirms that it will not use nuclear weapons against non-nuclear weapon states parties to the Treaty on the Non-Proliferation of Nuclear Weapons except in the case of an invasion or any other attack on the United States, its territories, its armed forces or other troops, its allies, or on a state toward which it has a security commitment, carried out or sustained by such a non-nuclear weapon state in association or alliance with a nuclear weapon state.¹¹

In recent years, with the growing concern over chemical and biological weapons, the situations in which the United States would not rule out the use of nuclear weapons have been gradually broadened to include response to attack by all forms of weapons of mass destruction. While using euphemisms like “overwhelming response,” administrations of both parties have made it clear that aggressors employing chemical and biological weapons cannot necessarily expect the U.S. response to be limited to conventional military means. The current official formulation is as follows:

The United States will continue to make clear that it reserves the right to respond with overwhelming force—including through resort to all of our options—to the use of WMD against the United States, our forces abroad, and friends and allies.¹²

In the previous administration, Secretary of Defense William Cohen gave a similar formulation on November 23, 1998, when he said the following:

10. Excerpted from The 38th Security Consultative Meeting Joint Communiqué, Washington, D.C., October 20, 2006.

11. Secretary of State Warren Christopher, April 5, 1995. The reference to “association or alliance with a nuclear weapon state” was intended to make it clear to Warsaw Pact nations that they would be potentially subject to nuclear attack if they cooperated in a Soviet attack on NATO.

12. National Strategy to Combat Weapons of Mass Destruction, December 2002.

We think that the ambiguity involved in the issue of the use of nuclear weapons contributes to our own security, keeping any potential adversary who might use either chemical or biologicals unsure of what our response would be.

Finally, in recent years the United States has sought to deter the transfer of nuclear weapons to terrorists by state sponsors of terrorism. The September 2006 *National Strategy for Combating Terrorism* states as follows:

We will make clear that terrorists and those who aid or sponsor a WMD attack would face the prospect of an overwhelming response to any use of such weapons. ... We will ensure that our capacity to determine the source of any attack is well known and that our determination to respond overwhelmingly to any attack is never in doubt.

Arms Control, Nonproliferation, and Disarmament

While they were never perfectly coupled, U.S. nuclear and arms control policy were closely related during the Cold War. The United States was careful to ensure the military sufficiency of its arms control proposals and crafted those proposals in part to ensure stability in crisis. This drive for stability helped shape both the START I and START II treaties. START II was never implemented, while START I will expire in December 2009. Neither the United States nor Russia wishes to extend the treaty in its present form.¹³ Both see advantages to a replacement regime that would preserve some benefits of START while reducing burdensome and expensive requirements. Russia seeks a formal follow-on treaty that would include legal limits on forces. The current U.S. administration, convinced that formal arms control is inappropriate for the relationship that the United States seeks to forge with Russia and that it must retain flexibility to adjust future force structures, prefers an informal agreement on transparency and confidence building, although it may accept a legally binding agreement on these issues.

The difference between the United States and Russia on what should replace START I reflects a broader disagreement over the role of arms control in the post-Cold War world. One perspective, generally adopted by the Clinton administration, was to see the breakup of the Soviet Union as allowing much more progress in arms control—deeper reductions, more intrusive verification, and solutions to the problems posed by non-deployed nuclear warheads and their dangerous fissile material, among other things. The Bush administration view has been the exact opposite. It saw the lengthy and cumbersome negotiation process as delaying the continued reductions that both sides sought. It saw complex verification procedures as reflecting (and perhaps contributing to) an atmosphere of confrontation and suspicion inappropriate for the new partnership relationship that both countries desired.¹⁴ As a result, the Bush administration preferred reciprocal unilateral steps. At Russian insistence, it

13. Ukraine, Belarus, and Kazakhstan are also parties to START I but play no meaningful role in decisions on its future.

14. I owe this insight, although in a significantly different form, to Dr. Edward Ifft, in a presentation, “The Future of START,” presented at a June 2007 Arms Control Association press roundtable.

accepted the 2002 Treaty of Moscow obligating the United States and Russia to reduce operationally deployed strategic warheads to between 1,700 and 2,200 by 2012, the level the administration had previously determined was appropriate during the Nuclear Posture Review. Because the Treaty of Moscow lacks verification provisions and allows an immediate increase in deployed forces after 2012, it is widely regarded as no more than a joint declaration of intent expressed in treaty form.

Many observers regard bilateral arms control as contributing to nonproliferation by demonstrating that the major powers are making progress toward meeting their commitments under Article VI of the nuclear Non-Proliferation Treaty. Article VI itself has not, however, influenced U.S. arms control policy. No current arms control treaty was seen by its U.S. drafters as a step toward the elimination of nuclear weapons, despite ritual references to Article VI in preambles. Indeed, the author has been associated with U.S. nuclear weapons policy for more than a quarter-century and has never seen Article VI cited as a factor in any internal U.S. arms control, nuclear policy, or nuclear force structure decision. This is not because of a U.S. disregard for international obligations but rather appears based on a belief that actual nuclear disarmament is attainable, if at all, so far in the future as to have limited relevance to day-to-day decisions. Indeed, the United States has routinely reported the various actions it has taken demonstrate that it is making good progress on its Article VI obligations. **Annex A** to this paper is a current list of accomplishments normally cited in support. The list is impressive and clearly refutes the notion that the United States has been increasing emphasis on nuclear weapons or is seeking to preserve a Cold War posture. On the other hand, none of these steps was taken specifically because of Article VI.¹⁵ The one serious high-level attempt in the past 50 years to move to elimination came when President Ronald Reagan met Soviet President Mikhail Gorbachev at Reykjavik in 1987. It is widely assumed that President Reagan's actions, which ultimately were unsuccessful, arose from a revulsion against nuclear weapons rather than any particular interpretation of Article VI.

Like arms control and disarmament, U.S. nonproliferation policy has had only limited influence on other aspects of the U.S. nuclear weapons posture. Instead, the intellectual effort has focused on explaining why U.S. weapons modernization is not in conflict with strong U.S. support for nonproliferation. The argument is as follows: The major U.S. nonproliferation objective is to prevent rogue states and terrorist groups from acquiring weapons of mass destruction and systems for their delivery. Nothing the United States does with its nuclear weapons will increase incentives for terrorists to acquire such weapons—those incentives are already high and are unrelated to U.S. nuclear capabilities. Nor are U.S. nuclear plans and policies likely to have any impact on rogue states, whose proliferation activities march forward independently of the U.S. nuclear program.

This argument has considerable merit. The 1990s saw very significant reductions in the numbers of U.S. (and Russian) nuclear weapons, reductions in the alert levels of nuclear forces, and the suspension of nuclear testing by all five Non-Proliferation Treaty nuclear

15. For the formal U.S. position, see the paper, "Disarmament, the United States, and the NPT," presented by Christopher A. Ford, U.S. special representative for nuclear nonproliferation, to the conference on "Preparing for 2010: Getting the Process Right," Annecy, France, March 17, 2007.

weapon states. The United States deployed no new warheads, and there was little U.S. nuclear modernization. There is absolutely no evidence that these developments caused North Korea or Iran to slow down their covert programs to acquire the ability to produce nuclear weapons. Similarly, there is no reason to believe that the pace of nuclear proliferation in South Asia was influenced by developments in the U.S. or Russian nuclear programs.

On the other hand, while U.S. weapons policies have little direct influence on proliferators, many believe that they do influence U.S. ability to gain broad international cooperation in opposing proliferation and in dealing with recalcitrant states. For example, it is clear that the U.S. decision to negotiate and sign a Comprehensive Test Ban Treaty made it easier to gain consensus in 1995 for the indefinite extension of the nuclear Non-Proliferation Treaty.

Current Issues

The most significant current issue relating to the U.S. nuclear posture is whether or not to proceed with the Reliable Replacement Warhead (RRW). The term “Reliable Replacement Warhead” has two meanings. First, it refers to a specific modified warhead design that would replace some fraction of the existing W76 warheads on Trident submarine-launched ballistic missiles. The W76 is the smaller of the two warheads available for Trident and is the most numerous warhead in the U.S. arsenal. It was designed during the Cold War, when designs were driven by the perceived need to put a large number of warheads on each missile (and thus to maximize yield to weight ratio) and to minimize the use of plutonium, then viewed as a scarce resource. As a result, the W76, like many modern U.S. warheads, is a finely tuned design that operates with relatively low performance margins and is thus more susceptible to possible unforeseen effects of aging.

The Reliable Replacement Warhead was designed to respond to this concern with the long-term effects of aging. It would use the additional weight and volume made available by reducing the number of warheads per missile to increase performance margins (and thus confidence in reliability) and to incorporate a number of significant safety and security improvements. Because these modified warheads would have the same military characteristics, be carried on the same missiles, and hold at risk the same targets as current warheads, they do not suggest a new arms race. Instead, the administration believes their deployment would have significant and beneficial implications for nonproliferation by reducing the possibility of any future need to return to nuclear testing and by permitting further reductions in the total U.S. stockpile.

More generally, the term “Reliable Replacement Warhead” refers to a visionary concept with the potential to transform the U.S. stockpile and its supporting infrastructure. Advocates look forward to a transformed stockpile based on RRW principles. The greater design margins will make such warheads significantly less sensitive to unforeseen effects of aging and more straightforward to remanufacture if and when their age requires it. Elimination of many hazardous materials will help protect the health and safety of our workforce while incorporation of production considerations into the initial design will allow for ease of modification or correction of routine problems. Dramatic improvements in warhead security will respond to the post-9/11 security threat using technology rather than

increased security forces. Revitalization of the weapons design and engineering capabilities of the national laboratories will replenish American intellectual capital to meet the challenges of the future. Perhaps most radically, the RRW concept will allow the transformation of today's stodgy, antiquated nuclear weapons complex into the responsive nuclear weapons infrastructure needed for the future and called for by the 2001 Nuclear Posture Review. It is these broader, transformational aspects that have advocates so enthusiastic.

Opponents of the Reliable Replacement Warhead have raised several concerns. Some question the need for any action at this time, citing several nongovernmental technical studies in support of their position. Others fear (erroneously) that development of the RRW will lead to a resumption of nuclear testing. Still others, while seeing merit in the Reliable Replacement Warhead, nevertheless believe the United States should undertake a fundamental review of nuclear policy and forces before proceeding with any new program. The most powerful objection, however, is that proceeding with the Reliable Replacement Warhead could hamper U.S. nonproliferation efforts. Despite the fact that the warhead will not incorporate any new military capabilities, many see it as a "new" warhead. More generally, proceeding with the Reliable Replacement Warhead makes it clear to the international community that the United States intends to retain a nuclear capability for the foreseeable future.

The Reliable Replacement Warhead debate illustrates the current lack of a broad consensus on nuclear issues within the United States, especially with respect to the relationship between nuclear forces and nonproliferation policy. In part, this situation results from the administration's failure to develop the initial ideas set forth in the Nuclear Posture Review and to relate the concepts in the review more directly to force structure and declaratory policy. To respond to this concern, in July 2007 the secretaries of state, defense, and energy jointly forwarded a report on U.S. nuclear policy to the Congress. The brief report is reproduced at [Annex B](#) in a slightly truncated form. It is not yet clear whether this report will be sufficient to gain long-term congressional approval of the Reliable Replacement Warhead. One committee has criticized it as inadequate, while another has been more supportive—both reflecting positions the individual committees held before the report was submitted. At a minimum, the report is an important step by the administration to reengage the Congress on nuclear issues.

There is one issue that many outside the United States (and some within) believe exists, but which does not. That is the possibility of returning to underground nuclear testing. The United States has maintained a testing moratorium since 1992. There is no pressure within the technical community to end this moratorium and no support in any segment of the political community for doing so. In particular, the directors of the three weapons laboratories have expressed their confidence that RRW can be developed and deployed without nuclear testing, and the administration has repeatedly said that if it cannot, then it will not be fielded. The Congress has made it clear that the program can only continue on this basis.

Where there is a significant nuclear testing issue is in the debate over ratification of the Comprehensive Test Ban Treaty. The current administration believes that it is impossible to predict long-term future requirements and thus that, while there is no current or projected need to resume testing, ratification of the Comprehensive Test Ban Treaty is unwise. A

future Democratic administration would probably take the opposite view. Opinions differ as to whether the necessary two-thirds vote in the Senate for ratification is likely.

The Call by Former Senior Government Officials to Embrace Nuclear Abolition

A potentially important recent development was the publishing in January 2007 of a proposal by four extremely distinguished Americans—former Secretary of State George Shultz, former Secretary of Defense William Perry, former Secretary of State Henry Kissinger, and former Senator Sam Nunn—for the United States to lead other nuclear states in adopting a vision of a world free of nuclear weapons and to begin to work actively toward attaining that vision.¹⁶ Harkening back to the 1986 Reykjavik summit between U.S. President Ronald Reagan and Soviet General Secretary Mikhail Gorbachev, these eminent Americans recalled

... Reagan and ... Gorbachev aspired to accomplish more at their meeting in Reykjavik 20 years ago—the elimination of nuclear weapons altogether. Their vision shocked experts in the doctrine of nuclear deterrence but galvanized the hopes of people around the world. The leaders of the two countries with the largest arsenals of nuclear weapons discussed the abolition of their most powerful weapons

The four retired statesmen called for a major effort to bring that vision to fruition, including seeking agreement on “a series of agreed and urgent steps that would lay the groundwork for a world free of the nuclear threat.” These steps would include the following:

- Changing the Cold War posture of deployed nuclear weapons to increase warning time and thereby reduce the danger of an accidental or unauthorized use of a nuclear weapon.
- Continuing to reduce substantially the size of nuclear forces in all states that possess them.
- Eliminating short-range nuclear weapons designed to be forward-deployed.
- Initiating a bipartisan process with the Senate, including understandings to increase confidence and provide for periodic review, to achieve ratification of the Comprehensive Test Ban Treaty, taking advantage of recent technical advances, and working to secure ratification by other key states.
- Providing the highest possible standards of security for all stocks of weapons, weapons-usable plutonium, and highly enriched uranium everywhere in the world.
- Getting control of the uranium enrichment process, combined with the guarantee that uranium for nuclear power reactors could be obtained at a reasonable price, first from the Nuclear Suppliers Group and then from the International Atomic Energy Agency (IAEA) or other controlled international reserves. It will also be necessary to deal with proliferation issues presented by spent fuel from reactors producing electricity.

16. George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn, “A World Free of Nuclear Weapons,” *The Wall Street Journal*, January 4, 2007, A15.

- Halting the production of fissile material for weapons globally; phasing out the use of highly enriched uranium in civil commerce and removing weapons-usable uranium from research facilities around the world and rendering the materials safe.
- Redoubling our efforts to resolve regional confrontations and conflicts that give rise to new nuclear powers.

In the view of the authors, “Without the bold vision, the actions will not be perceived as fair or urgent. Without the actions, the vision will not be perceived as realistic or possible.”

It is unclear whether this call for action will have any practical effect. There are three reasons why it might not. First, while the authors acknowledge the daunting international political challenges of creating a world where elimination is possible and (obliquely) the equally daunting technical challenges of verifying elimination and of taking action in case of violation, they offer no road map to meet either set of challenges. Second, while a number of U.S. presidential candidates formally support the call for elimination, few have thus far made it central to their campaigns¹⁷ (the current administration has shown no interest at all, but the proposal is clearly aimed at the administration to take office in 2009). Finally, whatever the merits of the specific steps the authors propose, none of them would directly move the world closer to elimination of nuclear weapons

On the other hand, while there have been retired senior officials in the past who have favored nuclear abolition, the collective seniority and prestige of the authors is unprecedented. Supporters of abolition are also encouraged that the United Kingdom, America’s closest ally, appears to have embraced their argument.¹⁸ Further, their insistence on the importance of a long-term vision is potentially compelling. Ambassador Max Kampelman, one of the 17 co-endorsers of the *Wall Street Journal* editorial, has noted as follows:

What is missing today is a global political commitment to move from what “is”—a world with a risk of increasing global disaster—to what “ought” to be, a civilized world in peace and free of weapons of mass destruction. ... Our founding fathers proclaimed the “ought” of American democracy in our Declaration of Independence at a time when we had slavery, property qualifications for voting, and second-class citizenship for women. Yet, we steadily moved the undesirable “is” of our society ever closer to the “ought” and thereby strengthened our democracy.¹⁹

Finally, while the practical steps may not point directly to elimination, at least some of them reduce the security relevance of nuclear weapons, which in principle should make it

17. The formal positions of most Democratic candidates (but no Republicans) were given in response to a questionnaire from the Council for a Livable World and can be found at

http://www.clw.org/assets/pdfs/2008_presidential_candidates_questionnaire_responses.pdf.

18. “A World Free of Nuclear Weapons?” remarks by Margaret Beckett, then U.K. secretary of state for foreign and commonwealth affairs, at the Carnegie International Nonproliferation Conference, June 25, 2007.

19. William R. Van Cleave Distinguished Lecture, delivered April 27, 2006, at the Fairfax, Va., campus of Southwest Missouri State University.

easier to give them up. Even if the next administration fully embraces the vision of abolition, however, the process of moving to abolition would be a very long one, almost certainly measured in decades rather than years. The ability of the United States (or any other state) to sustain a vision over such a lengthy period is unclear.

Prospects for Disarmament

This review of the current American nuclear weapons posture does not offer much hope to those who favor the elimination of nuclear weapons in the relatively near term. Nuclear abolition requires a firm commitment by governments, a steady reduction in nuclear arsenals, a decreased emphasis on nuclear weapons as a component of national security, a clear political plan to move toward a nuclear-free world, a plan to develop the technical capability to verify the elimination of nuclear weapons, and a mechanism to deal with those who illicitly seek to retain or reestablish a nuclear weapons capability. While the United States has made significant reductions in nuclear arsenals, reductions that will almost certainly continue, and while the United States has steadily decreased the role of nuclear weapons in its national security posture, the other conditions are completely absent.²⁰ It remains the view of virtually all U.S. government officials and of the majority of experts and scholars outside government that the political conditions to permit the abolition of nuclear weapons and the technical ability to verify that abolition will not exist during our lifetime. The task for the international community, therefore, is to continue to manage a world in which nuclear weapons are a fact of life.

20. The United States has tabled a thoughtful paper on the political conditions for abolition as part of the preparatory work for the 2010 Non-Proliferation Treaty Review Conference. See “Achieving and Sustaining Nuclear Weapons Elimination,” presented by Christopher A. Ford, U.S. special representative for nuclear nonproliferation, and delivered at the conference on “Preparing for 2010: Getting the Process Right,” Annecy, France, March 17, 2007. It is probably more accurate to see this as indicating a renewed U.S. willingness to engage in dialogue on Article VI rather than as suggesting any belief within the administration that the political conditions for elimination can be achieved.

ANNEX A

U.S. Progress Toward Meeting Its NPT Article VI Commitment

Over the past 20 years, the United States has made remarkable progress in fulfilling its NPT Article VI commitment. The nuclear arms race has, in fact, been halted. The United States has been reducing its nuclear forces and nuclear weapons stockpile in a consistent fashion, through both unilateral and bilateral initiatives, and working cooperatively with allies and partners to further reduce nuclear threats. In particular:

- The INF Treaty, which entered into force in 1988, eliminated two whole classes of nuclear delivery vehicles—short-range and intermediate-range nuclear missiles.
- In 1991, the United States and its NATO allies unilaterally decided to retire all nuclear artillery shells, all nuclear warheads for short-range ballistic missiles, and all naval nuclear anti-submarine warfare weapons. All of these weapons have been eliminated. Since 1988, the United States has eliminated more than 13,000 nuclear weapons.
- Also in 1991, the United States unilaterally
 - removed all nonstrategic nuclear weapons on a day-to-day basis from surface ships, attack submarines, and land-based naval aircraft bases;
 - removed strategic bombers from alert;
 - stood down early the Minuteman II ICBMs scheduled for deactivation under START I;
 - terminated the mobile Peacekeeper and mobile Small ICBM programs; and
 - terminated the SRAM-II nuclear short-range attack missile.
- In January 1992, further unilateral steps were taken, which included
 - limiting B-2 production to 20 bombers;
 - stopping new production of Peacekeeper ICBMs;
 - canceling the entire Small ICBM program;
 - ceasing production of W88 Trident SLBM warheads; and
 - halting purchases of advanced cruise missiles.
- The 1994 Nuclear Posture Review (NPR) eliminated the capability to deploy nuclear weapons (bombs and cruise missiles) on surface ships.
- The United States has not enriched uranium for use in nuclear weapons since 1964, nor produced plutonium for nuclear weapons since 1988. Nor does it have plans to produce these materials for use in nuclear weapons in the future.
- Since 1992, the United States has maintained a unilateral moratorium on nuclear testing.

- The START treaty, which entered into force in December 1994, reduced each side's deployed strategic weapons from well over 10,000 to 6,000 accountable weapons with full reductions implemented, on schedule, at the end of 2001.
- The 2001 NPR articulated a reduced reliance on nuclear forces in achieving U.S. national security objectives in light of a growing ability to achieve these objectives with conventional capabilities, including an increased role for missile defenses.
- The Moscow Treaty entered into force in 2004 and will reduce *operationally deployed* strategic nuclear weapons to 1,700–2,200 by the end of 2012, down from about 5,300 as of the end of 2003, to 3,696 at the end of 2006. These levels are far lower than many thought possible just a few years ago. The following reductions have already occurred:
 - all 50 Peacekeeper missiles have been deactivated;
 - 4 Trident missile submarines have been removed from strategic service; and
 - the ability to return the B-1 bomber to nuclear service is no longer maintained.
- Under the START Treaty and the Moscow Treaty, the United States will have decommissioned, over the period of two decades, more than three-quarters of its strategic nuclear warheads attributed to its delivery vehicles.
- In May 2004, the president took steps to reduce the U.S. nuclear stockpile, including both deployed and non-deployed warheads. By 2012 or sooner, the stockpile will be reduced by nearly one-half from the 2001 level, resulting in the smallest stockpile since the Eisenhower administration. This represents roughly a factor-of-four reduction since the Cold War's end.
 - The most dramatic stockpile reduction has been in nonstrategic nuclear forces, or NSNF, which have unilaterally been reduced to less than one-tenth of Cold War levels.
 - The only nuclear weapons available for deployment that remain in the U.S. stockpile today are those carried by ICBMs, SLBMs, and heavy bombers equipped with gravity bombs and air-launched cruise missiles, as well as nonstrategic bombs and currently non-deployed nuclear-tipped sea-launched cruise missiles.
- As a direct result of this decision, the United States announced in November 2005 that it will remove, in future decades, up to 200 MT of HEU from further use as fissile material in nuclear weapons. This is in addition to the 174 MT of HEU that was removed in 1994 from any military use.
 - 17.4 MT of excess HEU is being down-blended and set aside to support fuel assurances for states that refrain from pursuing national enrichment and reprocessing programs.
- In 2007, the United States will begin to decommission 50 Minuteman III ICBMs, reducing the size of the nation's land-based strategic deterrent by 10 percent.

U.S. National Security and Nuclear Weapons: Maintaining Deterrence in the 21st Century—July 2007 (edited)

A principal national security goal of the United States is to deter aggression against ourselves, our allies, and our friends. Every American administration since President Truman's day has formulated U.S. national security policy in much the same terms, making clear to adversaries and allies alike the essential role that nuclear weapons play in maintaining deterrence. ... The extension of a credible U.S. nuclear deterrent has been critical to allied security and removed the need for many key allies to develop their own nuclear forces.

... It is the policy of this administration to achieve an effective strategic deterrent at the lowest level of nuclear weapons consistent with our national security and our commitments and obligations to allies. In 2001, President Bush directed that the United States reduce the number of operationally deployed strategic nuclear weapons from about 6,000 to 1,700–2,200 by 2012—a two-thirds reduction. Corresponding reductions in the nuclear stockpile will result in the lowest level since the Eisenhower administration.

Several factors have permitted these dramatic reductions from our large Cold War nuclear arsenal. ... In 2001, the president also directed the transition to a new set of military capabilities more appropriate for credible deterrence in the 21st century. This “new triad” of strategic capabilities, composed of non-nuclear and nuclear offensive strike forces, missile defenses, and a responsive national security infrastructure, reduces U.S. reliance on nuclear weapons while mitigating the risks associated with drawing down U.S. nuclear forces.

However, other contemporary factors lead us to conclude that nuclear weapons will continue to be required for the foreseeable future. The future security environment is very uncertain, and some trends are not favorable. Rogue states either have or seek weapons of mass destruction, including nuclear weapons. ... The future direction that any number of states may take, including some established nuclear powers with aggressive nuclear force modernization programs, could have a dramatic effect on U.S. security and the security of our allies. ... Credible U.S. nuclear capabilities and our security commitment to allies remain an indispensable part of deterrence and an important element in our effort to limit proliferation.

The administration believes that an operational force between 1,700 and 2,200 strategic warheads, while much smaller than our Cold War arsenal, still provides sufficient capability to achieve these goals. This force will demonstrate to allies and adversaries alike that the United States has the necessary means, and the political will, to respond decisively against aggression and the use of weapons of mass destruction. The current plan preserves options for future administrations to make additional adjustments in the U.S. nuclear force posture as changes in the international security environment warrant.

We are at a critical juncture that requires the United States to invest now in the capabilities needed to maintain a credible deterrent at the lowest level of nuclear weapons. Without assuming serious risk, further reductions in the total stockpile are only achievable with a responsive nuclear infrastructure. Without a responsive nuclear infrastructure, the United States must continue to manage the technical risks associated with an aging stockpile

... and the geopolitical uncertainties of the years ahead, by maintaining a sizable inventory of reserve weapons. ... This is an increasingly expensive and potentially risky approach. ... Successive efforts at extending the service life of the current inventory of weapons drives these weapons farther away from the original source data derived from underground nuclear tests and risks incorporating or accruing technical changes that could, over time, inadvertently undermine their reliability and performance. ... Furthermore, some of the materials employed in these older weapons are extremely hazardous. Moreover, it is difficult to incorporate modern safety and security features into Cold War-era weapon designs. Finally, as the United States continues to observe a moratorium on underground nuclear testing, it becomes increasingly difficult to certify the existing stockpile of weapons.

To address these issues of sustainability, safety, security, and reliability, and to achieve a smaller yet credible nuclear deterrent force, the United States needs to invest in the Reliable Replacement Warhead (RRW) program. Pursuit of this program is critical to sustaining long-term confidence in our deterrent. ... RRW is a replacement warhead—it will help reduce the size of the nuclear stockpile and will not provide new military capabilities. ...

Thus, RRW will allow the United States to manage the risks and challenges of the 21st century. ... Over time, RRW will enable the United States to transition to a smaller, more responsive nuclear infrastructure that will enable future administrations to adjust the U.S. nuclear stockpile as geopolitical conditions warrant. RRW is key to sustaining our security commitment to allies and is fully consistent with U.S. obligations under the nuclear Non-Proliferation Treaty—including Article VI. ...

... The sooner Congress authorizes and funds transformative programs like RRW, the sooner the United States and its allies can realize the benefits this approach holds for maintaining a credible and effective deterrent with the lowest possible level of nuclear weapons.

COMMENTS ON LINTON BROOKS' "AMERICA'S NUCLEAR POSTURE"

George Perkovich

Linton Brooks' paper is an outstanding contribution to current national and global discussions on U.S. nuclear policy and posture. The graceful candor with which he describes U.S. policy will be welcomed by many.

Page one's declaration that senior U.S. leaders have paid little attention to nuclear matters is vitally important. This inattention has been an impediment. Yet, the causes of this inattention may contain an opportunity. Nuclear policy and posture are not politically salient issues in the United States today—though threats of nuclear terrorism are. Almost no one in Congress follows these issues closely. Top politicians and consultants are unversed in these matters and don't feel they need to be. Top-level media gatekeepers and reporters think the issue is passé and don't understand or care much about the details. This is one reason why U.S. officials have been inattentive: The nuclear weapons policy in terms of our weapons and doctrine just doesn't seem very relevant to what makes the country tick. This is an opportunity: Officials and experts who would wish to change U.S. nuclear policy and posture will not meet strong and wide public opposition. Anecdotally, we can see this in the response to the Shultz, Perry, Kissinger, Nunn op-ed; it received fairly widespread praise and surprisingly little outcry. The old dogs did not bark.

Page three's statement calling the 2001 Nuclear Posture Review "a radical departure from the past and a fundamental re-thinking of the roles and purposes of nuclear weapons" may make sense for those in the bowels of the enterprise. However, for most of the world, the four big goals animating the changes seem like they *cannot* be accomplished *with* nuclear weapons or *could* be accomplished *without* them.

1. "To assure allies ... " It would be useful to examine this proposition further. Japan, South Korea, Taiwan, and maybe Turkey are perhaps the most salient allies from a nuclear standpoint. As long as China and North Korea have nuclear weapons, U.S. nuclear capabilities of some sort are important means of reassurance.

But from the standpoint of Article VI or a nuclear-weapon-free world, the question should be as follows: If no one possessed nuclear weapons, would the United States need a nuclear arsenal to assure its allies of the will and capacity to help them be secure? I think the answer is no. Couldn't the United States, then, say, "As long as U.S. allies face potential adversaries possessing nuclear weapons, U.S. nuclear weapons will reassure allies that they don't need nuclear weapons to retaliate against nuclear attack"? Couldn't a corollary be expressed: "If a verifiable, enforceable international regime were in place to keep no one from possessing nuclear weapons, the United States would retain conventional military capabilities sufficient to meet security commitments to its allies"? At a time when many are wary about the judiciousness with which the United States wields power, it may be important to show an eagerness to move toward a nuclear-weapon-free world, contingent on necessary cooperation from others.

2. "To dissuade potential adversaries from trying to match or engage in strategic competition." Beyond the general confusion over what nuclear dissuasion is and how it is accomplished, our nuclear/defense establishment seems to be scaring itself here.

No one thinks it can match U.S. military capability, nuclear or otherwise. The preponderance of U.S. military power drives others to find asymmetric ways to compete. The United States would be better off if adversaries tried to match it tank for tank, nuke for nuke. Instead, they are smarter. They deploy IEDs instead of tanks and bedevil the United States as Gulliver was. Some adversaries may seek small nuclear arsenals or capabilities precisely as an asymmetric way to offset U.S. preponderance. But it is unpersuasive to justify a U.S. arsenal of thousands or many hundreds of nuclear weapons on the possibility that if the United States in a multilateral process reduces to the low hundreds or even less, it will invite others to compete more effectively than they do already.

Moreover, were the United States to move its nuclear arsenal much closer toward zero, it would only do so in conjunction with all other actors and with arrangements to detect and respond to efforts by others to cheat and get ahead of the United States. Presumably, U.S. reconstitution capabilities would be robust enough to make it highly unlikely that adversaries would get away with winning a breakout arms race.

The goal of keeping anyone from matching U.S. capabilities unintentionally confirms that we have no interest in fulfilling Article VI; in a nuclear disarmed world, all states will be matched at an equal, zero-nuclear-weapon level. Would we not accept this? Again, nuclear posture and doctrine could be framed as conditional on the fact that others have nuclear weapons today and enforcement of nonproliferation rules is insufficient. Were those conditions to change, U.S. nuclear requirements would, too.

Finally, the assumption that U.S. reductions toward zero would stimulate proliferation and competition that otherwise would not exist is not the product of field research, interviews, or anything empirical but rather reflects Schlesingerian pontification, game theory, and intra-national political imperatives. This is a general problem of nuclear “dissuasion.”

3. *“To deter any threats that do emerge. This implies an ability to hold at risk those elements of power that a potential adversary values.”* Again, in a world without nuclear weapons is there any state we cannot deter with our non-nuclear weapon capabilities? (And if the answer is “yes, there is state X,” do we have any evidence that this state would be deterred by nuclear weapons?) In a world with nuclear weapons, isn’t the main problem now one of intelligence and not ordnance? Isn’t the problem to find the bad guys? If you can identify who the key deciders are who have attacked you or are going to attack you, can you find them with intelligence precise and reliable enough to strike them? And if you can find them, do you need nuclear weapons to destroy them? (If you needed and acquired nukes to hit bad guys in bunkers, why would you think the bad guys would go into the bunkers anymore?) If you use nuclear weapons before the other guys used theirs, what will be the political-strategic consequences?

The U.S. analytic and governmental communities should much more actively and openly debate these questions—whether nuclear weapons are indispensable as deterrents against anything other than adversaries with nuclear weapons. Again, if it emerges that non-nuclear weapon threats can be deterred or attacked just as well with non-nuclear means, then this should be emphasized publicly to help build confidence that the United States is willing to be serious about nuclear disarmament and Article VI.

4. “*To defend against and defeat those threats that, for whatever reason, we do not deter.*” This too deserves much fuller public debate. As a basic proposition, isn’t the main requirement for intelligence to identify and locate the bad guys we need to defend against and defeat? Nuclear weapons cannot overcome the absence of the necessary intelligence.

In short, while the new triad and the nuclear posture review actually intended to raise the nuclear threshold (which its critics failed to recognize), it fell short of the sort of real-world, internationally vetted thinking that is needed today. It is still a Cold War-imbued product. It still seems informed by the prejudice, “Nuclear weapons are the answer; what is the question?”

Substantively and politically, it would be advisable to conduct a parallel or alternative review that asks, “If no one had nuclear weapons, how would we assure allies, dissuade potential adversaries?” And in debating responses to this tasking, it would be important not to isolate the weak points in the non-nuclear weapon responses. Such weak points should be compared with the weak points in the doctrine and posture that rely on nuclear weapons to dissuade, deter, defend, etc.

U.S. credibility in managing the global nuclear order and pursuing nonproliferation would be augmented by inviting top-flight critics of the current nuclear posture documents to engage with relevant government experts in producing an alternative strategic posture review premised on the ranking of Article VI as a top national priority. This would be a constructive response to Brooks’ candid admission that he has never seen Article VI cited as a factor in any internal U.S. arms control, nuclear policy, or nuclear force structure decision. (Other U.S. officials may dispute his personal recollection, but it affirms what many outside observers have perceived. For example, even if officials saw the Comprehensive Test Ban Treaty (CTBT) as an important measure of faithfulness to Article VI, those same officials probably believed that the actual elimination of all nuclear arsenals was not a real possibility toward which the United States was moving).

Linton Brooks’ paper raises another issue that does not relate to Article VI but does affect the prospects of preventing further proliferation, which in turn limits the feasibility of nuclear disarmament. On page eight he writes that negative security assurances have been declared to “discourage proliferation”: The United States will not use nuclear weapons against non-nuclear weapon states, etc., etc. Yet, the effects of such an assurance would be negated if adversary governments or terrorists think the United States seeks to remove/destroy them in any case. Rather than deter proliferation, actively seeking to overthrow other governments may stimulate it. A regime that believes that the United States will not do business with it may be tempted to acquire nuclear weapons to deter the United States from regime change. In this case, a regime-change strategy undermines both nonproliferation objectives and also, possibly, intra-war deterrence. It is fine (and harmless) to promise not to threaten non-nuclear hostile states or terrorists with nuclear attack, but if the United States is seeking regime change, its conventional military power is threatening enough to inspire the adversary to seek a nuclear deterrent. This problem foreshadows an issue that advocates of nuclear disarmament must begin to confront: How will disparities in conventional military power among states that today possess nuclear weapons affect their

willingness to eliminate their nuclear arsenals? I'm thinking of Russian and Chinese concerns with U.S. conventional power, Pakistan's concerns about India's conventional power, India's concerns about combined Chinese and Pakistani conventional capabilities. If such disparities are important, could they be ameliorated by conventional arms control?

In short, the analytic community needs to look beyond negative security assurances and address how conventional force disparities and interventionary strategies affect proliferation and deterrence.

Regarding the Reliable Replacement Warhead (RRW), Brooks makes the best case I've seen for proceeding with it. However, I don't think any commitment should be made to the program before conducting a new posture review, along the lines suggested above. As important, history provides many reasons not to trust commitments that the labs or services might make when trying to obtain approval and funding for programs. Once programs are under way, promises made in the courtship phase prove "unrealistic." If the labs and others want to sell the RRW as a weapon that does not need to be tested explosively, they should urge ratification of the CTBT before, not after, committing to the RRW program. If RRW proponents are as sure as they claim that the weapon would not need to be tested, they should back it up.

These observations lead me to the following recommendations regarding how the United States could reorient its nuclear doctrine, posture, and declaratory strategy to serve nonproliferation.

1. Quit reminding people what's on the table, including nuclear weapons—they know. U.S. leaders should more clearly constrict the role of nuclear weapons to that of being for retaliation against the use of nuclear weapons against us or our allies. The purposefully vague allusions to other circumstances in which the United States would use nuclear weapons are counterproductive. The United States has enough military power to deter any actor who is deterrable, and the world knows it. What the world finds less credible is that U.S. leaders are wise and judicious and modest enough to be entrusted with such enormous military power. Reassurance, not deterrence, is problem No. 1 today.
2. Reduce the salience of nuclear weapons in national security policy and international politics. As a thought-experiment (outrageous to many), follow the Israeli model. Israel does not talk about having nuclear weapons. Israel does not brandish them internationally, and Israeli politicians don't play political games with them. Israel is prepared to ratify a CTBT, despite having conducted at most one explosive test. In short, Israel treats these as weapons of last resort, better not to brandish or talk about, nothing to be proud of, but potent enough that all adversaries will not forget they are there whether Israeli leaders mention it or not. How could such an approach not be sufficient for a state as powerful as the United States?
3. If nuclear terrorism is threat No. 1, strategists and officials should clarify that our nuclear weapons are basically unnecessary either to deter or defeat terrorists or states that might assist them. The key requirement to deterring or defeating terrorists is to

locate them precisely. We have other ways to kill them. To locate them we need cooperation of other states and societies.

4. Recognizing that numbers get the attention of media and citizens, the United States and Russia should negotiate another round of deep reductions in their total nuclear weapon holdings.
5. Following the announcement of another round of U.S.-Russian reductions, the United States, Russia, and the United Kingdom should negotiate with France and China to announce before the 2010 NPT Review Conference the beginning of a P-5 working group on Article VI. Such a working group could explore many topics, including the commissioning of cooperative studies of verification and other technical challenges to creating a nuclear-weapon-free world.
6. In taking nuclear disarmament seriously for the first time, recognizing its conventional military advantages, the United States should declare that it is prepared to move as far and fast toward a nuclear-weapon-free world as all other states with fissile materials are prepared to move with it.

RUSSIAN NUCLEAR POSTURE: CAPABILITIES, MISSIONS, AND MYSTERIES INSIDE ENIGMAS

Alexei G. Arbatov

Of all the paradoxes of contemporary Russian domestic and foreign policies, Russia's military nuclear posture is probably the most striking and intriguing example. However, due to the specific nature of this problem its vicissitudes are understood in Russia by a relatively narrow circle of experts inside and outside the government. Outside Russia still fewer people know or care about this subject.

In the present environment of a gaping lack of democratic control over Russian executive bureaucracy in general and over its defense and security policy in particular, nuclear weapons have a peculiar place.

On the one hand, since these arms are such an important, sensitive, strategically and technically esoteric element of national defense and security, all the authentic information and decision-making processes related to nuclear weapons are kept to the most secluded circle of civilian and military officials, leaving beyond this circle not only the rest of the defense, economic, and political establishments but also legislative power, the mass media, civil society, and the public at large.

On the other hand, precisely because nuclear weapons are unique in many respects, they have been and still are at the center of public attention and experts' deliberations, as far as defense matters are concerned. A history of three decades of negotiations with the United States on nuclear arms control has generated a huge volume of public information on this subject. There also exists a considerable community of nongovernmental experts on nuclear issues: academics, retired military, and former defense-related civilians (from the Ministry for Atomic Energy, Foreign Ministry, defense industries, and research institutes).

This is creating a paradoxical situation under which the genuine policymaking mechanism on nuclear weapons is the most opaque and secluded, while public discussion on this subject is the broadest and most substantive. It is more organized, continuous, and intensive than debates on any other defense and security issue in Russia (with one possible exception being the question of draft versus contract service).

Moreover, of the nine de facto nuclear weapon states (NWS), Russia is now second only to the United States and equal to the Great Britain in the volume of official and nonofficial circulated data on nuclear arms. And without doubt, Russia is second to none by the extent to which public attention is dedicated to nuclear weapons. In this only Britain could compete with Russia some time ago, when debating the need of the follow-on to the Trident system. As for the United States—it has only recently started to catch up with Russia, stimulated by the *Wall Street Journal* article of the four famous authors on nuclear disarmament and through beginning debates over the plans of antimissile system deployment in Europe.

The structure of this paper includes as its first section the description of the present state of Russian strategic and sub-strategic (operational and operational-tactical) nuclear forces and programs, as well as official doctrine and strategy for their indirect (political) and direct (military) use and employment.

The second section is dedicated to the main historic factors and events that affect Russian nuclear posture and the mechanisms of its continuity and change. The third deals with the controversial nature of Russian nuclear forces, programs, and strategic concepts and their relevance to the present and projected real security challenges and obligations under Article VI of the nuclear Non-Proliferation Treaty (NPT). The fourth section reviews the debates in Russia on nuclear weapons. The fifth section addresses the policies that might best engage the P-5 nuclear weapon states in rebuilding the NPT consensus among themselves and with non-nuclear weapon states (NNWS).

Current State of Russia's Nuclear Posture

According to official data exchange in the START (Strategic Arms Reduction Talks) memorandum of understanding, in 2007 the Russian strategic nuclear forces (SNF) numbered 741 delivery vehicles and 3,281 warheads. The U.S. strategic forces had 1,225 delivery vehicles and 4,768 warheads. Thus, Russia is lagging behind the United States by 40 percent in delivery vehicles and by 31 percent in warhead number. Never during the last quarter-century, after the early 1980s, have Russian (former Soviet) strategic forces been so much smaller than U.S. forces (almost twice to one-third), while most qualitative factors exacerbate Russian inferiority to a much greater extent.

There are 489 intercontinental ballistic missiles (ICBMs) and 1,788 warheads in the Russian Strategic Rocket Forces (SRF). These are composed by 76 heavy-type ICBMs, each equipped with 10 warheads (SS-18/RS-20/RT-36MUTTH and RT-36M2 "Voevoda"),¹ 123 SS-19 (RS-18/UR-100NUTTH) with 6 warheads each, 243 ground-mobile single warhead ICBMs (SS-25/RT-2PM "Topol") and 44 silo-based and 3 ground-mobile new-generation single warhead missiles (SS-27/RT-2PM2 "Topol-M"). The older SS-18 and SS-19 missiles are undergoing service-life extension programs designed to keep at least part of them in service until 2010 or 2015; the last SS-25 will serve until 2015.²

The main modernization program of SRF is SS-27 ICBM of silo- and ground-mobile basing (first mobile regiment deployed in December 2006), which was first tested with multiple independently targeted reentry vehicles (MIRV) in May 2007. During 2006–2010 two more regiments of SS-27 (18 missiles) will supersede SS-25, and until 2011 there will be six regiments of this ICBM system (54 missiles).³ Besides having the shortest boost phase, each missile may be equipped with 3-5 warheads and sophisticated ballistic missile defense (BMD) penetration devices. No doubt, this is Russia's best strategic weapon system, most technically advanced, survivable, agile, and cost-efficient, produced exclusively by Russian research and development (R&D) and industrial base. It is also a unique weapon, embodying one of Russia's few long-term military-technical advances over any other nation in the world, including the United States.

1. The designation of the systems is given in the following sequence: U.S. designation/Russian START designation/ Russian military-technical designation and "lyrical" name where existing.

2. See "Vooruzhennie Sily Rossiiskoi Federazii 2006" ("The Armed Forces of the Russian Federation 2006"), M. "Voenniform" Agency MOD RF, 2007, 2006, pp.206-208.

3. Ibid.

Another project—quite a dubious one—is a new ballistic missile (allegedly a version of SS-27 ICBM) with a long-range maneuverable gliding reentry vehicle to penetrate potential U.S. BMD systems.⁴

The sea-based force consists of 12 nuclear ballistic missile submarines carrying 192 launchers and 609 warheads. There are 6 Delta-IV boats (667 BDRM) with 90 SS-N-23 SLBM (RSM-54/R-29RM), each carrying 4 warheads, and 6 Delta-III (667 BDR) with 83 SS-N-18 SLBM (RSM-50/R-29R), each with 3 warheads. One Typhoon SSBN (nuclear-powered ballistic missile submarine), the 941UM Class “*Akula*” named “*Dmitriy Donskoi*,” is still in service and used as a platform to test a new submarine-launched ballistic missile (SLBM) system (D-19M “*Bulava-30*”). Three first Typhoon-type SSBNs are decommissioned and will be dismantled and utilized during 2007–2008. Two other boats of this class (“*Severstal*” and “*Arhangelsk*”) might still be retrofitted for the “*Bulava-30*” missiles, provided that future tests are successful and the missiles are produced in sufficient numbers in time to be fitted to these submarines while they are still kept in service.⁵ All Typhoon SSBNs initially had to be retrofitted with a new huge R-39UTTH D-31 “*Bark*” SLBM complex as a follow-on to the SS-N-20 system (RSM-52/R-39, D-19), but after three failed tests that missile system was canceled in the late 1990s.⁶

However, extension of the service of Typhoon boomers is unlikely, since for the Navy a higher priority seems to be the extension of service of Delta-IV SSBNs until at least 2016 (all Delta III will be decommissioned around 2010-2012). These submarines are to be retrofitted with a new version of the SS-N-23 missile, R-29RMU2 “*Sineva*” (probably with 10 warheads each), which was successfully tested in September 2006.

The main strategic shipbuilding program of the Navy is the new 955 class “*Borey*” submarine. It is designed to carry 12 missiles of “*Bulava-30*” type. The first boat named “*Yuriy Dolgorukiy*” was laid in 1996; its construction time and costs turned out much greater than expected. After a formal launch celebration in 2007, it is still in the dock and not yet commissioned. In 2004 a second ship of this class “*Alexandr Nevskiy*” was laid and in 2006 a third, “*Vladimir Monomakh*.” It was initially planned to commission about 10 “*Yuriy Dolgorukiy*” 955-class SSBNs by 2010, but this program is unlikely to be fulfilled even by 2015, and a more realistic number seems to be 3 or at best 4 new submarines.⁷ Likewise the development of “*Bulava-30*” SLBM has been plagued with serious technical problems; its first three tests failed until the first successful launch in summer 2007.⁸ However, the success of this test—much celebrated in official mass media (and conducted, according to some data, with maneuverable warheads, or MARVs)

4. V. Miasnikov, “An unpredictable weapon of general Baluevskiy,” NVO, May 18, 2007, p. 4.

5. See “A strategic ‘Yuri Dolgorukiy,’ ” *Voенно-Промышленный Курьер* (VPK) (Military-Industrial Messenger), April 18-24, 2007, pp. 1-4.

6. Yu. Drigoriev, “The lost inheritance,” NVO, August 10, 2007, p. 6.

7. See V. Sherbakov, “*Strategicheskiy Yuriy Dolgorukiy*” (“A strategic Yuriy Dolgorukiy”), *Voенно-Промышленный Курьер* (VPK) (Military-Industrial Messenger), April 18-24, 2007, p.6.

8. See “The prospects of the development of strategic nuclear forces of Russia” (an interview with Y. Solomonov, the constructor general of the MIT), VPK, April 4–10, 2007.

—is also seriously questioned by some experts.⁹ This missile system is to be deployed on 955 class SSBNs and the one remaining Typhoon boat. However, the cost-effectiveness of the whole sea-based missile force consisting of 3 to 4 submarines after 2016 is a matter of serious doubts and growing criticism in Russia. At that, in contrast to British debates around the Trident program, in Russia the new sea-based missile system is criticized mostly on cost-effectiveness, not disarmament grounds. In particular, some critics claim that instead of 955 class/“*Bulava-30*” system, Russia should have proceeded with 941 (Typhoon/“*Akula*”) and heavy R-39UTTH D-31 “*Bark*” SLBM complex.¹⁰

In the air component there are 79 heavy bombers carrying 884 air-launched cruise missiles (ALCMs). These are 15 Blackjack (Tu-160) and 64 Bear H (Tu-95MS6 and Tu-95MS16), all armed with AS-15 (H-55) air-launched cruise missiles. Besides equipping the existing Bear and Blackjack-type heavy bombers with the new dual-purpose H-101 ALCM, the most recently declared plans may envision the development and procurement of a new heavy bomber system and a new air-launched missile for it.¹¹

It is worthwhile to note that compared with the traditional composition of Soviet strategic nuclear forces the ratio of warheads on ICBMs, SLBMs, and heavy bombers (HB) changed from the usual 60–30–10 percent to 56–19–25; i.e., for the first time in many decades (since the mid-1960s), the air-based leg of the strategic triad has overtaken the sea-based and occupies the second place after land-based systems. Such a composition is ill suited to Russia’s objective geo-strategic situation and traditional technical advantages and disadvantages but seems more like an attempt to emulate U.S. structure at a much lower qualitative level. Moreover, with the current modernization program (annual procurement of 6-7 “*Topol-M*” ICBMs and 10-11 “*Sineva*” and “*Bulava-30*” SLBMs¹²) in 10 years only 30 percent of Russian strategic forces of about 1,700 warheads will consist of new systems (10 years and less in service), while no more than 15 percent would be survivable at any given time (about 50 ground-mobile single warhead and MIRVed “*Topol-M*” missiles and one 955 class boat with 12 “*Bulava-30*” missiles at sea patrol).

Still bigger problems are associated with command-control-communications and information systems of strategic nuclear forces. Out of nine functioning ballistic missile early-warning radars (including a “*Don*”-type Moscow anti-missile battle-management radar), five are outside Russian territory (in Byelarus, Ukraine, Azerbaijan, and Kazakhstan). These are rented by Russia on the basis of interstate contracts and hence are not only quite costly but are unreliable in a hypothetical crisis situation.

Overall, the Russian group of spacecraft decreased by 1.5 times during the 1990s and at present consists of 99 satellites (70 percent military and dual purpose), of which 65 percent are beyond service lifetime (33 military and 29 civilian and dual purpose). The U.S. space constellation consists of more than 400 military and civilian satellites, and the U.S. space budget is 20 times bigger than the Russian (\$16.4 billion to \$0.8 billion correspondingly). In contrast to 12 to 13 U.S. radio-electronic and electronic-optical

9. See O. Sergeev, “Hitting the common sense by ‘Bulava,’ ” NVO, September 7–13, 2007, p. 6.

10. Ibid.

11. See P. Zolotarev, “*Proetzyrovane syly v globalnom mashtabe*” (“Power projection at a global scale”), *Nezavisimoye Voennoe Obozrenie* (NVO) (Independent Military Review), August 24, 2007, p.1.

12. “The Armed Forces of the Russian Federation, 2006,” *ibid.*, p. 21.

reconnaissance satellites, Russian has only one in orbit at any given time.¹³ Obsolete naval communication satellites "Molnia-1T," "Molnia-3," and "Parus" are not substituted by new craft due to shortage of funding. Out of eight needed missile-attack early-warning satellites (71X6 and 73D6), only three are in orbit, providing only sporadic coverage of possible missile launch areas. The Russian GLONASS space navigation system consists only of 17 instead of 24 satellites, which is not enough even for permanent coverage of the Russian territory. Hence, Russian combat aircraft, including strategic bombers, have to rely on the U.S. analogous GPS (NAVSTAR) space system. Likewise the Russian Northern Fleet has to receive ice condition information from Canadian Radarsat-1 spacecraft.¹⁴ There was no information about the finalization of construction of a super-hardened deep underground alternative command center in the Ural Mountains.

During the last several years, Russian space power has been gradually recovering from a crisis. New vintage satellites were placed in orbit ("Meridian," new type early-warning, communication, and reconnaissance systems) and the number of GLONASS satellites was increased to 17. New space launchers are under intensive development ("Angara," "Start-1," "Soyuz 2-1B"). The Plesetsk space and missile launching range is undergoing broad modernization (for "Angara" and "Soyuz 2-1B" vehicles). With the "Angara" launcher, the Plesetsk range for the first time will be able to send satellites to geostationary orbit and to loft a super-heavy load in space. Space Forces (a separate branch of Armed Services) is withdrawing from the Baikonur range (in Kazakhstan) and curtailing to a minimal scale its assets at the Svobodny range (in the Far East).¹⁵

A new space command and control site was commissioned in Armavir to make up for the two sites left in Ukraine (Yevpatoria and Dunayevtzy). Missile early-warning radars of the Missile-Space Defense (part of Space Forces) were modernized in Pechora, Irkutsk, Balkhash (Kazakhstan), and Lekhtusi (Belarus). A new rapid-deployment early-warning "Voronezh"-type radar system was tested successfully near St. Petersburg and is in construction near Armavir. In addition to the electro-optical space monitoring station in Nurek (Tajikistan), a new site was commissioned in Karachaevo-Cherkessia (North Caucasus).¹⁶ Apparently the program envisions eventually covering all azimuths of possible missile attacks with "Voronezh"-type radars and liberating Russia from dependency on foreign radar sites.

The numbers and characteristics of Russian operational-tactical and tactical nuclear weapons or theater nuclear weapons (TNW) are kept in full secrecy and very seldom figure in public discussions. Tactical nuclear weapons are deployed mainly on dual purpose delivery systems: Air Force strike aircraft (Mig-23, Mig-27, Mig-29, Su-24, Su-27); medium-range bombers (Tu-22M); heavy artillery and mortars, surface-to-surface rockets, demolition munitions (nuclear mines) of the Ground Forces; Air Defense anti-aircraft missiles; Navy anti-ship, anti-submarine, air-defense, and land-attack missiles; depth charges and torpedoes of various types on submarines, surface ships, and land-based naval aviation (Tu-22M, Il-38).

13. See V. Miasnikov, *Nezavisimoye Voennoe Obozrenie* (NVO) (Independent Military Review), December 18, 2005.

14. Ibid.

15. See I. Marinin, *Space News*, April 3, 2007.

16. See Interview of Space Forces Commander V. Popovkin, *Space News*, April 3, 2007.

It would be safe to assume that currently Russia has about 2,000 weapons of this class (having inherited more than 23,000 from the USSR), most of them deployable on strike aircraft and naval vessels. All Ground Forces and Air Defense nuclear weapons apparently have been removed to the “S”-type centralized storage sites of the 12th Main Directorate of the Ministry of Defense (nuclear-technical troops). According to some data in line with Soviet/Russian unilateral parallel commitment (together with the U.S.) of the early 1990s, all Ground Forces tactical nuclear weapons, 60 percent of Air Defense, 50 percent of Air Force, and 30 percent of Navy weapons have been eliminated, while all TNW have been withdrawn to central storages.¹⁷ However, this does not seem credible and the misunderstanding may relate to the difference between operationally deployed and stored/reserved weapons. More probable is the assessment that all operationally deployed TNW are those of the Air Force and Navy, and those are located at depots at Air Force and Navy bases (and routinely deployed on attack submarines on sea patrol). At the base depots the weapons are protected and serviced by the troops of the 12th Main Directorate. Little is known about the TNW modernization program, except that the follow-on to SS-23 (“Oka”) short-range surface-to-surface missile named “Iskander” is a dual-purpose delivery vehicle, which was tested in May 2007 and now is entering its deployment stage.¹⁸

The last official full presentation of the Russian nuclear policy was given in the Military Doctrine of the Russian Federation endorsed by President Vladimir Putin on April 21, 2000. It notes that Russia keeps a status of a nuclear power and proceeds from the need for a nuclear deterrent potential “assuring a preset damage on the aggressor under any conditions.”¹⁹

Following the lengthy discussions of the doctrine, in line with the previous “*Osnovnye Polozheniya VoЕННОi Doctriny*” (“Basic Provisions of the Military Doctrine”) of 1993, it was announced that “the Russian Federation reserves the right to use nuclear weapons in response to the use against the country and/or its allies of nuclear or any other type of weapons of massed destruction (WMD), as well as in response to a large-scale aggression involving the use of conventional weapons in the situations that are critical to the national security of the Russian Federation.”²⁰ Nonetheless, Russia declares that it will not use nuclear weapons against a country that does not have nuclear weapons or permit their deployment on its soil, is not a member of an alliance with a nuclear weapon state, and does not participate together with such a state in hostile operations against Russia or its allies. In fact there are a lot of countries that would qualify—mostly in Africa, Latin America, some in Asia, and a few in Europe. However, these states, with few exceptions (like Iran), hardly figure in the contemporary strategic balance or conflict scenarios.

The above Russian nuclear posture, formulated in 1993 and further refined in the year 2000, has, in fact, reneged on the unilateral commitment of the USSR of 1982 on the non-first use of nuclear weapons and brought the declaratory nuclear posture of Russia to the principles adopted by the United States, Great Britain, and France for many

17. V. Yuzbashev and P. Krug, “A prayer for nuclear weapons,” NVJ, September 7–13, 2007, p. 3.

18. See official materials.

19. *Aktualnye zadachi razvitiya Vooruzhennykh Sil Rossiyskoi Federatsii* (Urgent Tasks of the Armed Forces of the Russian Federation), October 2003, Moscow, p.37.

20. *Voyennaya Doktrina Rossiyskoi Federatsii* (Military Doctrine of the Russian Federation), *Nezavisimaya Gazeta* No. 74, April 22, 2000.

decades—before and after the collapse of the Warsaw Pact and the USSR. As for the actual nuclear weapons employment strategy of the USSR—it has never revoked the principle of first use or first strike in practical operational planning as one of possible courses of action.

The later versions of the national nuclear strategy introduced some novelties, reflected in the broadly discussed edition of the Ministry of Defense of October 2003, titled “*Aktualnye zadachi razvitiia Vooruzhennykh Sil Rossiyskoi Federatsii*” (“Urgent Tasks of the Development of the Armed Forces of the Russian Federation”). In particular, they assign a mission of “de-escalation of aggression ... through a threat of launching or actual launching of strikes of a varying scale by using conventional and/or nuclear weapons.” Also noteworthy is the task of “dosed (selective, limited) combat use of some components of the Strategic Nuclear Forces,” as well as demonstration of determination “through enhancing the level of their combat readiness, conduct of exercises, and relocation of some components.”²¹

Thus, it is for the first time that Russia has officially declared it can conduct a limited nuclear war, involving use of the Strategic Nuclear Forces, and listed the measures used to enhance their readiness, such as deployment of SSBNs to sea, dispersion of ICBMs along their patrol routes, and flying heavy bombers to alternate aerodromes, as a demonstration of power in case of a crisis. Probably, here again there are attempts to emulate the U.S. strategic innovations of the 1970–80s, although Russia declares the intention of using the weapons that would probably be less suitable for such actions in terms of both their number and qualitative characteristics in the foreseeable future. In particular two crucial elements for such operations would be insufficient: high SNF survivability and survivability and endurance of the C3I system in a nuclear exchange environment. Theoretically, when used against the United States and its allies, such measures can lead to a nuclear conflict, with the United States retaining a sufficient capability of launching a disarming attack—the topic to be dealt with in more detail below.

It is conceivable, however, that such language is addressed to China, Pakistan, and potential new nuclear states that can challenge Russia’s security. If so, the question needs to be addressed separately and in more detail.

Most recently there emerged at least three new features in Russia’s declared nuclear doctrine and strategic concepts. One is a much greater and constantly growing emphasis on the importance of nuclear deterrence as a main pillar of the nation’s defense and security. The primary assets are said to be strategic nuclear forces due to their enormous destructive power and highest combat readiness. This is probably explained by the failure to modernize and reform conventional forces, as well as by perceived U.S. and NATO growing conventional superiority, enhanced by NATO’s preceding and planned expansion toward Russia’s borders. Other factors are the disintegration of the arms control regimes, built in the 1970s–1990s, as well as Moscow’s new quest for great power status and newly acquired sense of self-assertiveness. These stem—beside Russia’s fast economic growth of recent years and consolidation of domestic political power—from the nuclear weapons arsenal, which places Russia together with the United States in a separate and superior category of nations of the world.

21. *Aktualnye zadachi razvitiia Vooruzhennykh Sil Rossiyskoi Federatsii* (Urgent Tasks of the Armed Forces of the Russian Federation), October 2003, Moscow, p. 42.

Another new aspect is the expanding emphasis on the threat of so-called air-space attack or threat of attack. Apparently this concept stems from the recent experience of NATO military operation against Yugoslavia (1999) and U.S. operations in Afghanistan (2001–2002) and Iraq (2003), which is projected against Russia in the environment of broad anti-American and anti-Western moods of the political elite and public opinion. This concept implies the enemy using new high-tech conventional systems (possibly in combination with nuclear weapons) to deprive Russia of its second-strike nuclear retaliatory capability, paralyze its national command authorities, and destroy industrial sites and infrastructure. The West is expected to use future hypersonic aerodynamic vehicles (flying at 40–100 km flight altitudes) and hypothetical space-to-Earth strike systems, as well as existing ballistic missiles (some with conventional warheads), cruise missiles and heavy bombers and strike aircraft with precision-guided weapons—all heavily relying on space support systems.

Accordingly, at the top official level Russia's response is proclaimed to be the new strategic concept and technologies of "air-space defense" (*vozdushno-kosmicheskaya oborona*), which includes expanded and integrated air defense, anti-missile defense, and missile-space defense (*raketno-kosmicheskaya oborona*) to protect second-strike retaliatory forces, national command authorities, industrial assets and infrastructure, and population.²² U.S. official documents and statements on the new concept of strategic deterrence (combining nuclear, conventional, and anti-missile systems in a "new triad") and on space superiority strategy greatly fuel these Russian fears and search for responses. In April 2006 a "Concept of Air-Space Defense" was officially approved at the level of highest national authorities. According to former Minister of Defense and present Vice-Prime Minister Sergei Ivanov, "In line with the new concept force levels and structure of the groups of troops, assigned such missions, their capabilities, alert, and readiness status are to be suited to the existing and forecasted threat of air-space attack. This will be achieved foremost through deployment of the newest missile early-warning systems, anti-missile defense and space control, as well as means of physical destruction and functional interference, reconnaissance, communications, and automatic battle-management."²³

And finally there is a rising concern about Russia's future capability to penetrate and overcome possible U.S. ballistic missile defense systems, much exacerbated by the tensions over the U.S. plan to deploy BMD sites in Poland, the Czech Republic, and possibly Ukraine, Lithuania, and Georgia. Not a single official statement of Russian top political and military officials on defense matters is currently missing this subject. All existing forces, systems, and future strategic arms programs are assessed foremost from the angle of their ability to counter various echelons of potential U.S and NATO BMD.²⁴

Continuity and Change in Nuclear Forces and Programs

There are several key factors that determine continuity in Russia's present nuclear posture and its planned evolution.

The first is the Soviet legacy, which still forms the bulk of Russia's strategic forces and weapon systems, their logistics, industrial and R&D base (more precisely its

22. See B. Cheltsov, "Voennaya doctrina trebuetsya utochneniya" ("The military doctrine needs corrections"), VPK, April 25–May 8, 2007, p.1.

23. "The Armed Forces of the Russian Federation 2006," *ibid.*, p. 13.

24. *Ibid.*, pp. 12, 207-208.

part left on Russian territory after the disbanding of the USSR), as well as strategic mentality, doctrines, and operational paradigms. The power of this momentum is determined by the following factors:

- The long service life cycle of strategic weapons (30–40 years from engineering design to dismantlement), which is longer than that of any other weapon except large naval vessels and which “embodies in metal” strategic thinking of the time many decades ago.
- The fact that due to neglect and lack of understanding of strategic problems by Russian and U.S. leadership during the 1990s, no real alternative to mutual nuclear deterrence as an essence of the U.S.-Russian strategic relationship was elaborated and practically introduced, despite substantial reductions in the number of strategic and tactical nuclear weapons.²⁵ During the 1990s START-1, START-2, and START-3 agreements were designed not to change the essence of mutual deterrence and the mutual assured destruction relationship, but to stabilize such relations at lower force levels. Besides, START-2 and START-3 never entered force, while the Strategic Offensive Reductions Treaty (SORT) of 2002 dealt only with further reductions, neglecting the problems of stability.
- The disintegration of the strategic arms control regime primarily by the actions of the U.S. leadership since the year 2000. The victims of this policy were the ABM Treaty, START-2 and START-3 framework agreement, strategic-theater BMD delineation agreement, the Comprehensive Test Ban Treaty (CTBT), potentially the Fissile Materials Cutoff Treaty (FMCT), and START-1 after its expiration in 2009, as well as possible abrogation of the Intermediate-Range Nuclear Forces–Shorter-Range Forces (INF-SRF)²⁶ Treaty as Russia’s response to the U.S. BMD program. Against the background of rising U.S.-Russian international political tensions and rivalries this brings back to the foreground much of the strategic thinking and policies of the Cold War times.

The Soviet decision-making system was quite orderly and highly bureaucratic. With respect to nuclear policy the most conspicuous feature was that beside the MOD (Ministry of Defense) and a number of defense industrial ministries, there was a mammoth empire of Minatom. In the 1980s, it comprised 10 closed nuclear cities, and, all in all, around 1 million people were involved in the activities of the empire.²⁷ Being quite orderly in the way of bureaucratic procedures and implementation of plans and programs, the system was absolutely secluded and closed from any outside unbiased scrutiny. The parochial interests of the military establishment and scientific-industrial complex largely shaped their force deployment, modernization, and employment patterns.

The real strategy and operations plans (called “Plans of combat employment” — “*Plany boevogo primeneniya*”) were annually revised and refined by the Operational Directorate of the General Staff on the basis of proposals by the operational directorates

25. During 1991-2007 the SNF and TNW of the two nations were reduced by about 75 percent from the aggregate 50,000 down to about 13,000 operationally deployed nuclear charges.

26. CTBT: Comprehensive (Nuclear) Test Ban Treaty of 1996; FMCT: Fissile Materials Cut off Treaty; INF-SRF: Intermediate Nuclear Forces and Shorter-Range Forces Elimination Treaty of 1987.

27. P. Podvig et al., “*Strategicheskoe Yadernoe Vooruzhenie Rossii*” (“The Strategic Nuclear Weapons of Russia”), The Publishing Company of Nuclear Technologies, Moscow, 1998, pp. 64-65.

of armed services. For each armed service and the General Staff, the modeling of nuclear war scenarios and proposals for more efficient employment and targeting of SNF were elaborated by MOD research institutes.

It is important to point out that “real” in no way means “realistic,” which was due to the absence of genuine civilian control or democratic accountability of Soviet nuclear policymaking. Neither constitutional legislative bodies, mass media, academic research institutes of broad political and strategic profile nor the public at large had any real information on strategic matters, except that of a purely propagandistic character. Moreover, until the end of the 1960s it was possible to discuss these matters beyond the framework of propagandistic official positions only at the risk of one’s freedom, and until the mid-1980s only at the risk of one’s career.

Without any civilian input, Soviet “real” nuclear strategy was always a very pragmatic operational-technical endeavor. Theater and tactical nuclear weapons were treated much like conventional munitions with greater firepower providing a capability to reach better results with fewer weapons; the qualitative threshold between conventional and nuclear war fighting was never really recognized. As for strategic forces, planning their employment was an exercise in ensuring the infliction of maximum damage on nuclear and conventional forces and urban-industrial centers of the United States and its allies in a Soviet first-strike, launch-on-warning salvo (“*otvetno-vstrechiy udar*”), or second strike.

As a result of a total lack of genuine civilian control and democratic accountability, by the beginning of the 1990s the Soviet Union had in the operational service of its SNF 7 main types of ICBMs (to U.S. 3 types), 7 types of strategic submarines (to 2 U.S.), 6 types of SLBMs (to U.S. 2), 2 heavy bombers types (to 3 U.S.), and 2 types of air- and sea-launched strategic cruise missiles (to 2 U.S. types).

It is worthwhile to note that it was not the general policy of maintaining strategic parity with the United States but the superfluous and wasteful way in which it was implemented by the uncontrolled Soviet military-industrial establishment, creating a crushing burden on the Soviet economy (besides the huge costs of theater nuclear and conventional forces), that was one of the key factors causing its eventual collapse.

The situation with respect to the monopoly of the military establishment started to change little by little since the early 1970s with the beginning of the Strategic Arms Limitation Talks (SALT) negotiations. Foreign Ministry officials at negotiations, followed by academic experts and journalists at scientific conferences, for the first time acquired access to a huge volume of defense information on Western and Soviet forces and weapon programs, as well as to the methods of modern strategic analysis, cost-effectiveness, functional programming and diminishing returns models, concepts of strategic stability, counterforce, damage limitation, finite nuclear deterrence, etc. In the early 1980s, for the first time inside the USSR, challenges were made to the positions of the military and defense industry when discussing SALT/START negotiations in closed quarters, as well as Soviet defense doctrine and policy in general.

But the qualitative breakthrough happened after Mikhail Gorbachev came to power in 1985. That was the “golden age” of civilian control and democratic accountability in their peculiar Soviet forms, i.e., mainly through political and academic debates and informal participation in major disarmament endeavors of the time. Led by Edward Shevardnadze, the Foreign Ministry directly involved the academic community (Institute of USA and Canada Studies [ISCAN], Institute for the World Economy and

International Relations [IMEMO], Institute of Europe, Institute of Space Research, and some others) in the policymaking process. Being supported by Gorbachev and his close associate Alexander Yakovlev, they defeated the military establishment on a number of key issues including the INF-SRF Treaty, Conventional Forces in Europe (CFE) Treaty, and START-1.

Through these agreements, the general Soviet defense policy became a legitimate subject for discussion, a much greater volume of defense information became available to the interested public, and the first political decisions to reduce the defense burden and start a military reform were taken. This was a unique time, because, on the one hand, there came much greater openness about defense matters, involvement of broader nongovernmental circles in the debates (and indirectly into decision making) and, on the other hand, state institutions were still functioning and responding to political leadership, as well as to outside informal interventions.

And then, in 1991 the whole system suddenly collapsed. After the disintegration of the USSR, Russia was left with a crushing burden of the multiple variety of the giant and costly strategic and theater nuclear weapons arsenal, enormous industrial infrastructure of its development, production and maintenance, disrupted ties of technical and industrial cooperation with the facilities left in other post-Soviet republics, as well as with the urgent need to withdraw nuclear weapons from the Central Europe, Byelarus, Ukraine, and Kazakhstan (with U.S. diplomatic and financial assistance).

The second factor affecting the present Russian nuclear posture is the legacy of the tumultuous years of President Boris Yeltzin's reforms and revolutions.

With the demise of the Communist Party and centralized Soviet state bureaucracy, the defense policymaking system went into disarray. The 1993 Constitution,²⁸ the Federal Laws "On Defense," "On Security," "On State of Emergency," and "On State of War" gave the president—supreme commander—overwhelming powers in matters of defense and security, but in no way defined civilian control over the military. Throughout his two tenures, President Yeltzin always pursued divide-and-rule tactics, creating more and more competing agencies and enhancing his role as an arbiter among them (i.e., beside MOD and other power structures—Security Council; Defense Council; Ministry of the Defense Industry; numerous state committees dealing with defense, military industry, and arms exports, etc.). These tactics enlarged Yeltzin's personal power but effectively prevented elaboration of a consistent defense and nuclear policy, even if judged by past Soviet standards.

As for democratic accountability—it never moved far enough, despite free discussion of defense issues among experts and the public at large with circulation of a huge volume of defense information and despite the emergence of numerous nongovernmental research centers (mostly unofficial). The ability of parliament (therefore, of civil society) to affect defense policy through the budget process was marginal.

The only serious exception was the case of START-2, ratification of which was frozen in the Duma for seven years. During the term of Yevgeniy Primakov as prime minister, the Duma was twice almost ready to ratify START-2. But the first time, in December 1998, the ratification was thwarted by U.S.-British air-missile strike against Iraq and the second time, in March 1999, by the NATO military campaign against Yugoslavia.

28. Articles 86–87.

Yeltzin's nuclear policy from 1991 to 1997, apart from bargaining for withdrawal of strategic weapons from near abroad and reductions by START-1, was largely a completion of the programs of the USSR at a much lower level of funding and reduced deployment rates. With the rampaging corruption at all levels of the defense establishment and highly incompetent, but politically loyal, MOD leadership of the first half of the 1990s, the armed services were virtually given a free hand in devising their war planning and technical modernization programs within the limits of scarce budgets.

The deployment of SS-25 "*Topol*" ICBMs was finalized in 1996 at a level of 369 ground-mobile launchers. No new SSBN/SLBM systems were deployed but dozens of submarines were being decommissioned in advance of their service life for lack of funding for timely overhaul. Some submarine types were left disarmed after their missiles finished their service life but were not replaced by new SLBMs. Bomber force declined as well, but a few Tu-160 airplanes were bought from Ukraine (where they were left in 1991), an example of prestige-motivated and totally irrational use of limited resources. But worst of all, the command-control system and early-warning complex were deteriorating rapidly. Of the eight missile early-warning radars, (operational and under construction), five were left outside Russia, and the satellite constellation was drastically degraded for lack of funding and wrong priorities in using available resources.

In nuclear strategy, the only serious innovation was a declaration titled "Main Guidelines of the Military Doctrine of the Russian Federation" adopted in November 1993 and revoking the Soviet 1982 declaration on non-first use of nuclear weapons. Although no other nuclear powers, except China, had a non-first-use pledge in their doctrines, nevertheless, such a demonstrative gesture of Moscow during the peak of its rapprochement with the West was odd. Most probably it was motivated by Yeltzin's desire to please the military after they had supported him during the 1993 October putsch in Moscow.

The third factor affecting contemporary Russian nuclear posture was the period of Igor Sergeev's (up to then commander in chief of Strategic Rocket Forces) rule in the MOD in 1997-2001. This turned out to be one of very few lucky cadre decisions of that time. Apart from the personal advantages of Sergeev, it was due to the specific nature of education, training, and outlook of the SRF top command (which included a quarter-century of close interaction with U.S. counterparts at SALT/START negotiations and direct regular personal exchanges since 1993).

Of the utmost importance was the SRF's interest and stake in implementing START-2. It was signed in 1993, and since that time the SRF modernization program was adopted to that treaty (in particular the transfer of the ICBM forces from MIRV to single-warhead missiles). It became still greater when in 1997, under strong influence of the SRF, a U.S.-Russian protocol was signed, which extended the schedule of MIRVed missiles dismantling by five years to adjust it to their natural service lifetime and save SRF's resources. (Moreover, substantial U.S. aid was provided for dismantling through the Cooperative Threat Reduction [CTR] program.) Besides, the framework START-3 agreement was concluded, making it much less expensive for Russia to maintain a stable strategic deterrence (at a level of 2,000–2,500 warheads). Last but not the least, the protocol to the Anti-Ballistic Missile (ABM) Treaty was finalized, delineating strategic and tactical (theater) ballistic missile defenses and providing a guarantee of the preservation of the ABM Treaty. There is no doubt that the 1997–2001 period of arms control had a peak impact on Moscow's strategic nuclear policymaking, more radical than the 1987–1991 times of Gorbachev's breakthrough.

Following a general guidance of political leadership, Sergeev began a profound transformation of Russian military doctrine and defense posture, restructuring strategic forces for a stable second strike capability and conventional forces for rapid deployment in regional and local operations.

From 1997 to 1999 the armed forces were cut from 1.6 to 1.2 million military with the plan of further reducing them down to 0.7–0.8 million. The Air Defense was integrated with the Air Force. The autonomous branches of the Military-Space Forces and Missile-Space Defense were integrated with SRF. The number of military districts was reduced from eight to six with the plan of eventually transforming them into three unified regional operational commands. Another plan that almost got through was the creation of the Unified Command of Strategic Deterrence Force (SDF) to integrate operational planning, targeting policy, C3I systems, operational deployment, and eventually modernization programs of the strategic components of the Air Force and Navy with the SRF.

Of great importance and consequences was a special *ad hoc* commission created in 1998 (very much like U.S. “blue ribbon panels”) to devise a long-term strategic program and, by implication, strategic concept and operational planning for Russian SNF. It was headed by a respected academic Nikolai Laverov and included all general constructors of the main design bureaus, representatives of MOD institutes, and the Department for Armaments of the MOD. Its recommendations were approved at the Collegium of the Ministry of Defense and by the Security Council and finally signed by the president. In cooperation with the Duma Defense Committee, this program was funded through amendments to the 1997 and 1998 budgets and incorporated into the 1999 budget.

The program put the highest priority on the SS-27 “*Topol-M*” ICBM system and envisioned during the next 10 years deployment of up to 500 single-warhead missiles of this type, partly in silos and partly on ground-mobile launchers. All other ICBMs were to be dismantled except 100 SS-19 missiles, each downloaded from six warheads to one. In December 1997, the first two “*Topol-M*” ICBMs were put on combat duty in launch silos at Tatishevo missile base. Flight tests of mobile “*Topol-M*” were to start in 1999 and deployment soon after. Modernization of sea-based and air-based legs was given a much lower priority.²⁹

In view of severe resource limitations, this strategic program was channeled in the only rational and cost-effective direction: to gradually transform triad into diad and eventually into monad, in which silo-based and mobile ICBMs would provide for some redundancy, rapid buildup capability (through deploying additional mobile missiles and MIRVing them). Curtailment of the force levels and structure was to be made up for by greatly improving the C3I system. This modernization program was predicated on cooperation with the United States on further arms reduction (START-2 and START-3 framework agreement), preserving the 1972 ABM Treaty, eventual participation of other nuclear weapon states in arms limitation, and successful nonproliferation policies.

All in all, Russian nuclear strategy in the course of the next 10 years was finally to fully adopt the concept of strategic stability: downgrading counterforce (first-strike) capability and emphasizing a reliable delayed second-strike posture. The target lists were to be shortened as well as expected damage levels (implying targeting mostly industrial

29. “ ‘Dolgorukov’ has not enough Money to buy ‘Bulava,’ ” *Vremya MN*, November 2, 2002.

sites). Launch-on-warning stayed as an operational concept until the development of a new integrated and invulnerable C3I system for the unified SDF Command and transfer of a much larger portion of ICBMs on mobile basing mode, which would make a robust second strike the basic operational concept.

However, despite a promising beginning, those plans and programs were only partially fulfilled. There were several reasons for that failure. One was the 1998 financial crash, which in one year cut the defense budget by 55 percent in constant prices. After that, Sergeev's task became not reforming but survival of the armed forces. The second was the new war in Chechnya in 1999, which put an additional huge burden on the defense budget and virtually paralyzed the reforms.

The third was the changing policy of the United States, which was turning away from strategic arms control, first by the policies of Capitol Hill and after the year 2000 by the course of the White House.

And the fourth was the growing conflict between the minister of defense and the chief of the general staff, General Anatoly Kvashnin. In the law "On Defense" (Articles 14 and 15) the allocation of authority between the MOD and the general staff was quite blurred, and the general staff was virtually placed at the same level with the MOD as the structure of commanding the armed forces by the president. This lack of clarity was used by an ambitious Kvashnin to undercut the authority of Sergeev and clear the post of the minister of defense for himself. In this, the chief of the general staff relied on the support of the commands of all armed services (except the SRF), which were naturally against the reforms and priorities of Sergeev.

By that time, Yeltzin was almost totally disabled by a poor state of health and bad habits, while formally he still had all the authority in his hands. The absence of formalized civilian control and very immature democratic accountability made the intrigues among competing groups of the military the principal determining factor of the state's defense policy. Yeltzin's era ended with his resignation in December 1999.

The fourth factor of contemporary Russian nuclear posture consisted of policy decisions during President Vladimir Putin's eight years in office. In March 2001, Kvashnin won the fight with Sergeev, who resigned from the post of the minister of defense. However, instead of Kvashnin, the job of the head of MOD was given to Putin's close associate and former KGB general (and the secretary of the Security Council from 2000 to 2001), Sergei Ivanov. The new minister and some new civilian appointees tried to establish some controls over the defense policy through budget management and cadre decisions.³⁰ But Kvashnin and the General Staff, having subjugated the armed services, received overwhelming power over the principal decisions on strategy, operational planning, force levels and deployment, weapons programs, and recruitment and mobilization policies.

The General Staff came up with an idea appealing by its simplicity: Strategic nuclear forces should be downgraded since nuclear war was improbable and the former concept of strategic parity with the United States should be replaced with the concept of minimal sufficiency. Instead, as they claimed, the resources should be reallocated to conventional forces, which may be really called to fight in regional and local wars. And in SNF a priority should be given to the Navy and Air Force—to have a more "balanced"

30. "President changes security officials," *Nezavisimoye Voennoye Obozrenie*, March 30, 2001.

strategic triad, “correcting the preference” of Sergeev toward his former armed force (SRF) and his successor in command of land-based missiles, General Vladimir Yakovlev.

The lack of genuine civilian control or democratic accountability and the interests of the General Staff and the armed services (except SRF) made this idea stick. It was approved by the president after several sessions of the Security Council in August and December of 2000 and in January 2001, shortly before the resignation of Sergeev. There is the possibility that if Putin had been provided with options and their economic and strategic implications by an unbiased staff of the Security Council or of the office of the civilian minister of defense, if comprehensive parliamentary hearings were held on this issue, taking into account assessments of independent experts—such a mistake would have been avoided.

As a result, the funding for SNF was cut by about 50 percent and what was worse, even that shrunk budget was largely redistributed from SRF to the Navy and Air Force strategic programs. The decision was taken to cut SRF ICBM force levels by 80 percent (down to two divisions—about 150 ICBMs) and to slow down its only modernization program (“*Topol-M*”). That policy was to leave Russia in 10 years with about 100 new single warhead silo-based ICBMs.

Essentially, Russia seriously weakened the main pillar of its nuclear deterrence, strategic stability and security in a broad sense. With limited resources it was not possible to maintain effective sea- and air-based legs of SNF—even in the times of financial abundance the USSR could never field really effective forces of SSBN/SLBM and heavy bombers. At the same time, the most reliable, invulnerable, and flexible leg of the triad was to be curtailed: ICBMs of ground-mobile basing. The desire of the General Staff and armed services to maintain the traditional triad with scarce resources and emulate the strategic posture of the United States (which was spending more on SNF than Russia on all its armed forces) had long-lasting negative consequences.

The immediate result of the 2000–2001 decision was probably the total and final loss of interest in strategic arms control by the United States. Moscow’s mistaken decision matched the new U.S. Republican administration’s negative attitude to the arms control regime and international treaties in general. In December 2001, Washington declared its intention to withdraw from the ABM Treaty and in May 2002 did so. As a consequence, the START-2 (ratified by Russia in spring 2000) and START-3 framework agreement collapsed. It was only due to a new spirit of cooperation after the “Black September” of 09/11, that the United States agreed to sign a new Strategic Offensive Reduction Treaty (SORT) in May 2002, envisioning by the year 2012 reductions of SNF to 1,700–2,200 warheads ... but lacking counting rules, dismantling schedule or procedures, or verification system and appointing treaty implementation and duration termination to the same date.

Still worse were the consequences of Moscow’s decisions for strategic stability. In 10 to 15 years, Russia would have been left with a small and highly vulnerable ICBM force and with a handicap in numbers, survivability, and effectiveness of sea- and air-based forces (100–150 ICBMs, 5–7 SSBNs with only 1–2 on sea patrol, and a fleet of obsolete bombers non-survivable at their few airfields). This would leave Russia no choice but to fully rely on launch-on-warning strategy and hair-trigger alert posture. However, this posture, highly unstable as it is (no wonder the USSR/Russia started to move away from it in the 1980s–1990s) would be still more dangerous with further

degradation of the Russian C3I system and proliferation of nuclear weapons and ballistic missiles in the world.³¹

Realizing the dire consequences of the 2000–2001 decisions for Russia’s security, starting in 2002, Moscow was taking steps to correct the mistakes. The General Staff’s plans for drastic (70 percent) cuts in the ICBM force were revised and reductions were set closer to their natural service life dates of withdrawal, envisioning to retain 10 ICBM divisions (instead of 2) for the foreseeable future.³²

After several failed tests of SLBMs at the show exercise in the Northern Fleet in February 2004, President Putin declared that Russia had a new strategic system with a maneuverable gliding reentry vehicle capable of penetrating any BMD system of “any other state.”³³ This was probably yet another example of the military misleading the president in the absence of real civilian control. Such a system was not needed to counter limited U.S. BMD against rogue states. But in case of eventual U.S. deployment of massive land-sea-air-space BMD, such a delivery vehicle would be easy to intercept at boost and reentry phases, or to destroy at launch position with counterforce nuclear or conventional strike.

In his 2004 Address to Parliament, President Putin emphasized the top priority of a strategic deterrence force, thus revoking Kvashnin’s strategy and indirectly recognizing mistakes of 2000–2001: “We must make our country secure from any form of military-political pressure or potential aggression. And with this regard the most important task is modernization of our armed forces, including providing strategic nuclear forces with the most modern strategic weapon systems.”³⁴ Soon after, in June 2004, the law “On Defense” was amended by the Duma (no question, at the directive of the Kremlin) putting the General Staff unequivocally under the minister of defense. This was a signal of Kvashnin’s defeat, and he indeed resigned in July.

Hence, in parallel to the above-mentioned three factors of continuity, the factors of change in the evolution of Russia’s nuclear posture are as follows:

- The collapse in 1991 of the USSR, disintegration of its SNF and their industrial infrastructure. The catastrophic consequences of the “shock therapy,” economic and financial crisis, and prolonged depression of the 1990s on the funding of strategic forces and programs and on the functioning of defense industries.
- The new environment of a growing actual conventional superiority of NATO expanding toward Russian borders and potential conventional superiority of China bordering Russian along a 5,000-km border. This is exacerbated greatly by the growing U.S. supremacy in the newest sophisticated means of non-nuclear warfare, frighteningly demonstrated in Yugoslavia, Afghanistan, and Iraq.

31. I. Safranchuk, The Future of Russian Nuclear Forces, Part 3 (fact sheets at <http://www.pircenter.org/board/article.php3?artid=189>) (visited August 26, 2004).

32. Urgent Tasks of the Armed Forces, 2003, p. 42.

33. “The power not in missiles, but in their smart content,” *Nezavisimoye Voennoye Obozrenie*, February 20, 2004.

34. Annual Presidential Address to the Federal Assembly of Russian Federation (fact sheets at <http://president.kremlin.ru/sdocs/appears.shtml?type=63372>) (visited 27 August 2004).

- The sensible and cost-efficient strategic nuclear posture and modernization program, set by the Laverov's commission in 1998, well suited to the scarcity of economic resources and benign arms control environment.

- The drastic and mistaken restructuring of forces and programs in 2000–2001, which distorted the course set by strategic decisions of 1998 in degraded domestic economic conditions (in the aftermath of the default of 1998) and in the worsening external arms control environment (in the aftermath of the change of administrations in Washington).

- A series of marginal corrections of that policy since 2002, implemented after the mistakes became obvious (although never acknowledged publicly), in particular in view of U.S. withdrawal from the ABM Treaty and rejection of a new full-scale offensive reductions treaty.

The main driving force for strategic nuclear weapons development is currently the urgent need for timely introduction of new systems as a substitute for obsolete missiles, submarines, and bombers, which must be withdrawn from service in mass. The task of maintaining a robust and stable deterrent force is made extremely hard by several factors:

- The determination of the Russian leadership to maintain armed forces of about 1.1 million military for the foreseeable future while keeping the defense budget below 3 percent of gross national product (GNP) creates sharp tensions between the proper maintenance of existing forces, their modernization with new weapons and equipment, improving their combat training, transferring to all-volunteer contract service warranted by new sophisticated technology, and military operations.

- This tension is still more severe in apportioning the limited investment funding (R&D, procurement, and capital construction) between conventional and strategic forces.

- Within the limited strategic forces budget (about 10 percent of the overall defense budget) the rivalry is virtually fratricidal among the armed services due to the above-mentioned irrational insistence of Russian policymakers on maintaining the strategic triad. This leads to inevitable degradation of all three legs of the triad and C3I system.

- The degradation of defense industries and their R&D centers is going further with the machine-building equipment becoming overwhelmingly obsolete, qualified labor and engineers growing older without an influx of a new generation, manufacturing cooperation among enterprises falling apart, and a system of price formation messed up. The result is that even a manifold increase of the federal funding for R&D and procurement of weapons in recent years (according to former Minister of Defense Sergei Ivanov these increased from \$3 billion to \$13 billion during 2002–2007)³⁵ does not lead to better quality or larger quantity but mostly ends up in higher prices.³⁶

- There is apparently a big and growing gap between the top leaders' rhetorical emphasis on the importance of robust strategic nuclear deterrence and actual

35. The Armed Forces of the Russian Federation 2006, *ibid.*, p. 16.

36. See "The prospects of the development of strategic nuclear forces of Russia," (an interview with Y. Solomonov, the constructor general of the MIT), VPK, April 4–10, 2007.

- Allegedly, this gap stems from a lack of systematic decision making based on the principles of strategic stability, cost-efficiency, and mission-oriented budgeting and programming. Instead, too much value is given to symbolism, superficial effects, and public relations, which leaves much room for the pressure of vested interests of armed services and industrial lobbying groups (i.e., the persistence in continuing cumbersome “*Dolgorukiy*”/955-class SSBN construction and “*Bulava*”/D-19M SLBM programs, enthusiasm about maneuverable gliding reentry vehicle system, initiation of a new-generation heavy-bomber system, promotion of a theater-range “*Iskander*” system to the detriment of INF-SRF, “air-space defense” concept and projects, etc.).

- A greatly aggravating factor is U.S. reluctance to go for lower ceilings on SNF warheads beyond SORT (i.e., down to 1,000–1,200) and conclude a full-scale new START treaty (as well as Washington’s general hostility to arms control and disarmament), which would make strategic future more predictable and much less costly for Moscow.

- Russia’s uncertainty and confusion are exacerbated by U.S. snowballing statements and projects on ballistic missile defenses, esoteric space support and strike systems, strategic long-range conventional precision-guided weapons, deep penetration mini-nuclear warheads, and the like.

The main incentives for tactical nuclear weapons development in Russia are presently threefold. The first is the obvious weakness of Russian conventional forces vis-à-vis NATO in the West and China in the East (it is attributed by the military to the lack of appropriations, but in fact it is much more the result of the failure of the military reform during the 1990s and in 2003–2007). The second factor is NATO extension to Russian borders, which is going faster than the transformation of NATO-Russian military relations and exacerbates Moscow’s concerns about the vulnerability of its western defense perimeter and interests in post-Soviet space. The third is an attempt to make up with tactical weapons for Russia’s growing inferiority to the United States in strategic forces. President Putin mentioned this as a high priority in his 2004 address to the National Assembly: “One of the most important tasks ... is also the introduction into other armed services and branches of armed forces of corresponding (nuclear) weapons of tactical and operational classes.”³⁷

Nuclear Posture and New Security Challenges

Russian nuclear posture and policy regarding nuclear weapons in general is not sufficiently adequate or relevant to the new challenges and problems of international security. True, it was the United States that during the last decade inflicted the greatest damage on the regime and process of nuclear arms control and nonproliferation by renouncing and dismantling international treaties, implementing destabilizing weapons programs, conducting the policy of unilateral and arbitrary use of military force and the threat of force. But Russia also shares a substantial part of responsibility.

37. Annual Presidential Address to the Federal Assembly of Russian Federation (fact sheets at <http://president.kremlin.ru/sdocs/appears.shtml?type=63372>) (visited 27 August 2004).

First, after the year 2000–2001 Russia has made a mess of its strategic modernization policy and programs and contributed to the process of degradation of strategic stability, while at the same time removing tangible incentives for the United States to continue substantive negotiations on arms control.

Second, after some weak objections Moscow succumbed to the U.S. policy of dismantling the regime and process of arms control, instead of resisting it with all available means and making it a key issue of Russian-American and Russia-Western relations. For instance this issue has never been linked to the resolution of North Korean and Iranian nuclear problems, NATO expansion, the Proliferation Security Initiative (PSI) or joint actions against terrorists. Moscow's bureaucracy and the majority of the strategic community have largely lost interest in arms control. After the decade of confusion during the 1990s and almost a decade of neglect in 2000–2007 the government and its advisory bodies are badly disorganized to implement a consistent and effective arms control course, while political leadership lacks both an understanding and a sense of importance of such matters. Various defense agencies and industrial corporations are pushing for their programs and strive for a maximum freedom of hands, disregarding overall security implications of their initiatives. Moreover, recently Russia has started to compete with the U.S. destructive policy by placing a moratorium on its abidance by the terms of CFE Treaty, threatening to withdraw from INF-SRF Treaty and making vague hints at the possibility of deployment of TNW in Belorussia.³⁸

Third, Russia's policy of emphasizing the role and value of its nuclear deterrence and conducting broad-scale (even if ill-conceived, slow, and under-funded) modernization of strategic and theater nuclear forces is irrelevant to the real new threats to international security.

With respect to the first point, Russia's growing dependency on the launch-on-warning (LOW) concept, due to a projected increase of pre-launch vulnerability of its SNF, in combination with the outdated Soviet-time system of top command-control organization, is quite worrisome. Degradation of Russia's space and ground radar early-warning complex, short flight-time of foreign ballistic missiles (about 30 minutes for ICBMs and 10 to 15 minutes for SLBMs), and nuclear-missile proliferation around Russia's perimeter—all these factors make the current and projected emphasis on the LOW concept a potential recipe for disaster.

In a crisis situation, stemming from an escalation of a local conflict (post-Soviet space, Iran, North Korea), or a deliberate provocative action of a third party (missile launch or nuclear explosion), to implement launch-on-warning the president will have to make a decision in 5 to 8 minutes under enormous psychological stress, acting on the basis of controversial or uncertain information received through interpretation of on-duty officers. Even if the president is located at the central command post, this environment may lead to a catastrophic mistake. Expectation of an SLBM strike (sea-based forces will constitute an overwhelming portion of U.S., British, and French strategic forces) would leave virtually no time for decision making. Still worse would be if the president were away from a hardened command post and had to authorize a nuclear strike awaiting a direct hit by the enemy's nuclear missile at any moment.

The United States is doing a great disservice to its own, Russia's, and international security by largely ignoring this problem, dismantling the remaining arms

38. See V. Soloviev and V. Miasnikov, "Moscow has started a nuclear probing in Europe," NVO, August 31–September 6, 2007, pp. 1-3.

control treaties, resisting new ones (i.e., on further nuclear arms reductions and de-alerting) and, still worse, exacerbating Moscow's fears and confusion, fortifying its reliance on LOW by U.S. concepts and projects of BMD, strategic conventional systems, space warfare, etc.

The second point is illustrated by the fact that even after president Putin has several times mentioned in his official statements in 2006–2007 the need to negotiate a follow-on to START-1, no serious coordinated effort was implemented by Russian bureaucracy to come out with a set of well-thought-through and attractive proposals or a strong foreign policy initiative at bilateral summits, G-8 meetings, NATO-Russian Council, or U.N. forums in New York or Geneva. A failure of the U.S.-Russian team in working out the counting rules, verification measures, and dismantling procedures to 2002 SORT has never been made a big issue in Russia and was not brought to the top level of U.S. and Russian leaders to be resolved, as was often done during the negotiations of the 1970s, 1980s, and 1990s. The same is true of Putin's reference to preventing space weapons. The Kremlin's summer 2007 proposals on the joint use of missile early-warning radars in Azerbaijan and in Russia (Armavir) and on reviving the Joint Data Exchange Center (Moscow) as an alternative to U.S. BMD deployment in Poland and Czechia might be a promising beginning. Still, the prospects of this initiative depend on whether it is a serious new beginning or a public-relations action and on how high a priority it is given in Russia's foreign policy.

With respect to the third point, in contrast to U.S. tacit and Russia's openly declared policies, nuclear deterrence is irrelevant to the real threats and challenges of the post-Cold War era. It remains effective against the least probable or nonexistent threats: nuclear or massive conventional attacks by great powers (and their alliances) against each other. But it does not work against new, real, and present dangers: nuclear proliferation, international terrorism, ethnic and religious conflicts, drug and arms trafficking, trans-border crime, illegal migration, etc.

Moreover, the strategic relations of mutual nuclear deterrence place tangible limitations on the ability of great powers to genuinely cooperate in dealing with new threats and challenges. The degree of cooperation of the Cold War times, when most arms control treaties, including the NPT, were concluded, is not enough for the new era. Such endeavors as the cooperation of secret service and special forces, joint counter-proliferation policies (PSI and actual combat operations against terrorists, rogue, and failed states), officially endorsed joint early-warning and BMD systems, much more stringent nuclear and missile export control regimes, programs of greater safety and accounting of nuclear warheads and nuclear materials (implying broad transparency and access to each other's secret sites), verifiable cessation of production of weapons grade nuclear materials in the world, ambitious Global Partnership projects—all this requires a much greater magnitude of trust and cooperative efforts among partner states.

And all these are impossible to imagine while the United States and Russia still target thousands of nuclear warheads at each other, keep missiles on hair-trigger alert, and modernize nuclear forces to preserve robust retaliatory capabilities against each other. Besides, as tensions around the U.S. BMD program demonstrate, the momentum of nuclear deterrence in combination with new threats and missions may destabilize the very strategic relations among great powers and still further undercut their ability to think and act together.

Last, but not least, sustaining nuclear deterrence at current levels, and at even reduced levels (down to 1,700–2,200 deployed warheads under SORT), is an expensive

luxury, taking into account that the two biggest powers assign the bulk of these forces the mission of destroying each other, as well as serving “as a hedge against future uncertainty.” This aimless “hedge” may be relatively inexpensive for the United States, which has the largest overall defense budget in the world (about as big as the sum of all other main military states). Still, even for the United States it would be easy to find a much better allocation of these resources within its defense policy or outside it.

The burden of maintaining robust nuclear deterrence is relatively heavier for Russia, which is now implementing a “balanced modernization” of all elements of its strategic triad and planning to keep up with SORT ceilings of 1,700 to 2,200 warheads. Having huge problems of military reform to fund and resolve, as well as being badly in need of modernization and restructuring of its conventional forces, Russia suffers a lot from the wasteful amount of money spent on its SNF and TNW.

U.S., Russian, and other NWS policies of nuclear deterrence are completely irrelevant to coping with the principle new threats: nuclear proliferation and potential nuclear terrorism.

Nuclear Proliferation

Over the two decades following the end of the Cold War in 1991 (conclusion of START-1) and through to 2012 (deadline for implementing the Strategic Offensive Reduction Treaty), the great powers, principally the United States and Russia, have reduced or plan to reduce their strategic and tactical nuclear warheads by about 80 percent, both in accordance with arms control treaties and on the basis of unilateral decisions.

This seems an impressive result in doing away with the absurd surplus of the Cold War, but there is still the question of what is the purpose of the nuclear arms that still remain (near 13,000 operationally deployed warheads for the big two taken together). Despite the end of the Cold War and global confrontation, the basic premises of mutual nuclear deterrence were not seriously revised or abandoned, and the treaties of the 1990s and 2002 were designed only to raise the stability of mutual deterrence at lower force levels. Besides, START-2 and START-3 were never implemented, while SORT is not addressing stability at all. Currently, there are no further talks on more far-reaching nuclear arms reductions and limitations on the horizon. The great powers’ open refusal to continue arms control talks runs contrary to their obligations under Article VI of the NPT—for the first time in the last 40 years. Moves to openly bolster the role of nuclear weapons in U.S. and Russian nuclear postures, elaboration of new concepts of its flexible employment, and the repudiation of a number of past treaties may be considered as violations of the treaty spirit.

Skeptics and opponents of nuclear disarmament in Washington, Moscow, and other capitals categorically deny the existence of a link between nuclear disarmament and nonproliferation. Moreover, they argue that reducing the nuclear arsenals of the United States, the USSR/Russia, the United Kingdom, France, and China to only several hundred or several dozen warheads would encourage proliferation because it would make it easier for proliferators to reach the level of the “big five” nuclear powers. A further argument against nuclear disarmament is that the states party to the NPT have done little to fulfill their obligations under the second part of Article VI of the NPT (drafting and concluding

a treaty on general and complete disarmament under strict and effective international control).³⁹

Supporters of nuclear arms control say, on the contrary, that more meaningful disarmament efforts by the nuclear powers would have had a significant impact on nuclear nonproliferation. Most of the non-nuclear weapon states party to the NPT raise this argument at all the NPT review conferences and accuse the nuclear powers of not complying with their obligations under Article VI.

But as is so often the case in life, the reality is probably far more complex than any clear-cut and linear yes-no logic would make it seem and certainly more complex than the political positions taken by states at international forums.

The incentives for states to acquire nuclear weapons are certainly a lot more varied and contradictory than the simple desire to imitate the nuclear powers. The main motives inciting this or that country's leadership to develop nuclear weapons include external security concerns, prestige on the international stage, popularity at home, and using the abandonment or restriction of nuclear programs as a bargaining chip to obtain foreign policy concessions from other countries. The NPT addresses none of these motives directly and effectively, in the sense of offering greater gains in the above-mentioned areas instead of developing nuclear weapons or holding out the prospect of big economic and political losses if a country does go ahead with developing nuclear weapons. The nuclear disarmament agreements signed between the great powers likewise do not necessarily have any direct impact on the incentives listed above.

However, a more thorough analysis shows that a positive link did and still does exist, but rather than being a direct connection it is far more complex and subtle.

First, there is the general perception of the international security climate, in which all countries define their attitude toward nuclear weapons no matter what the concrete individual factors dictating this attitude at any given moment.

It is hardly just coincidence that in the 1990s around 40 new countries, including two of the declared nuclear powers, France and China, joined the NPT at the same time that the most intensive nuclear disarmament talks and real reductions in nuclear weapons stockpiles in history were taking place (the INF-SRF Treaty, START-1, START-2, the START-3 framework agreement, the ABM delineation agreements, the Comprehensive Test Ban Treaty, and unilateral reductions of tactical nuclear arms by the United States and the USSR/Russia). During the same time frame the NPT was indefinitely extended in 1995, and the IAEA Additional Protocol was drafted in 1997. Four countries abandoned their military nuclear programs and gave up their nuclear weapons or were forced to give them up through outside pressure (Brazil, Argentina, South Africa, and Iraq). Three

39. Reservations can be made for a number of conventions on other types of WMD, for the Treaty on Conventional Forces in Europe of 1990, and for regional agreements on nuclear-free zones and on restrictions on conventional weapons, as well as for confidence-building measures and agreements on eliminating anti-personnel mines and so on. But these measures are all limited in scope and in geographical area and were not conceived as part of a comprehensive program of general and complete disarmament. Furthermore, the ongoing increase in conventional weapons capability, growth in the global arms trade, and development of new weapons systems hardly testifies to an intention by the international community to move toward general and complete disarmament, the very term of which has disappeared today from the lexicon of official international agreements.

countries that had nuclear weapons on their territory as a result of the breakup of the Soviet Union joined the NPT as non-nuclear weapon states after two years of negotiations (Ukraine, Belarus, and Kazakhstan). With 189 U.N. member states party to it, the NPT became the most universal international agreement, and only three states (Israel, India, and Pakistan) remained outside its framework.

If the great powers had followed a consistent policy of cutting back their nuclear arsenals and reducing the role of nuclear weapons in ensuring national and international security, and if they had taken nuclear doctrines and planning far to the background of international military and political relations, and taken firmer action to strengthen the general taboo on any direct or threatened use of nuclear weapons, the value of nuclear weapons as symbol of status, power, and prestige most likely would have decreased accordingly. Nuclear weapons' popularity in the internal political life of many countries would also have decreased (as is the case today with the public-relations appeal of biological weapons and, increasingly, of chemical weapons).

Just as clearly, the directly opposing policy pursued by the great powers and by the three states that have not joined the NPT has, since the end of the 1990s, been creating a very fertile breeding ground for giving nuclear weapons greater appeal in the eyes of governments and public opinion in a growing number of countries.

Second, the link between nuclear disarmament and nonproliferation is even more directly interdependent in some areas. This concerns above all the Comprehensive Test Ban Treaty (CTBT), signed in 1996 but not yet brought into force, and the Fissile Materials Cutoff Treaty (FMCT), on which talks at the Geneva Disarmament Conference have entered a complete deadlock. Implementing these very important nuclear disarmament measures and having the great powers exert pressure to ensure that all of the NPT participants and the three "outsiders" join them would automatically create additional barriers to nuclear proliferation. If the United States had not withdrawn from the ABM Treaty and not blocked the CTBT and the FMCT, North Korea (and potentially Iran in the future) would have had not just one barrier but three barriers to cross in its quest for nuclear weapons (the NPT, the CTBT, and the FMCT). This would have made the acquisition of nuclear weapons immeasurably more difficult; it would have met with far tougher and more united resistance from the great powers, the U.N. Security Council, and the international community in general.

Third, nonfulfillment of obligations under Article VI of the NPT has become a bone of contention between the great powers, above all the United States, and many non-nuclear and fully law-abiding states party to the NPT, which consider it a violation of the understanding reached when the treaty was indefinitely extended in 1995, and of the agreement on 13 points of nuclear disarmament reached at the NPT Review Conference in 2000. The fiasco of the review conference in 2005 showed just how deep these divisions go. This situation undermines the great powers' political capacity to advance a whole range of measures for bolstering the nonproliferation regime, including measures discussed at the 2005 conference.

These measures include making the 1997 IAEA Additional Protocol universal, introducing more stringent procedures and conditions for withdrawing from the NPT according to Article X.1, tightening export control rules and conditions through the Nuclear Suppliers Group, abandoning national nuclear fuel cycle programs in favor of international fuel cycle centers, giving a foundation in international law to the PSI, and so on. It is very difficult to impose these measures on the non-nuclear parties to the NPT, which already bear the main burden of restrictions and control systems under the treaty's

provisions, in a situation where the nuclear powers give themselves almost complete freedom of action in their military nuclear activities, in legal and contractual constraints, and in control and transparency.

Fourth, there is complete justification for considering that another consequence of the great powers' nuclear policy that encourages proliferation is the fact that the official nuclear powers have yet to approve and adopt so-called negative guarantees offered to the non-nuclear states in the NPT. These guarantees exist only in the form of ambiguous individual declarations made by the permanent members of the Security Council.

Proposals to conclude a convention that would give legal force to full-scale security guarantees for the NPT non-nuclear states were made before the Geneva Disarmament Conference in 1995, but nothing was done to act on them. Only Russia and the United Kingdom supported these proposals. France opposed them, and its officials declared that the adoption of such a convention ran counter to their national concept of nuclear deterrence. The NPT was dealt a serious blow in February 2002, when then U.S. deputy secretary of state John Bolton said that negative guarantees are "theoretical ideas" and that they had already been given by past U.S. administrations and presidents.⁴⁰

It is clear that an unequivocal commitment to no-first use of nuclear weapons against NPT states would considerably decrease the political and perhaps even military and strategic role of nuclear weapons in the foreign and defense policies pursued by the great powers, something that is certainly not the case of their current policy and military programs.

The link between nuclear disarmament and nonproliferation, particularly as illustrated by the examples of North Korea and Iran, can be formulated as follows. Fulfilling disarmament obligations in accordance with Article VI is not in itself a guarantee against nuclear proliferation given the diversity and complexity of the motives inciting countries to obtain nuclear weapons. Preventing proliferation would require numerous additional measures to strengthen and develop the NPT and its provisions and mechanisms.

But nonfulfillment of the disarmament obligations contained in Article VI practically guarantees further nuclear proliferation and makes it extremely difficult to strengthen the nonproliferation regime and system. The only remaining option left open is to resort to armed force to settle problems, often outside the boundaries of international law. As the 2003 war in Iraq has shown, this "cure" can be worse than the "disease" and can have the opposite effect to that intended, including with regard to nuclear nonproliferation.

Terrorism

Nuclear deterrence cannot be used against transnational organized terrorism, even if such organizations acquire a nuclear weapon or an explosive device. Terrorists have no territories, industries, populations, or regular armies that can be targeted for retaliation. In cases when they are given a base by a government, such as the Afghan Taliban gave to Al-Qaeda, nuclear deterrence with respect to such a state would still find little application, since it would hardly be likely to exert a restraining influence on the terrorists, who are quite free in their activities and able to pass through borders quickly and secretly. It is possible that terrorists would even be interested in provoking a nuclear

40. *The Washington Times*, February 22, 2002.

strike on one or the other host country in the name of political advancement of their cause.

The struggle against catastrophic terrorism is related to deterrence only in the sense of deterring (through the threat of retribution, including nuclear) some countries from supporting terrorism by granting bases or providing other assistance. But it is difficult to imagine that any state would openly support terrorists possessing nuclear weapons. And a nuclear strike on any country, even a “rogue state,” considering the secondary consequences and political shock in the rest of the world, is too strong an instrument to use without a fully obvious *corpus delicti*. Quite revealing in this regard has been the reaction of the world community to the poorly justified American operation in Iraq in 2003, using only conventional forces and with minimal secondary losses and material damage. The breakup of the anti-terrorist coalition to a huge extent has inspired the resistance movement and international terrorism in Iraq and has drawn the United States into a swamp of open-ended occupation.

This relates directly to the recent American concept of developing “clean” nuclear mini-charges that penetrate deep underground to destroy bunkers, warehouses, and other underground terrorist or “rogue state” targets. Even without mentioning the political consequences of such a use of nuclear weapon, from a tactical and technical standpoint, the use of nuclear mini-charges elicits a great deal of doubt. In order to avoid nuclear contamination of the locale, a sub-kiloton charge must penetrate the earth to a depth of 150 to 200 meters, which is impossible. Penetration to a depth of 10 to 15 meters is the imaginable technical limit, especially in hard rock formations. Then, the “coupling effect” (of warhead with the surrounding matter) would provide about 10 times as great a shock wave effect than of an air or surface burst of the same yield. However, at such a depth, the collateral damage of a nuclear explosion for the area would be almost the same as with a surface burst—but with all the ensuing physical, military, and political consequences.

Moreover, in order to destroy the target with a penetrating nuclear mini-charge, its exact location must be known with a precision of at least a few hundred meters. If that is already known, however, then contemporary non-nuclear high-precision warheads and high-yield charges could destroy the target, especially if multiple use is an option. Repeated attacks would be possible since such underground sites are not “urgent” targets, which must be destroyed quickly and at once, like ICBM silos. If the target is an ICBM silo or underground tunnel for missile or aircraft, it may be easily destroyed by the existing counterforce hard-target-killing nuclear warheads. Command bunkers or WMD storage places are not urgent targets and may be repeatedly attacked by conventional munitions. Also, conventional troops and special forces could be used, particularly if such an operation is conducted by coalition forces and on a legal basis (under U.N. mandate).

Strategic Debates in Russia

Currently the subject of nuclear disarmament is a nonissue in discussions within the Russian strategic community. It is not in any way attracting attention of the public opinion either. On the contrary, the need for Russia to have a strong nuclear power is accepted by a vast majority of the political elite and the population at large. Anyone calling for nuclear disarmament (unilateral or universal) would be immediately discredited as a serious expert.

In contrast to that, one of the heatedly debated issues is whether nuclear deterrence is an essential element of Russia's security or should and may be abandoned in favor of new strategic relations of mutual assured security and cooperation first between the United States and Russia and eventually among all NWS. The latter is conceived as achievable through deep de-alerting of nuclear forces and joint development of missile early-warning and ballistic missile defense systems.⁴¹ One of the principal arguments in favor of such transformation is the need for more efficient cooperation of NWS on nuclear nonproliferation.⁴²

These ideas are met with great hostility and are harshly criticized by a majority of official and unofficial experts from the military and defense industrial community. Their main argument is that such a transformation would undercut the fundamental component of Russia's defense and security and leave Russia vulnerable to Western superiority in the newest anti-missile, space, and conventional systems. They blame Gorbachev and Yeltzin for undercutting Soviet/Russian nuclear power, while those experts who supported START-2 and START-3 in the 1990s are attacked as an "American lobby."⁴³

Other discussions are of a narrower character dealing mostly with the problems of sufficiency of Russian strategic forces and their budgets. Some experts claim that Russian SNF and their modernization program are adequate and will not present the United States with a vulnerable target.⁴⁴ Others argue that Russian strategic force will be vulnerable to a potential U.S./NATO first strike in 5 to 10 years. In particular there is a lot of criticism of the transfer from heavy MIRVed liquid-fuel missiles to light solid-fuel single warhead systems, which allegedly had deprived Russia of much larger offensive strike capability than otherwise would be the case.⁴⁵

Another line of criticism is aimed at START-1, claiming that it is detrimental to Russian defense and that Russia would do better without agreements with the United States, all the more so that current U.S. leadership has demonstrated its hostility and disregard to arms control and disarmament.⁴⁶ There is also criticism of the new officially proposed strategic systems, i.e., the ballistic missile with a long-range maneuverable gliding reentry vehicle to penetrate potential U.S. BMD system. This criticism is based on cost-effectiveness considerations.⁴⁷

41. See A. Arbatov and V. Dvorkin, *Beyond Nuclear Deterrence: Transforming the U.S.-Russian Equation*, Carnegie Endowment for International Peace, Washington, D.C., 2006.

42. See A. Arbatov and V. Dvorkin, eds., "Yadernoye Oruzhie Posle Holodnoi Voiny" ("Nuclear Weapons After the Cold War"), Carnegie Moscow Center, ROSSPEN, Moscow, 2006, p.1.

43. Of the huge volume of articles of this kind see, for instance: V.Kovalev, "The paradoxes of nuclear deterrence," VPK, January 10–16, 2007; S.Breskun, "Is it not a time to stop pro-American lobby in Russia?" VPK, April 26–May 2, 2006, p.1.

44. V. Yesin, "There are no reasons for panics," NVO, August 28, 2007.

45. Yu. Grigoriev, "The lost missile inheritance," NVO, August 10, 2007, p.4.

46. V. Lata and M.Vildanov, "The one goal game," NVO, November 3, 2006, p. 6.

47. V. Miasmikov, "An unpredictable weapon of general Baluevskiy," NVO, May 18, 2007, p. 4.

The concept of “air-space defense” is also a subject of debates and criticized on technical and strategic grounds. Some professionals claim that it is an unsound concept serving bureaucratic interests of creating new agencies and expanding budgets.⁴⁸

Most recently two new issues got into the center of attention. One is the U.S. plan to deploy BMD sites in Europe. The discussion revolves around various assessments of its capability to affect Russia’s strategic deterrence. Discussion also addresses the validity of Moscow’s recent proposals to jointly use instead the radars in Azerbaijan and in Russia.⁴⁹ Another subject is Moscow’s threat to withdraw from the INF-SRF treaty as a response to U.S. deployment of BMD sites in Europe, which is described as self-defeating by some liberal professionals.⁵⁰

All in all, it should be noted that the prevailing criticism of the Russia’s official nuclear posture and policy comes from the conservative side claiming that not enough is done to sustain a robust nuclear deterrent capability. Past and potential future arms control agreements are seen with great skepticism. A single partially recognized consideration in favor of arms control is the need to sustain the NPT obligations of the great powers. New U.S. unofficial ideas in favor of nuclear disarmament are sure to be met with suspicion and objections.

This was not the case in the 1990s and early in the current decade, when the majority of Russian strategic community was in favor of further arms control in parallel with a reasonable modernization program. The change is mostly a reaction to U.S. policy of undercutting arms control during the last five to six years.

At the same time it is worthwhile to emphasize that the openness of discussion, a huge volume of new information and data on defense matters are a positive development. If there are favorable changes in U.S. and Russian nuclear postures and policies, this environment may be conducive to broader support for new arms control and disarmament initiatives.

Rebuilding NPT Consensus

In order to revive the process of nuclear arms control and disarmament and bolster the nonproliferation regime, serious changes are needed, first of all, in domestic politics and bureaucratic arrangements of the decision-making mechanisms. This is true to various degrees about all NWS but most of all relates to Russia, as a second larger nuclear power. In particular, it is necessary to profoundly revise its strategic and theater nuclear forces modernization program, overall nuclear posture and strategy, the plans of military reform, and reform of defense industries. Beside this area, which is a subject for a special study, there are some urgent tasks to be accomplished through accords between states to get out of the present deadlock. The most urgent of these tasks are as follows:

- Resolution of the crisis over U.S. BMD deployment in Europe may be achieved by agreement to jointly use radars in Azerbaijan and Armavir and “plug” them into the revived and restructured (to operate in “real time”) Joint Data Exchange Center (JDEC) in Moscow. If the new radar in Czech Republic is assembled, it should also be linked to the JDEC. Missile interceptors based (infrastructure) in Poland may be constructed but with the agreement that ground-based interceptors (GBI) will not be

48. V. Dvorkin, “What is an air-space defense?” NVO, March 3, 2007, p. 4.

49. V. Dvorkin, “A binocular instead of a rifle,” NVO, July 10, 2007, p.5.

50. A. Arbatov, “An unnecessary and dangerous step,” March 2, 2007, p.5.

actually deployed unless and until Iran develops ballistic missiles of medium and intercontinental range. Thus, Russia would acquire a strong incentive to prevent such developments, while joint radar and eventually satellite surveillance systems would help monitor missile proliferation and launches in the world.

- Transformation of the Moscow SORT Treaty of 2002 into a full-scale treaty on the reduction of SNF, with the corresponding counting rules, schedules, and procedures for dismantling, verification system—all to be borrowed from the START-1 menu of protocols and appendixes. This would resolve the problem of START-1 expiration in 2009 and simultaneously save SORT. Some additional valuable measures of transparency should be retained as well (i.e., prohibition on the encoding of telemetry during missile flight tests).

- Ratification of CTBT by the United States as soon as possible as a key link between “vertical” and “horizontal” nuclear disarmament. Revival of negotiations on FMCT as a second major link of this kind.

- Commitment to relinquish the concept of the first use of nuclear weapons (or nuclear first strike) without any reservations by all nuclear powers against NPT member-states. Abandonment of the concept of launch-on-warning strike by Russia and the United States (with observers of the other side invited to SNF exercises to verify that such operations are not simulated, or liaison officers of each other posted permanently at command centers), switching unequivocally to a concept of deep second strike.

- An agreement to remove all TNW of the United States and Russia from air force and naval bases and from operational depots to centralized storages on national territories (including removal of U.S. tactical nuclear bombs from Europe and stopping routine deployment of such systems on ships and submarines at sea). This would basically mean de-alerting them and greatly reducing the threat of accidents or acquisition by terrorists. Incentives for TNW modernization would be much lower.

- In the longer run starting negotiations on SORT-2, envisioning SNF reductions in 2012–2017 to the level of about 1,000–1,200 warheads, together with a controlled lowering of operational readiness and alert rate of no less than 50 percent of the strategic force size (sharp reductions in the number of SSBNs on patrol at sea, basing of heavy bombers separately from their nuclear bombs and ALCM, and removal and separate storage of the warheads or nose cones of a portion of the ICBMs with MIRV and of upper stages of single-warhead ICBMs).

- Based on the 2002 document covering new principles for strategic relations between the United States and Russia, negotiations on a full-scale treaty on cooperation in the BMD area.

- Convincing third nuclear powers to join the SNF limitations, starting with the transparency regime and confidence-building measures.

Such steps would not only significantly reinforce the great powers’ security and mutual trust but would also greatly enhance their efforts to fortify the nonproliferation regime and bring about a smooth and gradual transformation of their relations of mutual deterrence into a new type of strategic relationship better suited to a Global Partnership, Joint Nuclear Energy Program, international nuclear fuel centers, and other endeavors warranted by a new post-Cold War security environment.

FRENCH NUCLEAR POLICY UNDER SARKOZY: MORE OF THE SAME?¹

Bruno Tertrais

Nuclear policy is one of the most resilient features of French strategy. There is a widespread consensus on nuclear matters in Paris, and it is unlikely that President Nicolas Sarkozy, whose mandate runs until 2012, will break completely with Jacques Chirac's legacy. Nevertheless, some changes are conceivable, since all French presidents have laid down their mark on nuclear policy and doctrine. In particular, the new "White Paper on Defense and National Security," expected to be adopted by March 2008, may contain adjustments in this regard.²

Current Nuclear Policy and Doctrine

From the French point of view, potential strategic threats to European security have not disappeared, and the U.S. guarantee through the North Atlantic Treaty Organization (NATO) is not seen as more credible than in the past. In addition, Paris now would like Europe to benefit from the same strategic autonomy for Europe that it has had since the 1960s. The underlying idea that nuclear weapons make you free and independent is still present in the national strategic culture. As then President Chirac stated in 2006, "In light of the concerns of the present and the uncertainties of the future, nuclear deterrence remains the fundamental guarantee of our security. It also gives us, wherever the pressures may come from, the power to be the masters of our actions, of our policy, of the enduring character of our democratic values."³

France has a traditional approach to deterrence. The words "nuclear" and "deterrence" are still very much associated in the nation's strategic culture. The 1994 Defense White Paper expressed considerable reservations about the relevance of "conventional deterrence" as a possible substitute for nuclear weapons.⁴ And there is a traditional defiance vis-à-vis missile defense, for strategic and budgetary reasons.

In his 2006 speech, Chirac described nuclear deterrence as the foundation of French defense policy. "[Our] defense policy relies on the certainty that, whatever happens, our vital interests will be protected. That is the role assigned to nuclear deterrence, which is directly in keeping with the continuity of our strategy of prevention. It constitutes its ultimate expression."⁵ He made it clear that nuclear weapons protected France's ability to project its forces abroad. The message was probably addressed to those

1. This paper draws on work prepared for the Center for Nonproliferation Studies of the Monterey Institute in 2006, which was published as "The Last to Disarm? The Future of France's Nuclear Weapons," *The Nonproliferation Review* 14.2, July 2007. The author is grateful to the Monterey Institute for permission to use parts of this article.

2. The commission's work started in August 2007. Its deliberations are classified. It is unlikely that any possible change in French nuclear policy would be publicly known before March 2008. [Note: The author is a member of the commission.]

3. *Allocution de M. Jacques Chirac, Président de la République, lors de sa visite aux forces aérienne et océanique stratégiques, Landivisiau—l'Île Longue (Brest), January 19, 2006.*

4. See *Livre Blanc sur la Défense 1994* (Paris: Editions 10/18, 1994), p. 99.

5. *Allocution de M. Jacques Chirac* (2006).

officers and politicians who question the nuclear expenses given the need to further modernize the conventional forces.

The French nuclear deterrence covers “vital interests.” The 1994 White Paper defined them as follows: “[The] integrity of the national territory, including the mainland as well as the overseas departments and territories, the free exercise of our sovereignty and the protection of the population constitute the core [of these interests] today.”⁶ In his 2006 speech, Chirac stated that “the defense of allied countries” could be part of vital interests.⁷ The use of the word “allies” without any elaboration left open the possibility that non-NATO French defense partners could be protected.

Chirac also stated that the “safeguard of strategic supplies” could not be excluded from the scope of vital interests. It seems that the French president wanted to send a message to anyone that may be tempted one day to cut off oil and gas to Europe: The strangulation of European economies could affect our vital interests.

An attack on vital interests would bring on a nuclear response in the form of “unacceptable damage” regardless of the nature of the threat, the identity of the state concerned, or the means employed. A noted part of Chirac’s 2006 speech was the reference to state-sponsored terrorism: “Leaders of states resorting to terrorist means against us, as those who might consider, one way or the other, weapons of mass destruction, must understand that they risk a firm and adapted response from us. And this response can be of a conventional nature. It can also be of another nature.”⁸ Through this statement, France made it clear that it considers that terrorism or weapons of mass destruction would not necessarily represent a threat to the country’s vital interests, but that it would not hesitate to use nuclear means should the threshold of vital interests be crossed in the French president’s view. However, as Chirac stated several times since 2001, France’s nuclear deterrent is for states only.

French leaders believe that the world can change rapidly and that the emergence of a new major threat to Europe at the horizon of 15–30 years is not a far-fetched scenario. Accordingly, it is deemed prudent to maintain a national nuclear deterrent. Chirac implicitly referred to potential major threats by observing that France is “not shielded from an unforeseen reversal of the international system, nor from a strategic surprise.”⁹ Chirac emphasized that the rise of nationalisms and the competition between poles of power could give rise to new major threats. The logic is that even in the absence of such a major threat today, since France now has nuclear weapons it might as well keep them.

Another rationale to maintain a nuclear force is to guarantee that no regional power could blackmail or pressure France with weapons of mass destruction. The prevailing opinion in Paris is that nuclear deterrence is a better and safer choice than missile defense. The kind of scenario that has French officials worried is one where, for instance, a country tries to block military intervention by threatening to strike the national territory. This concept could be called “counter-deterrence” or “counter-blackmail.”

France has consistently rejected the adoption of a “no-first-use” posture. This has been manifested by reservations attached to the Negative Security Assurances (NSAs)

6. *Livre blanc sur la Défense 1994*, op. cit., p. 4.

7. *Allocution de M. Jacques Chirac (2006)*.

8. *Allocution de M. Jacques Chirac (2006)*.

9. *Ibid.*

conferred in 1995 by France, as by other official nuclear powers, to non-nuclear state parties to the NPT. Paris sees nuclear retaliation as being consistent with the right to self-defense recognized by Article 51 of the U.N. Charter, thus prevailing in case of aggression over commitments of non-use made in peacetime. France asserts that countries that do not respect their own nonproliferation commitments should not expect that the NSA would apply to them. Reservations to the NSAs were reaffirmed in 2003.¹⁰ Similar reservations have been made when France ratified the protocols to treaties establishing nuclear-weapon-free zones.

Chirac insisted, however, that changes to the French posture do not represent any lowering of the nuclear threshold: “Nuclear weapons, for us, are in no way war-fighting weapons ... There is no lowering of the nuclear threshold in my statements.”¹¹ In the eyes of French authorities, doctrinal and systems adaptations were necessary to ensure the credibility of deterrence in a wider range of scenarios than in the past. The then chief of defense staff let it be known that a minimum yield for new weapons had been fixed, in order to make it clear that France was not adopting a war-fighting strategy.¹²

France and Article VI of the NPT

France considers that its nuclear policy is consistent with its international legal obligations, including Article VI of the nuclear Non-Proliferation Treaty (NPT). The head of the French delegation to the 2005 Review Conference stated that his country was “intent on reaffirming its commitments under Article VI of the Treaty.”¹³ France has significantly reduced its nuclear arsenal since the end of the Cold War, and the nuclear share of the equipment budget was reduced by half since 1990. It has reduced its number of nuclear delivery vehicles by two-thirds since 1985 and abandoned ground-launched ballistic missiles. It has dismantled its nuclear testing site and fissile material production facilities.¹⁴ It maintains its force at a level of “sufficiency” and has chosen “not to equip

10. See *Rapport de la France sur l'application de l'article VI et de l'alinéa C) du paragraphe 4 de la décision de 1995 sur les principes et objectifs de la non-prolifération et du désarmement nucléaires, Deuxième session du comité préparatoire de la conférence d'examen du TNP de 2005*, Geneva, April 30, 2003.

11. *Conférence de presse conjointe de M. Jacques Chirac, Président de la République, et de Mme Angela Merkel, Chancelière de la République Fédérale d'Allemagne, à l'occasion de la rencontre franco-allemande*, Versailles, January 23, 2006.

12. “We have made sure to limit downwards the yield of the weapons we maintain, so that nobody could ever forget that nuclear weapons are, by their very nature, different,” Henri Bentegeat, in *Rapport d'information fait au nom de la commission des Affaires étrangères, de la défense et des forces armées sur le rôle de la dissuasion nucléaire française aujourd'hui*, par M. Serge Vinçon, Sénateur, Document n° 36, October 24, 2006, p. 25.

13. 2005 Review Conference of the State Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, General Debate, Statement by H. E. M. François Rivasseau, Ambassador, Permanent Representative of France to the Conference on Disarmament, New York, May 5, 2005, p. 7.

14. The Centre d'Expérimentations du Pacifique is now dismantled. The highly enriched uranium production facility at Pierrelatte will be fully dismantled by 2010. The plutonium production facility at Marcoule will be fully dismantled by 2040.

itself with all the nuclear weapons systems it could have given the technological resources at its disposal,” according to an official brochure detailing the country’s contribution to nonproliferation and disarmament on the eve of the 2005 NPT Review Conference.¹⁵

However, the French have also adopted a very strict interpretation of Article VI. France is keen to emphasize the multidimensional character of Article VI, including the goals of cessation of the arms race and of general and complete disarmament. It considers that its actions in favor of biological, chemical, and conventional disarmament (including small arms and land mines) are part of its Article VI record—as is its assistance to nuclear threat reduction in Russia.¹⁶ As far as its own nuclear policy is concerned, the preferred point of reference for French diplomats seems to be the “Decision Number Two” of the 1995 Review Conference rather than the “13 steps” of the 2000 Review Conference.¹⁷ While no explicit conditions for further nuclear reductions have been formalized, France indicated in 2005 that if “the disproportion [between its forces and those of the U.S. and Russia] changed its nature, it could envision to draw consequences” from such an evolution.¹⁸

France’s firmness on the Article VI issue has been made stronger by its irreversible decisions of 1996 to dismantle its nuclear testing site and its fissile material production facilities. It was also the first of the five NPT nuclear powers to officially support the so-called “zero option” for the Comprehensive Test Ban Treaty (CTBT)—no test whatever the yield—on August 10, 1995. (These measures, along with the decision that same year to dismantle the long-range ground-launched missiles located at the Plateau d’Albion, were partly decided to sweeten the bitter pill of the final nuclear testing campaign.) However, more than a decade later, neither the CTBT nor a Fissile Material Cutoff Treaty (FMCT) are in force. Moreover, the Anti-Ballistic Missile (ABM) treaty has been terminated and the NPT seems increasingly at risk—whereas these two treaties have traditionally been considered by the French as pillars of strategic stability. All this has led Paris to be even more prudent and cautious regarding nuclear disarmament than it has been in the past. Such is the reason why Chirac stated in 2006, “It is obvious that we will only be able to go forward on the road towards disarmament in the event that the conditions of our overall security are maintained and if the will to make progress is

15. Ministère de la défense, Secrétariat général de la défense nationale, & Ministère des affaires étrangères, *Fighting Proliferation, Promoting Arms Control and Disarmament: France’s Contribution*, 2005, p. 64. While this statement was not clarified, a widely quoted example in strategic circles is the enforced-radiation warhead, which French engineers developed and tested in the early 1980s; however, then President Mitterrand decided not to deploy it.

16. Conférence des Etats Parties chargée d’examiner en 2005 le Traité sur la Non-Prolifération des Armes Nucléaires, Comité I, Intervention prononcée par S.E.M. François Rivasseau, Ambassadeur, Représentant Permanent de la France auprès de la Conférence du Désarmement, New York, May 19, 2005.

17. See 2005 Review Conference of the State Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, General Debate, Statement by H. E. M. François Rivasseau, Ambassador, Permanent Representative of France to the Conference on Disarmament, New York, May 5, 2005.

18. Conférence des Etats Parties chargée d’examiner en 2005 le Traité sur la Non-Prolifération des Armes Nucléaires, Comité I, Intervention prononcée par S.E.M. François Rivasseau (2005).

unanimously shared.”¹⁹ Since this statement was made, the Russian decision to suspend its implementation of the Conventional Forces in Europe (CFE) treaty and hints that it could withdraw from the Intermediate-range Nuclear Forces (INF) treaty are probably seen as reasons to maintain this stance.

A Muted Nuclear Debate

Nuclear policymaking in France is extremely centralized and in the hands of a few officials. The most important of those are the president, his military adviser (*chef d'état-major particulier*), and the chief of the joint staff (*chef d'état-major des armées*). In the French system, neither the prime minister nor the defense minister is included in the operational chain of command. The Parliament too is excluded from most of the nuclear decision-making process. De Gaulle set up the military program laws (*lois de programmation militaire*), or five-year defense plans, so that budget continuity to build the French deterrent would be ensured and also that the Parliament would have fewer opportunities to challenge French defense policy. Defense issues do not figure prominently in the two chambers' work. The Parliament does report on nuclear policy every year, at the occasion of the preparation of the budget vote, and both chambers produce at least a short report each on the current state and modernization of the deterrent force—which generally approves government policies. A more in-depth debate takes place every five years or so, at the occasion of the preparation of a new military program law, and special parliamentary reports on nuclear deterrence issues also appear on an irregular basis, on the Parliament's own initiative. Majority parliamentarians are sometimes critical of government policy, but if their recommendations are completely at odds with such policy they have almost no chance of being implemented.

The role of experts and think tanks is limited. Individual influence does exist, but more as a result of informal private contacts than of publications or studies contracts. Reasons include the quasi-absence in France of any “revolving doors” practice, through which outside experts go in and out of government, notably when political majorities change, as well as a lingering suspicion, among French high-level civil servants, about external expertise in public policy in general. But think tanks generally support the consensus on the need for an independent deterrent. (Most op-eds published by experts after Chirac's 2006 speech sought to explain rather than criticize it.) Nuclear issues rarely make headlines, and editorialists seldom choose them to make a point or criticize the government.

In 2006, there was a renewal of interest in nuclear deterrence, because of the approach of the presidential elections; several major public debates on the topic were organized in Paris by political forces, think tanks, and NGOs.

An Enduring Consensus

The French consensus on nuclear deterrence remains robust. The nuclear program initially met fierce resistance from the Left, as well as from the Atlanticist Center-Right. But a consensus gradually coalesced and was solidified when the Left came to power in 1981. Since then, no major party has challenged the need for a nuclear deterrent. In contrast with its U.K. counterpart (the Labour Party), the Socialist Party remains a supporter of nuclear deterrence. The nuclear policy review conducted in 1998–2000, in a

19. *Allocution de M. Jacques Chirac* (2006).

time of cohabitation, was a bipartisan one; exceptionally, the government had a direct input in it, at its own request. The review renovated the consensus between the main political forces. Thus, in the tradition of Mitterrand, the Socialist Party remains a supporter of an independent nuclear deterrent. The party's platform adopted in 2006 states that "nuclear deterrence must remain within a logic of forbidding aggression against ourselves and our European Union partners. It rests on independent procedures."²⁰

Popular support for the continued existence of this deterrent remains fairly high. In 2006, to the question: "Could a country like France ensure its defense without the deterrent force (nuclear force)?" 61 percent answered "no," against 34 percent "yes." The number of those in favor of "modernizing" (44 percent) or "maintaining" (35 percent) the French deterrent has been growing since 2000, and conversely those in favor of "reducing" are now a small minority (16 percent).²¹ An Internet poll (4,573 respondents) conducted in October 2006 gave similar results: 71 percent judged that the possession of nuclear weapons by France was "vital" or "useful," against 27 percent who thought it was "useless" or "dangerous"; majorities believed that nuclear weapons protected the country against a military threat, be it nuclear or non-nuclear.²² After Chirac's 2006 speech, editorial comments by newspapers as different as the center-left *Le Monde* and the center-right *Le Figaro* both commented on the speech without disapproving it.²³

France has never had a significant anti-nuclear movement. A major reason for this situation is that nuclear weapons remain the positive symbol of an independent foreign and defense policy, in particular from the United States. French political culture has long identified nuclear technology with independence. Also, the withdrawal from the integrated command in 1967 largely insulated French public opinion from the broader Western strategy debate. During the Cold War, the nuclear debate in Europe was linked with the relationship with the United States and NATO; France was largely spared from this and did not have massive anti-nuclear movement. Finally, the French nuclear procurement cycle tends to be spread out over time and rarely lends itself to any critical decision point or moment. (The current modernization of nuclear systems is spread out over more than 20 years. The first new-generation SSBN [nuclear-powered ballistic missile submarines] entered service in 1997; all four of them will be armed with the new-generation warhead around 2020.)

Themes of Debate

Nuclear controversies generally concern the refinements of the doctrine, or the need for such or such weapon system, rather than the legitimacy of the national nuclear deterrent itself.

20. Parti socialiste, "Réussir ensemble le changement. Le projet socialiste pour la France," July 2006, p. 31.

21. Ministère de la défense, Délégation à l'Information et à la Communication de la Défense, "Les Français et la défense": résultats 2006 du sondage annuel réalisé par BVA pour le ministère de la défense, July 13, 2006. As of November 15, 2007, no data was yet publicly available for 2007. However, according to Defense Ministry officials, the 2007 poll did not give very different results (interview in Paris, October 2007).

22. Opinion poll conducted by Expression Publique, October 2006.

23. See Pierre Rousselin, "Une dissuasion pour l'avenir," *Le Figaro*, January 20, 2006; and "Chirac et la bombe," *Le Monde*, January 21, 2006.

There was disagreement within the Left during the Euromissiles crisis (1983–1987), because President Mitterrand supported the NATO decision to deploy Pershing II and cruise missiles in Western Europe; however, by 1984 the Communists had left the government, thus limiting the extent of the domestic debate. A more significant debate took place in 1993–1995, when the issue of whether or not to resume nuclear testing encapsulated the debate over the “usability” of nuclear weapons; the main reason why it became politically charged was because it pitted the Elysée Palace against a government of a different majority. Mitterrand had maintained a moratorium on testing from April 1992 until his departure in May 1995. In the second half of 1995, as newly elected President Chirac decided to embark on a final series of tests, there was widespread domestic opposition, especially on the Left. Various polls indicated at the time that about 60 percent of the population opposed the resumption of testing. In late 1996, a short-lived controversy took place when a French-German joint text recognized the value of the U.S. and NATO nuclear guarantee.²⁴ The debate that took place in Parliament showed that the question of the relationship between the French deterrent and the Alliance was still a touchy subject, 30 years after Paris’s withdrawal from the integrated military structure.

In 1998, a series of meetings on nuclear policy review was initiated by the Elysée. Originally, the idea was just to finalize the implementation decisions of the 1995–1996 review. But the new Socialist government insisted that it should fully participate in the process. As a result, a two-year full nuclear policy review took place discreetly in 1999–2000. This bipartisan review confirmed that the bases of French nuclear policy were still the object of a consensus.

There are two recurring themes in the French nuclear policy debate.

- One is the nature and scope of the European dimension of deterrence. There has been since the early 1990s a wide consensus among politicians and commentators about the idea to “Europeanize” the French nuclear deterrent. But there are few concrete ideas being floated as to make this a reality, and this is not a polarized debate. Some strongly insist on the need for “more Europeanization”; others insist that the decision to use nuclear weapons should remain a national one. (Nobody argues that it should be otherwise.) But the two stances are not mutually exclusive. The UMP insists on the continued need for autonomy but states that the deterrent force already covers France’s friends and allies.²⁵ Socialist leaders insist on the impossibility to share the

24. “The supreme guarantee of allied security is ensured by the Alliance’s strategic nuclear forces, in particular those of the United States; the independent nuclear forces of the United Kingdom, which fulfill a deterrent role of their own, contribute to overall allied deterrence and security.” This sentence was meant to make it easier for Germany to agree on a dialogue on nuclear deterrence (“Our countries are ready to engage in a dialogue regarding the role of nuclear deterrence in the context of European defense policy.”) (*French-German Security and Defense Common Concept*, Nuremberg, December 9, 1996).

25. “The priority of our foreign and defense policy remain to guarantee the security of our countryfellows and to assure the protection of our vital interests. Our existence as a State and as a Nation depend on it. This security and this protection also cover our friends and allies. They are within the realm of nuclear deterrence and justify that our country continues to have an **autonomous nuclear deterrence force**” [in bold in the text]. Union pour un Mouvement Populaire, “Contrat de législature 2007-2012,” November 2006, p. 10. See also Hervé de Charrette, “Ouvrons le débat sur l’arme nucléaire,” *Ouest-France*, December 4, 2006.

decision to use nuclear weapons but also state that deterrence covers European partners. Former defense minister Paul Quilès complained that Chirac's 2006 stance was too timid in this regard.²⁶ The traditionally pro-European UDF states that the national deterrent, along with the whole defense doctrine, needs to be "rethought in a European framework."²⁷

- Another is the fate of air-launched weapons, traditionally called the "second component" and considered by most as being much less important than the SSBN force. Many wonder whether such a capability is not critical to the credibility of the French deterrent—especially since France got rid of its land-based missiles in 1996. Critics also argue that since the United Kingdom now relies only on a sea-based force, France could do the same. Arguments put forward are either the need to save money or the need to send a "signal" in favor of disarmament and nonproliferation.²⁸ Those favoring the *status quo* note that the United Kingdom's U.S.-made Trident-2 SLBM (submarine-launched ballistic missile) is reportedly more accurate than the French M45 and M51 SLBMs and that London's status within the Alliance—which maintains its own air-launched weapons—makes the need for an air-based component less salient.²⁹

French nuclear debates rarely do not reflect a clear-cut division between the Right and the Left. Socialist reactions to Chirac's January 2006 speech testify to that. Many approved the general thrust of the speech, though most were skeptical about the idea that nuclear deterrence could have any role vis-à-vis terrorism and worried about the potential extension of "vital interests" to strategic supplies.³⁰ The party's official position was fairly noncommittal and expressed the fear of a "drift" toward a war-fighting role for nuclear weapons and calling for "clarifications."³¹ Indeed, within the party, some personalities support a reduction of the nuclear budget (Jack Lang, Paul Quilès); a minority would like France to disarm to encourage nonproliferation (Michel Rocard); but still others explicitly approve current policy (Laurent Fabius, Jean-Pierre Masseret). Pascal Boniface, an expert close to the party, commented on the January 2006 speech without criticizing it.³²

Within the UMP, the debate on nuclear deterrence is more muted, since it has been the president's party since 1995. However, one could perhaps make a distinction

26. *Avis présenté au nom de la commission des affaires étrangères sur le projet de loi de finances pour 2007, Tome V – Défense*, par M. Paul Quilès, Député, Document n° 3366, October 12, 2006, op. cit., p. 42.

27. Union pour la démocratie française, "La France ensemble, Avant-projet législatif," p. 8.

28. See for instance Hervé de Charrette, "Ouvrons le débat sur l'arme nucléaire," *Ouest-France*, 4 December 2006; and François-Régis Hutin, "Dissuasion nucléaire : l'heure de la décision," *Ouest-France*, November 4–5, 2006.

29. See Henri Bentegeat in *Rapport d'information fait au nom de la commission des Affaires étrangères, de la défense et des forces armées sur le rôle de la dissuasion nucléaire française aujourd'hui*, p. 24; and Bruno Tertrais, *La dissuasion revisitée, Notes de la FRS, Fondation pour la recherche stratégique*, January 23, 2006.

30. "Nucléaire: les réactions," *Le Quotidien Permanent du Nouvel Observateur*, January 19, 2006.

31. Parti Socialiste, "Dissuasion nucléaire : les déclarations du Président de la République," *Communiqué du Bureau national*, January 24, 2006.

32. Pascal Boniface, "Dissuasion nucléaire: pas de ruptures mais une doctrine actualisée," *Institut de relations internationales et stratégiques*, January 20, 2006.

between “archgaullists,” who maintain a traditional and conservative approach to deterrence, such as Michèle Alliot-Marie, and “modernizers” such as Nicolas Sarkozy (or Pierre Lellouche, who advised him on defense issues during the campaign), who think that the nuclear force is necessary because the world is dangerous, but that current policy should not be treated as a sacred cow.

Drivers for Future Evolution

Four main drivers will determine which path the French deterrent will take in the coming 15 to 20 years.

Threat Perceptions. Among potential threats to French vital interests, nuclear and ballistic proliferation in the Greater Middle East will be a topic of particular attention. An overtly nuclear Iran, for instance, would certainly reinforce the general trend toward conservatism and continued modernization. In a worst-case scenario of free-for-all nuclear proliferation, a country of particular concern to the French would be Algeria, for obvious geographical and historical reasons. But the evolution of Russia and China will also be carefully monitored. Despite France’s traditionally good relations with Moscow and Beijing, the idea that one of these two countries could pose one day a major threat to Europe is far from being dismissed in French political circles.

European Integration. France’s independent nuclear stance will be harder and harder to reconcile with its drive for a more integrated European Union. The issue has been a recurring theme in French strategic thinking since President Mitterrand first raised the question in 1992, at the time the European Union (EU) was created, but with few concrete results so far. The sensitivity of the issue in Germany, in particular, seems to have precluded any in-depth debate on the topic, at least publicly. Nevertheless, French leaders have suggested that the country’s nuclear deterrent already plays an implicit role in the protection of Europe.³³ Paris hopes that Europe could one day benefit from the same kind of strategic autonomy France has been able to enjoy since the 1960s. In the absence of a single political authority in the European Union, the French are not ready to share the decision to use nuclear weapons with partners and allies. But they are keen to transpose their concept of strategic autonomy through the possession of nuclear weapons to the EU, suggesting since 1994 that Europe will not be fully autonomous without taking into account the nuclear dimension.³⁴ The evolution of the United Kingdom’s stance toward the EU particular, as well as the evolution of the “special relationship” between London and Washington, will be key factors: Both will determine to a large extent how much and how far bilateral nuclear cooperation with France will be possible.

Domestic Politics. A new generation of political leaders is emerging in the country. Sarkozy is the first true “post-Gaullism” generation president. Also, the memories of the Cold War fade away, and the number of politicians well versed in

33. In June 2001, Chirac stated that any decision by France to use nuclear weapons “would naturally take into account the growing solidarity of European Union countries” (*Discours de M. Jacques Chirac*, 2001). In January 2006, he stated that “the development of the European Security and Defense Policy, the growing intermeshing of the interests of European Union countries, the solidarity that now exists between them, make the French nuclear deterrent, by its mere existence, an unavoidable element of the security of the European continent” (*Allocution de M. Jacques Chirac*, 2006).

34. *Livre Blanc sur la Défense 1994*, p. 98.

nuclear matters rapidly decreases. And it is prudent to assume that defense budgets in Europe are now structurally constrained due to high social demands. The preservation of the consensus should not be taken for granted. The political heritage of Charles de Gaulle, for the Right, and of François Mitterrand, for the Left, is likely to fade away as time passes. If the Greens were to become stronger, the Socialists could be forced to compromise on issues of nuclear disarmament in order to ensure the party's support in a coalition government. In any event, maintaining this consensus will require political leadership as well as good communication skills to explain why the choice that was made in the late 1950s is still valid today. The French nuclear budget has been divided by two in the past 15 years. It remains low in terms of share of the annual defense expenditure (about 10 percent on average, 2003–2008) and of the equipment budget (about 20 percent on average for the same time period). Still, many in the armed forces and in Parliament criticize the heavy burden of nuclear expenses.

Missile Defense. France is a party to the NATO missile defense program, and its location makes it impossible to stay out of any defense against long-range ballistic missiles. It is dubious that France will not be at least a party to the allied early-warning system that will be set up.³⁵ The deployment of missile defense in Europe may force the French into rethinking the relative roles of nuclear deterrence and missile defense. (A step in this direction was taken by Chirac in January 2006.) But assuming that the defense budget is not increased, any significant entry cost into a NATO missile defense architecture will imply savings on other programs.

What Could Be Sarkozy's Nuclear Policies?

Before becoming president, Nicolas Sarkozy was unfamiliar with strategic issues and made few statements about nuclear policies.

He reportedly reacted to Jacques Chirac's January 2006 speech by stating that it was "not a modern approach to deterrence."³⁶ And Nicolas Baverez, a commentator close to him, called France's deterrence doctrine a new "Maginot Line."³⁷ However, publicly Sarkozy remained very cautious and prudent. He stated that France should continue to make enough funds available to maintain nuclear deterrence and that the country's nuclear strategy "probably" needed to be reviewed.³⁸ He said that he wanted to ensure that the nuclear budget was well spent and the expense worth the money.³⁹

His campaign statements on nuclear deterrence were put in fairly traditional terms. In February 2007, he called it "the life insurance of the nation, from which other [countries] in Europe could benefit if needed. In light of the acceleration of ballistic and nuclear proliferation, it is the ultimate protection against attacks on our vital interests ... I

35. A U.S. mid-course Ground-Based Interceptor (GBI) site is to be set up on Polish territory in 2011-2012; so far, it is not part of the NATO program.

36. Quoted in "Nucléaire: épargner Chirac," *Téléphone Rouge, Le Nouvel Observateur*, January 26, 2006, p. 49.

37. Nicolas Baverez, "Dissuasion, mon amour," *Le Point*, January 26, 2006, p. 40.

38. Nicolas Sarkozy, "La France doit porter des valeurs universelles, et les faire vivre," Interview, *Le Meilleur des Mondes*, n° 2, Fall 2006, p. 89.

39. Nicolas Sarkozy, "Il serait imprudent de relâcher notre effort de défense," *Entretien, Défense*, n° 135, janvier-février 2006, p. 13.

will therefore do everything that needs to be done to preserve the integrity of the technical and political independence and credibility of our [nuclear] strike force.”⁴⁰

In March 2007, at the occasion of his main defense policy speech, he stated the following:

[Nuclear] deterrence remains an absolute imperative. It is the life insurance of the nation, the guarantee that another state will have to think very hard before attacking France, lest it would be exposed to an immediate reprisal, one which would be out of proportion with the expected benefits. This guarantee could benefit our European neighbors, in conditions that, should they so wish, could be defined with us. This is absolutely not about imposing anything. This is simply about reflecting on the fact that the vital interests of France are not limited to the Hexagon. It is an important subject, we will debate it and we will see. But I believe that we should be able to open our arms and say that France, a nuclear power, which does so much for its defense, is also the core of European defense. If I am elected president of the republic, I vow to guarantee the technical and political credibility of our weapons systems, in line with the principle of strict sufficiency of the means deployed. Those modernization programs which will appear necessary will be carried on, and submitted to the same demands of optimization [as conventional programs].⁴¹

Of note in this speech—the main elements of which were repeated in campaign documents and articles—were two things. There was first his prudence on the European dimension: Knowing German sensitivities on this issue, he would not try to rush on establishing a form of European deterrent. The other notable element was his determination to “un-sanctuarize,” so to say, the nuclear budget: He would only retain nuclear modernization programs decided by his predecessor, Jacques Chirac, if they appear to him as being indispensable.

Since he became president, Sarkozy has confirmed his attachment to nuclear deterrence in a fairly traditional way. He visited the headquarters of the French SSBN force in July 2007. At this occasion, he addressed the submariners and said, “You are the life insurance of the Nation.” He stated that he “would not hesitate to take the necessary measures if the vital interests of our country and its security were threatened.”⁴²

However, he will certainly want to leave his mark on nuclear policy, as all other presidents of the Fifth Republic have done before him. For instance, it is likely in any circumstance that Sarkozy’s mandate will see an increased “internationalization” of the French deterrent.

So far, France has fallen short of declaring that its nuclear deterrence explicitly covers its European Union partners. However, there is today a wide consensus on the idea that the French force covers the security of its EU partners. A “mutual security guarantee” clause was to be included in the failed EU Constitution; it is likely that this clause will be

40. “La politique de défense selon ... Nicolas Sarkozy,” *Défense et Sécurité Internationale*, n° 24, mars 2007, p. 40.

41. *Discours de Nicolas Sarkozy, Journée UMP de la Défense*, Paris—Mercredi 7 mars 2007.

42. Allocution de M. Nicolas Sarkozy, Président de la République, à l’occasion de la visite des forces nucléaires françaises, July 13, 2007.

part of any future, more limited treaty involving security and defense. If such a clause was adopted, Paris would have to give its interpretation as to what it means for its nuclear policy.

There is also the possibility that future British and French leaders may deem it useful to reinforce their cooperation. Since the early 1990s, bilateral dialogue and cooperation mechanisms exist between the two countries in the nuclear field. In 1995, through the so-called Chequers Declaration (1995), John Major and Jacques Chirac stated that they “could not imagine a situation in which the vital interests of either of our two nations, France and the United Kingdom, could be threatened without the vital interests of the other also being threatened.”⁴³ In the short run, nothing would preclude a solemn and explicit affirmation by London and Paris that their two nuclear forces protect the European Union countries. However, it is unlikely that things could go very much further in the current strategic context.

Another possible direction would be increased cooperation with the United States and/or the NATO integrated military structure. Two different incentives could prompt France toward that direction. One would be a deliberate political orientation by Sarkozy, leading France to reintegrate the NATO military structure. This would be a symbolic revolution. (The domestic political costs for such a decision would be negligible.) Sarkozy has hinted that he was ready to consider such a move.⁴⁴ In such a case, the French nuclear force would logically be assigned to NATO, as the U.K. force currently is. For instance, Paris could decide to assign part of its airborne deterrent to the common existing NATO force. Another type of incentive would be of a technical and budgetary nature. Getting rid of the airborne deterrent for costs reasons while simultaneously reintegrating NATO might be a politically elegant way for the French to argue that its position vis-à-vis the allied nuclear deterrent should not mirror that of the British. Another rationale might be the cost of the “simulation” program (5.8 billion €, at 2006 costs, spread over 15 years). France might decide to scale it down and cooperate more with London and Washington in this regard. Finally, there is the nuclear testing issue. What would happen in the event that a major defect was found in the weapon design that forms the basis for the two “robust” new French warheads, the sea-launched TNO and the air-launched TNA? France would not be able to independently test nuclear weapons anymore if it wanted to, since it dismantled its facilities in 1997. The only realistic option would be to use another country’s existing test facilities—in practice, the U.S. Nevada Test Site.

Prospects for Nuclear Reductions

Whatever the shape of Sarkozy’s nuclear policies, the possibility will exist for further unilateral force reductions.

43. Agence France-Presse, Texte de la déclaration commune franco-britannique sur le nucléaire, October 30, 1995. This was reaffirmed at the bilateral summit of Le Touquet in 2003.

44. “I would like us, in the coming months, to move forward simultaneously on reinforcing European defense and the renovation of NATO, and thus of its relationship with France. The two go together. An independent European defense and an Atlantic organization where we would have a full-fledged role” (“où nous prendrions toute notre place”). Allocution de M. Nicolas Sarkozy, Président de la République, à l’occasion de la Conférence des Ambassadeurs, August 27, 2007.

Depending on the evolution of “sufficiency” requirements (which themselves would depend on threats perceptions as well as other parameters, such as the development of missile defenses in unfriendly countries), a reduction in the number of nuclear warheads could be a tempting and relatively cost-free option for a French president wanting to leave a mark on nuclear policy. The December 2006 U.K. decision to reduce its arsenal from less than 200 operationally available warheads to less than 160 may be seen as an example, or at least be utilized as a post hoc rationalization in the public debate. It is to be noted that because the future French SLBM warhead (the TNO) will be bigger and heavier than the current one (the TN75), each M51 SLBM will probably carry a smaller number of warheads than the current M45. Thus after 2010, when the first M51 come into service, a French president may be in a position to say that France is reducing the number of operationally available SLBM warheads.⁴⁵

Increased European and/or trans-Atlantic cooperation may also lead to further weapon reductions. A coordination of U.K. and French forces, or a reintegration into the NATO military structure, might be the occasion to decide a slight force reduction; Paris could decide that its nuclear planning would not need to be, from then on, as demanding as was the case in fully independent scenarios.

In the longer run, if the United States and Russia went down to, say, about 1,000 nuclear weapons each, it is dubious that France would immediately feel compelled to reduce its arsenal. It does not have a “counterforce” strategy and French political leaders have repeatedly stated that the level of the French arsenal is not dependent upon that of others.⁴⁶ But things might be different if there was then a serious proposal initiated or supported by the United States to go for multilateral and proportional reductions. For political reasons, France would probably not stay away from a general trend toward drastic nuclear reductions—especially if British, Chinese, and French participation was a precondition for Moscow and Washington to go in this direction. In such a case France might then move to a British-like posture: four SSBNs only and a stockpile of no more than, say, 150 warheads.

The abandonment of nuclear deterrence by France would be an extreme scenario. Even a (unlikely) British decision to give up its own deterrent, for instance, would not be enough: The “exemplary effect” that could be expected would be in all likelihood compensated by the realization that France would then be the sole nuclear power in Europe—probably giving it a sense of responsibility as well as a new status. So, what could be such extraordinary circumstances? Assuming a very peaceful strategic environment (where proliferation is being convincingly rolled back and Russia has become fully democratic) and the continuation of the U.S. extended deterrent to Europe, a French president could decide to avoid renewing the existing systems when their service life expires—around 2030–2035—and decide to rely on the U.S. umbrella instead. In other words, paradoxically a French decision to forgo its nuclear arsenal may be impossible if the United States was to disarm.

45. The possibility of France increasing its nuclear arsenal is dubious. The country got rid of its fissile material production capability in 1996, and the size and weight of the TNO will limit the upload capability of the M51 SLBM (unless perhaps the nominal load is reduced to one or two).

46. Note that, since 1996, France lumps all its nuclear weapons in a single category of “strategic” weapons and does not attribute specific forces to specific missions. Thus it can claim to have no “nonstrategic” weapons.

BRITISH NUCLEAR-WEAPON POLICY, DOCTRINE, AND OUTLOOK

Michael Quinlan

History

The United Kingdom brought to the nuclear revolution a security mindset different from that of the United States. The United States, behind its huge two-ocean moat, enjoyed (despite the outlying Pearl Harbor shock) a perception of sanctuary that in some degree endured, psychologically if not intellectually, until September 11, 2001. The combination of island configuration and dominant maritime power had long given Britain a similar sense. With the advent of aircraft, however, the experience of the two 20th-century world wars had irreversibly erased that sense. There was significant bombardment of the U.K. homeland in World War I and a good deal more—including by cruise and ballistic missiles—in World War II. The scale of damage then did not approach that inflicted upon Germany or Japan, but more than 50,000 civilians were killed. This history meant that the United Kingdom entered the nuclear age with an awareness and acceptance of inescapable vulnerability more vivid, yet at the same time less shocking because less unfamiliar, than did the United States.

In the immediate aftermath of August 1945 there were mixed views in Britain, as elsewhere, about the long-term import of what had happened to Hiroshima and Nagasaki. In a notable letter in September 1945, however, only two months after succeeding Winston Churchill in office, Prime Minister Clement Attlee argued to President Harry Truman that the new weapons represented a qualitative, not just a quantitative, change in the nature of warfare. Existing conceptions, he said, were now “completely out of date ... the only deterrent is the possibility of the victim of such a [nuclear] attack being able to retort on the victor.” The idea of deterrence by the prospect of retaliation as the only protection against nuclear weapons dominated government thinking from then on. This was given a sharper edge by perceptions that Soviet conventional-force preponderance in Europe was so massive that without prompt and all-out U.S. participation (not to be assumed until NATO’s creation in 1949 and even thereafter not in prospect on a matching scale) a Soviet assault could reach the English Channel within weeks, and the diversion of economic effort that would have been needed to change this reality was utterly out of the question for the war-devastated economies of Western Europe.

The United Kingdom had begun work toward developing nuclear weapons as early as 1940, but this effort was absorbed into a joint U.S.-U.K. project soon after the entry of the United States into the war. At the end of the conflict, however, the United States abruptly terminated cooperation on nuclear weapons, and in January 1947 the U.K. government took a formal decision (at first kept very secret) to develop a capability of its own. The development of long-range jet-propelled bombers had already been initiated, and in the mid-1950s three types were brought into service—Valiant, Vulcan, and Victor, collectively known as the V-force, with the latter two types being at least the equal of contemporary U.S. aircraft in most aspects of performance other than intercontinental range. At its peak the operational V-force numbered about 140 aircraft. The first U.K. nuclear weapon test had been held in 1952 and by 1958 U.K. freestanding competence in that field had been sufficiently demonstrated for the United States to resume close cooperation, never subsequently interrupted, in the weapon-development field. The United Kingdom also

introduced U.K.-made delivery systems and warheads at “nonstrategic” levels, based initially upon the Canberra light bomber (from which the U.S. B-57 was derived) and later upon various fighter/ground-attack or strike aircraft, both Royal Air Force and Royal Navy. U.K.-made nuclear warheads were also deployed as depth charges in RN ships.

Though the initial creation of U.K. strategic nuclear capability was a fully independent enterprise, most early thinking and planning for its use envisaged operation alongside U.S. strike forces, with the particular merit of U.K. contribution (political aspects apart) seen as being added weight, possible path-clearing disruption of Soviet defenses, and perhaps an awkward dilemma posed for any Soviet concept of preemptive strike on the West: “simultaneous launch or simultaneous arrival on target?” But the U.S. armory soon grew to a size and diversity that made any U.K. supplement, in strict operational terms, no more than a modest optional extra—an extra which by the early 1960s some in the U.S. State Department would indeed have preferred to see fade away, as being an unhelpful complication in the international arms control scene. These realities, alongside awareness of the future obsolescence of the V-force and the cost of any replacement for it within a hard-pressed defense budget, which still had to support extensive post-imperial commitments as well as NATO ones, drove the U.K. government to fresh hard thinking about the nature and strength of the case for continuing capability—and about its makeup.

The need for such thinking, and for effective communication of its product, was heightened by the fact that—to an extent not matched, at least proportionately, in any other nuclear weapon state—the case for continued capability was under vigorous domestic challenge not only on value-for-money and opportunity-cost account but also on deeper grounds of political and moral unease. Vocal (though always minority) challenge of this latter kind has remained a feature of the British scene almost continuously, albeit with highs and lows according to whether new decisions were on the agenda. For most of the 1980s, one of the two major political parties—Labour—was directly opposed to the retention of nuclear capability; and though it is now widely believed that this attitude worked to its electoral disadvantage it remains powerful on the left of the party. This may be partly because a strain of internationalist moralism has had some hold on the political left since the inter-war years. It may also, however, reflect that there is not in Britain any single central consideration in favor of possessing nuclear weapons quite as strong as the (diverse) ones that play powerfully in all the other nuclear weapon states.

The Concept of Independence

The challenge to policy thinking became sharply inescapable in 1960–62. The United Kingdom had the inherent capacity to maintain a fully independent procurement base—it was at that time both wealthier and generally more advanced technologically than France, which chose to do that. The opportunity cost, however, to other aspects of defense provision within unavoidable financial constraints would have been severe. In 1962 the U.K. government accordingly chose, while continuing to design and manufacture its own warheads and platforms (in the form of nuclear-powered submarines), to rely on purchase from the United States for its strategic delivery vehicles, the intercontinental-range missiles whose development would otherwise have been the most demanding, costly, and uncertain element of capability. That basic choice—initially of Polaris A3, thereafter of Trident D5—has been

maintained as subsequent major replacement decisions have arisen in 1980 and 2007. A limited exception was undertaken in the later years of the Cold War, when the United Kingdom completed its own complex and expensive “Chevaline” modification of Polaris A3’s front end in order to sustain the evident ability of its relatively small force to defeat the antiballistic-missile system defending a wide area around Moscow; but no similar project has been necessary in the Trident era.

It was always clear that there would be no point, alongside the huge U.S. capability, in shouldering the burdens of a U.K. strategic nuclear capability if it were wholly dependent upon the United States. The United Kingdom has therefore had to shape and communicate a careful concept of what “independence” means—and why it is worth having. The key features of the thinking, as it matured, were two related ideas (although political, institutional, and other motivations, as distinct from security rationales, were always more diverse across the wide span of time and of people involved). One idea was that of a “second center” of nuclear decision making within the Western political grouping. The other was that of operational independence.

From early in the nuclear age the U.S. armory was more than adequate in material terms—numbers, diversity, reach, and technical and operational quality—for the needs of any alliance or coalition to which the United States was committed. The security case for any of its partners to spend scarce resources on providing an independent supplement could rest only on hypotheses that in some scenario or other the U.S. armory might be thought not available, or not reliably available—for example, that in the Cold War situation of effective nuclear parity between East and West, with the United States itself inescapably under mortal threat, the Soviet Union might calculate (or, as U.K. spokesmen were usually careful to say, miscalculate) that when real operational decisions had to be faced, U.S. nuclear power would not be used, or not fully and promptly used, in the defense of Western Europe. The existence of independent nuclear capability in Western Europe, far more directly threatened by possible Soviet aggression, was seen as a useful added insurance against any such assessment.

Given this premise, what independence needed to mean in practice (at least from the standpoint of security rationale—cloudier considerations of political posture or national image are not addressed here) depended on what were the scenarios of perceived U.S. non-availability to be ensured against. These scenarios could be of two kinds. The first would postulate that the United States, while still politically committed to its allies, might hold back when faced with the nuclear decision amid the heat and fear of war. The second would postulate a deeper and longer-term estrangement from Europe—a radically changed environment in which the United States had disengaged from European security concerns and had withdrawn its cooperation and abrogated any obligations to European allies in nuclear procurement and support. If it were desired to cater just for the first sort of scenario, what was needed was simply operational independence—it might be called Independence Mark I: the capability to press nuclear launch buttons whether or not the United States so chose (see note 1). But to ensure also against the second sort of scenario, that of long-term U.S. estrangement, would require procurement independence—Mark II. It is unilluminating to argue about which Mark is “real” independence; the practical point is that they are alternative “insurance” policies. As in most such situations, the wider the cover required, the higher the premium. The United Kingdom chose to take out the Mark I level of cover, and this rarely

cost more than about 5 percent, and indeed usually much less, of the defense budget. French experience appears to suggest three or four times as much for Mark II.

A wide variety of considerations, including both domestic and international political ones, bore upon whether the United Kingdom ought to maintain a capability to meet this rationale of second-center operational independence (Mark I). The design of the capability raised further issues, for example about its makeup, weight, assurance, and targeting. The central security question that successive U.K. governments needed to ask themselves, however, was whether such a capability yielded the best “added value” as compared with other possible uses of the resources it absorbed, such as the provision of stronger conventional forces or indeed national purposes outside the defense field.

Not everyone who supported the case for a U.K. capability would have accepted this formulation of the central issue as a judgment weighing added value against cost. Some appeared, at least in their choice of justifying language, to attach to the capability an absolute importance—to believe that it lay so crucially at the heart of national security that it ought to be sustained whatever it cost, rather as French official doctrine has often seemed to hold in relation to French nuclear capability. In practice, however, the cost has never in Britain reached a proportionate level high enough to put general political opinion on that issue severely to the test.

The U.S. nuclear armory was itself a massive insurance policy, and a supplementary capability based on a second-center rationale, as constituting a second policy against the failure of the first, was inevitably directed against a scenario of low probability, albeit relating to an eventuality that would be uniquely disastrous. That low overall probability was part of what the balancing judgment—value against cost—properly had to weigh. Critics sometimes, however, misunderstood the structure of the judgment. In particular, it was occasionally argued that the United Kingdom must be at least as likely as the United States—perhaps much more so—to balk at the nuclear decision and that the notion of adding deterrent value by the second-center concept was therefore empty. But the concept did not in fact depend on any comparison between the two “national” probabilities. The point and effect of operational independence was that the British probability, whether larger or smaller, was a separate and additional probability, a further and different complicating uncertainty that an adversary would have to weigh and not a lesser, included case.

The Scale and Use of Capability

Successive U.K. governments have mostly been and remain very reluctant to go into detail publicly about how they arrive at judgments on the scale of capability and about how it might be used if it ever had to be. The most explicit conceptual account of what it was thought, during the Cold War, that the U.K. strategic nuclear force should be able to do is in the 1980 document (see note 2) explaining why the Trident missile had been chosen to replace Polaris:

The “Second-Center” Role

9. If Britain is to meet effectively the deterrent purpose of providing a second center of decision making within the Alliance, our force has to be visibly capable of posing a massive threat on its own. A force that could strike tellingly only if the United States also did so—which plainly relied, for example, on U.S. assent to its use, or on attenuation or distraction of Soviet defenses by United States forces—would not achieve the purpose. We need to convince Soviet leaders that even if they thought that at some critical point as a conflict developed the U.S. would hold back, the British force could still inflict a blow so destructive that the penalty for aggression would have proved too high.

10. There is no way of calculating exactly how much destruction in prospect would suffice to deter. Clearly Britain need not have as much power as the United States. Overwhelming Britain would be a much smaller prize than overwhelming the United States, and a smaller prospective penalty could therefore suffice to tilt this assessment against starting aggression that would risk incurring the penalty. Indeed, one practical approach to judging how much deterrent power Britain needs is to consider what type and scale of damage Soviet leaders might think likely to leave them critically handicapped afterwards in continuing confrontation with a relatively unscathed United States.

11. The Soviet Union is a very large and powerful state, which has in the past demonstrated great national resilience and resolve. Its history, outlook, political doctrines and planning all suggest that its view of how much destruction would constitute intolerable disaster might differ widely from that of most NATO countries. Appalling though any nuclear strike would be, the government does not believe that our deterrent aim would be adequately met by a capability that offered only a low likelihood of striking home to key targets; or that posed the prospect of only a very small number of strikes; or that Soviet leaders could expect to ward off successfully from large areas of key importance to them. They might even be tempted to judge that if an opponent equipped himself with a force that had only a modest chance of inflicting intolerable damage there might be only a modest chance that he would have the resolve to use it at all.

12. Successive United Kingdom governments have always declined to make public their nuclear targeting policy and plans or to define precisely what minimum level of destructive capability they judged necessary for deterrence. The government however thinks it right now to make clear that its concept of deterrence is concerned essentially with posing a potential threat to key aspects of Soviet state power. There might with changing conditions be more than one way of doing this, and some flexibility in contingency planning is appropriate. It would not be helpful to deterrence to define particular options further. The government however regards the considerations noted in paragraphs 10 and 11 above as important factors in deciding the scale of capability we need.

The wording in paragraph 12 of the above extract—“... threat to key aspects of Soviet state power”—was of particular significance, though public commentary mostly did not pick thus up and the government did not attempt to underscore it. The language was deliberately chosen—partly with ethical concerns in mind—to convey that, while cities could not be guaranteed exemption, the U.K. approach to deterrent threat and operational planning in the Trident era would not rest on crude counter-city or counter-population concepts. At the same time, the language sought to avoid the false exclusivity, which used sometimes to be found in strategic commentary, of supposing that a targeting strategy was bound to choose simply between the destruction of cities and the attempted neutralization of the adversary’s power to retaliate (“counter-force”).

After the Cold War

Following the end of the Cold War, successive governments of both main political parties made extensive reductions in U.K. nuclear forces. These reductions were motivated in significant degree by awareness of political “Article VI” concerns, both international and domestic, rather than by worries about cost. The force of four SSBNs (nuclear-powered ballistic missile submarines), each capable of carrying 16 Trident D.5 missiles, became the sole system component, partly due to the fact that the missile’s range, accuracy, and ability to target warheads independently, together with the scope for varying the number and yield of the warheads it carried, conferred considerable flexibility in possible use. Weapons for delivery by aircraft and from ships were phased out entirely, and the United Kingdom ceased to participate in NATO “dual-key” arrangements involving U.S.-owned weapons, though some U.S. weapons continue to be stored in Britain for U.S. delivery aircraft. A series of reductions in operational holdings of warheads for the Trident missiles was also announced, the most recent bringing the declared maximum to 160—almost certainly the lowest total among the five NPT-recognized nuclear possessors. But serious thinkers in the United Kingdom, as elsewhere, recognize that the merits of reduction—political, stability-enhancing, financial, and moral—do not rise in a straight-line fashion all the way to zero and that the line may actually begin at some point to turn downwards. It seems unlikely that further squeeze in warhead numbers will be thought worthwhile, save perhaps in the possible context of moving to a new warhead design.

The United Kingdom has also considerably relaxed the level of readiness at which its force is held. There is only one submarine—as distinct from a previous *minimum* of one submarine—operational at sea at a time. It is not at short notice to fire as in the Cold War, and it carries a maximum of 48 warheads (not necessarily evenly distributed among the missiles), well below the capacity of Trident D.5.

It is generally assumed, and effectively if not explicitly confirmed by government, that some of the Trident warheads are of an explosive yield deliberately reduced to considerably below that of the “standard” warhead (itself not formally disclosed, but commonly supposed to be in the order of 80–100 kilotons). The government has said that it no longer regards terms such as “sub-strategic” as appropriate descriptions of such a capability, but it is clear that this is a change of verbal practice, not of substantive policy. There seems no reason to discard concepts of using lower-yield options either to aid war-termination short of all-out exchange, or perhaps to place under threat targets where lower

yield could suffice for the desired destructive outcome or where higher yield might be expected to have intolerable collateral effects and perhaps lower credibility.

Future Policy

Toward the end of 2006 estimates of limits to the dependable life of the current SSBNs, and of lead times for any replacement, compelled the U.K. government to face the question of whether, and if so in what form and on what scale, it should plan to maintain capability beyond the early 2020s. The immediate question (given a conclusion, readily reached, that a submarine-based force remained clearly the best form) was whether to embark upon initial design work for new boats. Commitment to fully detailed design and production, and so to the bulk of the prospective costs, would not be required for at least a further five years.

The government took the view, explained in a substantially argued White Paper (note 3) and endorsed by Parliament with majority support from both main parties, that at the currently projected procurement cost (estimated at around 15–20 billion pounds sterling over a 15-year span) and in a global environment with so much uncertainty and potential danger, now was not the time to decide to abandon entirely a capability that the United Kingdom had possessed for half a century. No attempt was made, nor could any credibly have been, to justify the decision in terms of specific scenarios or adversaries. Nor was there in the White Paper any suggestion, as a few voices in preceding commentaries had conjectured, that there were arguments related to the ambitions of Europe as a more effective global influence or to the possible discomforts, in such a context, of leaving France as the sole nuclear weapon possessor. (Wider current sensitivities in Britain about the evolution of the European Union meant that neither major political party would have wished to bring such considerations forward, whatever views might have been held in private.)

The strategic case was made in very general terms. It related in essence to the unsettled and still anarchic character of the international environment, the continued intention of the United Kingdom to be a major load-bearing actor in it, and the impossibility of predicting specific dangers far enough ahead for it to be acceptable to defer provision against them until they had become evident. The government committed itself, however, to looking at the issue again, in the light both of international circumstances and of the latest cost estimates, when the next major decision points are reached—that is, probably not later than about 2013. Aside from the basic issue of principle centered upon the ordering of new-build SSBNs, two important issues will arise around that time. The first is whether it remains necessary to have a force of four submarines, or whether three would suffice. The second is whether new nuclear warheads should be designed (as distinct from refurbishing or remanufacturing to the existing design) and if so what their characteristics should be, especially in respect of explosive yield. In that last regard there must surely be a case—against the background of a “targeting” philosophy that presumably continues, as paragraph 12 of the 1980 document (note 2) deliberately conveyed, to reject a “counter-population” approach—for considering a standard yield a good deal lower than that attributed to the current inventory. A reduction in yield might actually enhance deterrent credibility. But though it is known that design capability has been preserved, decisions are not yet needed,

the issues have not yet entered significantly into political debate, and factors relevant to conclusions about them have not so far been publicly identified.

The United Kingdom has never been directly drawn into arms control negotiations about the size or makeup of its nuclear armory. This has been both because of the armory's modest scale and because, since the perceived U.K. requirement was in no way a function of a potential adversary's holdings, there seemed no credible or logical prospect of a useful arms control deal that would significantly modify the requirement. Successive governments have however regularly reaffirmed—more often and clearly than the other four treaty-recognized nuclear weapon states—their fundamental acceptance, in the light of Article VI of the NPT and of related undertakings at NPT review conferences, that the eventual goal should be to abolish all nuclear armories—and they have declared that the United Kingdom stood ready to discard its own capability when others did so.

The likelihood that this declaration of readiness would be put to the test any time soon seems remote. Nevertheless, the government has evidently been concerned—especially in the light of its concern that the fiasco of the 2005 NPT Review Conference should not be replicated in 2010—that the nuclear weapon states should give evidence of taking the goal of abolition seriously. In June 2007 the then foreign and commonwealth secretary, Margaret Beckett, announced that the government would make a financial contribution to technical work in support of a systematic study that is to be conducted under the auspices of the International Institute for Strategic Studies (IISS), with a target completion date of autumn 2008. This independent study, being undertaken without any preconceptions about the outcome for policy, will examine what would be required, politically and technically, to achieve a nuclear-weapon-free world not less secure for the international community as a whole than that which would otherwise be in prospect. The informal note attached in the Appendix, originally written in January 2007 and since published by the IISS (4), played a part in the initiation of this project.

Footnotes

1. Some anti-nuclear campaigners in Britain have wished to believe that there is not even operational independence—that should the use of U.K. capability ever come seriously into contemplation the United States would have assured means, if it were opposed to such use, of physically preventing it. There is neither evidence nor likelihood in support of any such conjecture. If it were true, successive U.K. governments for more than 40 years would have been massively misleading Parliament and the public and wasting huge resources on a pointless project.

2. Defense Open Government Document (DOGD) 80/23, July 1980.

3. Cmnd. 6994, December 2006.

4. *Survival* 49.4, Winter 2007–08, pp. 7–16.

ABOLISHING NUCLEAR ARMORIES: POLICY OR PIPE DREAM?*

Michael Quinlan

There is a widespread global commitment, at least in terms of political rhetoric, to the eventual abolition of all nuclear armories. There have also been, from time to time, high-level suggestions—for example in the Reagan-Gorbachev dialogue at Reykjavik in 1986 and in Rajiv Gandhi's speech at the United Nations General Assembly in June 1988 (1)—of giving it real political impetus. With a few notable exceptions, however, the subject for long periods attracted curiously little examination at a level that could be regarded as of truly serious objectivity.

There has been a wide divergence—it has scarcely deserved to be called a debate—between two polarized extremes. One pole, which might be called that of the righteous abolitionists, pointed to the commitment and demanded that countries possessing these weapons should get on, more or less forthwith, with disposing of them. The other pole, that of the dismissive realists, asserted that complete abolition is fanciful dreaming and that the world must expect to have to concentrate on managing the existence of these weapons for the rest of human history—or at least, to put the matter slightly less crudely, that successful abolition must imply an international environment so vastly different from today's that it is idle to spend time now on talking about it.

Both of these viewpoints are surely wrong. The righteous abolitionists tend to talk of giving up nuclear weapons as though it were a sort of international equivalent of giving up smoking—the kind of thing that any sensible and strong-minded country ought to be able to do without long-drawn-out shilly-shallying. But this ignores the fact that countries do not acquire or retain a nuclear armory, with all its costs and other drawbacks, as a matter of idle whim—they do so for reasons centered upon, even if often by no means confined to, their national security. One may think such reasons in this or that or even every case to be mistaken or overrated, but they cannot be simply brushed aside. In January 2006 Pope Benedict XVI assured the world that the idea that nuclear weapons could contribute to security was “completely fallacious” (2). The Pope's words customarily command widespread attention, even in matters of practical judgment where the Vatican has no inherent or distinctive expertise. But mere assertion cannot suffice.

The dismissive realists are wrong because, whether or not it may now be believed that the recognition of a long-term goal of abolition implied in the 1968 nuclear Non-Proliferation Treaty (NPT) and subsequent declarations at its review conferences was unwise or unreal, it was a goal clearly accepted (3). It has often been reaffirmed and invoked; and it continues to

* This piece appeared in *Survival* 49.4, Winter 2007–08, pp. 7–16, published by Taylor & Francis Ltd. It is reprinted by permission of the publisher.

be relied upon as a load-bearing component in the set of bargains that constitutes the global nonproliferation deal, the deal that is the best and indeed the only generally accepted international regime that exists for controlling the spread of nuclear weapons. The longer possessor countries continue to act, or are thought to be acting, as though “eventual” meant “contemporaneous with the abolition of all evil in the world,” the greater the danger that this part of the multipart deal centered upon the treaty will cease to bear its load, with peril to the entire regime.

And the peril may go wider. The risk of nuclear-weapon use is at any one time extremely low. The fact that the world has come through more than 60 years without its happening is not just a miraculous fluke, and there can be no meritorious ground for occasional attention-seeking claims that use is near-certain within some specified period. But the probability of use, whether by states or by terrorists, cannot be zero, and however low it may be thought to be at any particular time it cannot, in the multiplication of the passing years and decades, be regarded as merely trivial, especially if the much wider spread of nuclear energy—which must for several reasons be highly likely—puts at least some of the potential ingredients of weapon capability in increasingly numerous hands. That some of these hands may be unstable adds to the concern.

Given all this, there is surely a need for cool and careful examination—if possible, neutrally approached rather than driven by campaigning preference in the direction of either pole—of what an acceptable non-nuclear world that was at least as satisfactory in other respects as today’s (or, to express more accurately the comparison that policymakers have to address, as the world that is judged likely to exist in the future if nuclear weapons are not abolished) would look like, and what would be needed to create and sustain it. The words in the United Kingdom Government’s 1981 Defense White Paper still seem apposite:

Any readiness by one nation to use nuclear weapons against another, even in self-defense, is terrible. No one ... can acquiesce in it comfortably as the basis for international peace for the rest of time. We have to seek unremittingly, through arms control and otherwise, for better ways of ordering the world. But the search may be a very long one ... and impatience would be a catastrophic guide (4).

It is useful to recall the nature and status of the abolitionist commitment. NPT Article VI requires that the parties to the treaty (all of them) should pursue negotiations in good faith on measures relating to nuclear disarmament and to general and complete disarmament under strict and effective international control. The text of Article VI does not formally place nuclear disarmament and general and complete disarmament on any different footing as to imperativeness or timescale; nor, however, does it prescribe any direct interdependence between the two, though the treaty’s preamble carries an implication to that effect (by describing nuclear abolition as “pursuant to” a treaty on general and complete disarmament). And though Article VI does not explicitly say *complete* nuclear disarmament, understanding to that effect was affirmed at the 1995 Review Conference when the treaty was made of indefinite duration, and again—very clearly—at the 2000 conference as one of the 13 steps to which the five recognized nuclear powers pledged themselves. The United States administration of President George W. Bush has effectively disavowed some of those steps, but it has not openly repudiated this central one. The United Kingdom government has repeatedly, for more than 20 years and most recently in last December’s White Paper on the

future of its capability (5), affirmed its adherence to the abolitionist goal. The 1996 Advisory Opinion of the International Court of Justice (6), poorly though many commentators on both sides of the nuclear argument thought of the court's performance in that regard, declared—albeit in an observation, which its vice-president described (7) as *dictum* (that is, incidental comment, not a finding on an issue referred to it)—that there was an obligation on the five to get on with and bring to a conclusion negotiations for abolition. In the round, therefore, the commitment cannot be shrugged off as just pious rhetoric.

Against that background, examination of what would have to be done to achieve a reasonably secure non-nuclear world might fall initially into two parts. One part concerns what might be termed the disarmament mechanics, the other the political conditions. The latter constitute if anything the more important, the more difficult, and the logically prior segment of the task. In January 2007 a highly interesting and important statement on nuclear abolition made by George Shultz, Henry Kissinger, William Perry, and Sam Nunn—not a group of natural nuclear peaceniks—rightly attracted considerable attention (8). Their initiative was intended as a major push toward taking abolition seriously, but the text is primarily about the disarmament element, with only one point in a set of eight addressing the political-context element, which is surely cardinal. President Harry Truman once said, “Let us not become so preoccupied with weapons that we lose sight of the fact that war itself is the real villain” (9). The memoirs of Javier Solana's great-uncle Salvador de Madariaga, a distinguished figure in League of Nations disarmament striving between the wars, comment as follows:

Disarmers would avoid wars by reducing armaments. They run to the wrong end of the line. The only way ... consists in dealing day by day with the business of the world ... the true issue is the organisation of the world on a cooperative basis (10).

The political-context element might be subdivided again into two parts. The first subdivision concerns particular disputes of a grave and long-lasting character, the type of issue to which the Shultz group referred by implication in general terms—the Arab-Israeli dispute, India-Pakistan issues especially Kashmir and perhaps also Taiwan. In at least the first two of those three instances—the third may be interestingly (and perhaps awkwardly) less clear-cut, and the odd special case of North Korea stands somewhat apart—it seems absurd to suppose that key actors (especially Israel and Pakistan) will be found willing permanently to scrap their nuclear insurance unless the relevant dispute has either been resolved or reduced to a condition in which, rather as with Greco-Turkish disagreements over Cyprus and still more between Spain and the United Kingdom over Gibraltar, all parties can be confident that major war is dependably absent from the options available to either side. This essay does not seek either to propose or to predict the means by which, or the timescale in which, such situations might be attained. The point for present purposes is simply that all this has to be part of any serious agenda for global nuclear abolition.

One might add, even though the matter does not turn on any particular territorial dispute, that it would be necessary also to think hard about what would have to change in respect of Russia—in its political condition and attitudes or its security environment or both—to induce it to give up the armory that now constitutes almost the last remaining feature that enables it to feel in some sense a special international power. Russia, moreover, is perhaps the most vivid exemplar of the problem that the massive conventional strength that

leads some Americans to feel that the United States might be well suited by a non-nuclear world—Defense Secretary Les Aspin, for example, speculated along these lines in the early 1990s—may lead others to feel that that is precisely why they would be disadvantaged by it.

The second main subdivision of the political-context element is less specific, but not less important. It is reasonable to judge, even though impossible to prove, that nuclear weapons have played a large part in the remarkable absence of war between major advanced states since 1945. That absence has been a colossal blessing to the whole world—not just to those states themselves—and we should not lightly tinker with the structures that seem to have helped to achieve it. Nuclear weapons, bringing the unmistakable *reductio ad absurdum* of all-out war between advanced states, have meant that such states have been compelled, like it or not, to accept that such warfare is permanently off the table—that it has to be absolutely excluded from the menu of options that they can entertain for the resolution or management of disagreements among them. And the nuclear-abolition agenda has to consider what would have to be changed in other respects, from the world we live in today, to achieve that exclusion as reliably by less disagreeable means, whether or not with a continuing armed-force component. That may be both intellectually and practically the hardest part of the whole enterprise. What would we have to envisage, short of the utopian notion of a world government?

We may be optimistic that old-fashioned territorial disputes of the Palestine/Kashmir/Taiwan kind are largely now a matter of historical legacy; those three, after all, have been with us since the 1940s and no comparable new ones have arisen since then. But it would be a very sanguine analyst who predicted that there would never again in future be disputes of similar severity over, say, natural resources, migration (perhaps driven by climate change), or humanitarian outrages. So we might well need both more dependable and universally agreed procedures for handling disputes and more dependable and universally accepted instruments for enforcing conformity with those procedures. Detailed suggestions are not attempted here, but by way of example one might envisage that the United Nations community would need to make a great deal more headway than the 2005 Summit managed to do with Security Council reform and with ideas such as those put forward in the powerful December 2004 report by the High-Level Panel established by former Secretary-General Kofi Annan. In a world still made up of sovereign states there can never be absolute assurance of conformity with rules and their enforcement—it has been said that one defining feature of sovereignty is the ability to default on one's commitments, and uncertainty about readiness to abide by done deals does not relate only to "rogue" states. But we can strive for better probabilities of respected order than exist today, and the striving should be seen as a more important task than key actors at the 2005 Summit appeared to recognize.

The need for stronger arrangements and better probabilities of obedience to them would not be merely in order to prevent the re-emergence of old-style major conventional war. If, in a non-nuclear world, technologically advanced countries came seriously to blows over what they regarded as vital interests, the temptation might be very great, if only as insurance against breakout by the adversary, to acquire or reacquire nuclear weapons, with all the dangers that could flow from a competitive rush to rearm amid the pressures of immediate crisis or conflict. It is sometimes suggested that the very fact of this reconstitution risk would serve as a deterrent to war—weapon-less deterrence, it has been called, a sort of

deterrence at one remove. But that implies a worldwide and long-sighted wisdom on which it would surely be imprudent to count unless there has been real, systematic, and dependable advance in structures and methods for handling disputes.

The disarmament element of the necessary agenda was given fuller treatment in the Shultz group's declaration—though their specific suggestions are mostly the familiar arms control agenda items such as the Comprehensive Test Ban Treaty and a Fissile Material Cutoff Treaty. These are important projects both individually and in the aggregate and amply worth pursuing in their own right. But while they would helpfully clear some of the ground for abolition, and doubtless improve the political climate for it, they do not actually lead to it at all closely. The key fact is that having no nuclear weapons is both politically and technically a very different thing from having a modest number, or de-emphasizing them. Carrying through the current set of arms control ideas, or other complementary concepts such as improving still further the technical ability to achieve by non-nuclear means military tasks previously thought to require nuclear explosive power, all have merit; but full abolition would have to have, quite aside from the wider political aspects touched upon earlier, a more radical disarmament agenda. It would need, in outline example, to have plans for at least three aspects:

- Identifying accurately the starting baselines of existing capability and defining what long-term denuclearization was required to entail—what physical apparatus and facilities must no longer exist;
- Devising worldwide verification arrangements to provide all countries with adequate and lasting assurance, both technical and political, of that non-existence;
- Devising a path and a timetable by which current weapon possessors were to move to abolition without at any stage in the process creating new instabilities perceived as damaging to their security. (The risks to stability and confidence might be at their highest as numbers of weapons fell very low and the proportionate effect of imbalance or evasion became more significant.)

This note does not attempt detailed exploration of this disarmament segment of the agenda. Two preliminary comments may, however, be appropriate. The first is that it would surely be essential, for the global legitimacy of the abolition regime, that verification arrangements should be universal and nondiscriminatory—no special exemptions because, for example, our country is the “good guy” or has lucrative commercial secrets to protect or a legislature apt to make difficulties. The other comment (for which I am indebted to Professor William Walker of St. Andrews University) is that it might be a useful contribution to the debate, and also a creditable political signal of genuine concern for the eventual goal, if one or other of the nuclear weapon states were to undertake a serious technical study, entirely without new policy commitment, of just what would be entailed in the denuclearization of a current possessor—what would have to be done, how it might be done, what it might cost, how long it might take, what would be the key aspects on which subsequent long-term verification could and should focus.

This preliminary and tentative sketch claims no special depth or authority, or prescriptive confidence. It does not try to explore whether, and if so in what ways, the nuclear scene might stand to be influenced by what happens over, for example, biological and chemical weapons (it will surely not be easy to achieve denuclearization unless the

effective prohibition of those is secure), weapons in space or antimissile defense, or, in the longer term, by new technologies of destruction not yet identified. Nor does it rest on or imply any naïve supposition that the abolitionist quest can be the sole or even the prime motor of the massive political changes postulated—it can, at most, make just a useful motivating contribution to those. The note’s central point, however, is simply that the theme of abolishing nuclear weapons is one on which there is broad and serious analytical work to be done and work moreover upon which, or at least upon the need for which, widely different viewpoints could initially converge—whether it be the righteous abolitionists, hoping to prove that abolition is less difficult and less distant than sceptics suppose, or the dismissive realists, expecting to demonstrate that there is no worthwhile ground for thinking it will ever happen, or those in the middle inclined to believe (with the present writer) that the goal has to be taken seriously but will entail a long, difficult and as-yet-uncertain road. The aim of study would be not to establish or advocate a programme of action, but simply to lay a better foundation of understanding upon which debate about prospects and options might be advanced.

Footnotes

1. “A World Free of Nuclear Weapons,” speech by Rajiv Gandhi at the United Nations General Assembly, New York, June 9, 1988, <http://www.indianembassy.org/policy/Disarmament/disarm15.htm>.

2. “Message of His Holiness Pope Benedict XVI for the Celebration of the World Day of Peace, January 1, 2006,” <http://www.vatican.va>.

3. For the text of the treaty and subsequent declarations see <http://disarmament.un.org/wmd/npt/index.html>.

4. Statement on the Defense Estimates 1981, HMSO Cmnd. 8212-1.

5. The Future of the United Kingdom’s Nuclear Deterrent, Defense White Paper, December 2006, HMSO Cmnd. 6994, paragraph 2-2.

6. Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996, pp. 226-67, <http://www.icj-cij.org/docket/files/95/7495.pdf>.

7. *Ibid.*, pp. 263-4; Dissenting Opinion of Vice-President Schwebel, <http://www.icj-cij.org/docket/files/95/7515.pdf>.

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

9. Harry Truman, *Mr. Citizen* (New York: Bernard Geiss Associates, 1960), p.267.

10. Salvador de Madariaga, *Morning Without Noon* (Westmead: Saxon House, 1973), pp.48-9.

A SOUTH AFRICAN PERSPECTIVE ON THE NUCLEAR POSTURES OF THE FIVE NPT NUCLEAR WEAPONS STATES

Jean du Preez¹

Abstract

This paper provides the author's interpretation of South African positions on the nuclear postures of the nuclear weapon states (NWS) and discusses priorities from a South African perspective. Given the country's unprecedented decision to dismantle a nuclear arsenal and its subsequent leadership role in promoting nuclear disarmament, the paper also examines the South Africa government's current positions on nuclear disarmament and the nuclear postures of the five NWS. It also provides insights into an apparent shift in South Africa's once moderate position, to one that is more critical of the NWS and initiatives aimed at strengthening only the nonproliferation pillar of the three pillar nuclear nonproliferation regime. The paper finally offers suggestions on how all nuclear Non-Proliferation Treaty (NPT) parties could engage in consensus building, especially in view of the 2010 NPT Review Conference.

Introduction

Understanding South Africa's strong support for nuclear disarmament and its critical position about the nuclear doctrines of the nuclear weapons states (NWS) requires an examination of South Africa's own nuclear weapons aspirations, the reasons for rolling back its nuclear weapons program, and its subsequent principled positions and strategies in support of "practical steps for systematic and progressive efforts to implement Article VI of the NPT."¹ It also requires an understanding of South Africa's unique nuclear related relationship with in particular the United States, as well as its role as "bridge builder" between the NWS on the one side and the majority of non-nuclear weapons states (NNWS) as represented by the Non-Aligned Movement (NAM) on the other.

While successive South African governments have maintained good relations with all five NWS, in recent years the post-apartheid government has become increasingly critical about the lack of commitment by the NWS to their Article VI NPT obligations, as well as the nuclear postures of at least four² out of the five NWS, but in particular that of the United States. This can be attributed to several factors: Some are related to South Africa's nuclear past, while others are linked to increased frustrations among South African policymakers about the lack of progress toward nuclear disarmament and the refusal by NWS to acknowledge the legitimate right of NNWS not to feel threatened by nuclear weapons.

The deep dividing line between South Africa and the NWS lies in their divergent approaches to national, regional, and global security. The increased role of nuclear weapons in the defense strategies of the NWS, further enhanced by initiatives by in particular the

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United States to develop more “user-friendly” types of nuclear weapons,³ stands in sharp contrast to South Africa’s view that that the development of new types of nuclear weapons or rationalization for their uses contradicts the spirit of the NPT and goes against the agreements reached at both the 1995 Review and Extension Conference and the 2000 Review Conference. In this regard it should be recalled that South Africa was instrumental in the adoption at the 2000 Review Conference of a series of systematic and progressive efforts toward nuclear disarmament—the so-called 13 practical steps. These steps included a commitment by the NWS to diminish the role for nuclear weapons in their security policies. Moreover, South Africa believes that the modernization of nuclear weapons raises concerns over the possible resumption of nuclear testing, which would have a severe negative impact not only on the Comprehensive Nuclear Test Ban Treaty (CTBT) but also on international peace and security in general. South Africa voluntarily dismantled its nuclear weapons program in the early 1990s, recognizing that its national security—and the security of the African region—was guaranteed by a strong NPT and not by nuclear weapons. South Africa thus firmly believes that possession of nuclear weapons provides only an illusion of security for those who possess them, but in reality such possession only serves to increased insecurity.

This dichotomy in approach is perhaps best described in two statements by President George W. Bush and President Thabo Mbeki. President Bush in his 2004 address to the American Defense University⁴ implied that nuclear weapons, and other weapons of mass destruction, are acceptable in the arsenals of those who possess them and that they are only a threat in the hands of their enemies. Contrary to the U.S. view that only some countries that possess these weapons are “evil,” President Mbeki in 1993 stressed that “the horrors that are inherent in the (mere) existence and threat of use of chemical, biological, and nuclear weapons are threats that confront us all.”⁵ In addressing the Nigerian War College he called on all African nations to continue their “efforts to prevent the spread of nuclear weapons and nuclear weapons technology, to promote cooperation in the peaceful uses of nuclear technology, and to further the goal of achieving complete nuclear disarmament.”⁶

Examining South Africa’s positions on the nuclear postures of the NWS requires an understanding of a number of key factors.

1. *Principled Opposition Against Threat of Use of Nuclear Weapons.* South Africa’s principled position in support of the total elimination of nuclear weapons, and the threat presented by the mere existence of these weapons, is the primary driving force behind the government’s ongoing efforts to secure a legally binding instrument against the use, or threat of use, of nuclear weapons (so-called negative security assurances). For this reason South Africa makes a clear linkage between nuclear doctrines of most NWS and the threat of use of nuclear weapons. Given its own experience, South Africa believes that “genuine security cannot be achieved by non-nuclear weapons states [by] abandoning the nuclear weapons option alone. What is also required is for such states not to feel threatened by nuclear weapons.”⁷ It is for this reason that South Africa maintains that a legally binding agreement in the context of the NPT or as a protocol to the treaty will strengthen the nuclear nonproliferation regime.⁸

2. *Immorality of Nuclear Weapons.* South Africa’s nuclear nonproliferation and disarmament policies are deeply rooted in its strong commitment to democracy, human rights, sustainable development, social justice, and environmental protection. It is significant that the long struggle by South Africa’s people against an oppressive and regionally destabilizing

regime, in achieving these basic human security needs, occurred in parallel with the apartheid government's development and dismantlement of a fully fledged nuclear weapons program. The government therefore considers the possession of nuclear weapons as contrary to its commitment to basic human security, and therefore immoral.

3. *Nuclear Weapons Rollback.* The historical decisions by former South African President F.W. de Klerk, taken shortly after he took over the country's leadership from one of the apartheid era's most notorious figures, P.W. Botha (commonly considered to be the driving force behind South Africa's nuclear program), are of equal significance. While changes in regional and international security during the late 1980s and early 1990s impacted directly on the dismantlement of South Africa's program, the decision to do so was mainly a principled one. Almost immediately after taking office, de Klerk initiated steps to bring about fundamental political reforms aimed at ending apartheid and creating a democratic South Africa. Within a short time, the nuclear weapons program had become a liability. It stood in the way of South Africa's rejoining the international community. Fifteen days after announcing the release of Nelson Mandela from prison, President de Klerk issued written instructions on February 26, 1990, to terminate the nuclear weapons program and dismantle all existing nuclear devices. Subsequently, the six nuclear devices and the components for a seventh were dismantled and destroyed, and all nuclear materials were melted down and returned to the AEC (Atomic Energy Commission) in preparation for South Africa's accession to the NPT. The government decided that it would not admit to the existence of the nuclear weapons program before accession to the NPT and as a result kept the dismantling project secret. By the time South Africa joined the NPT as an NNWS in July 1991, the program had been fully dismantled. By September of the same year South Africa signed its full-scope safeguards agreement with the International Atomic Energy Agency (IAEA). The IAEA then conducted an unprecedented verification of nuclear rollback and in September 1993 the IAEA accepted "the completeness of South Africa's inventory of materials and facilities."

4. *The Strategic Value of South Africa's Nuclear Opacity.* While President de Klerk's March 1993 announcement that South Africa had a nuclear weapons program from "as early as 1974" came as a surprise—if not a shock—to most in South Africa and the international community, there is clear evidence that the United States knew about the potential existence of the program, but that it chose for strategic reasons not to put pressure on the already isolated apartheid government. It is noteworthy that South Africa also maintained close relationships with both the United Kingdom and with France at the time. In addition, while there is little evidence about nuclear collaboration between South Africa and Israel, the close cooperation between the two countries in other military sectors, including the development of medium-range ballistic missile systems, was known to the United States, the United Kingdom, and France. Since South Africa was a close ally in U.S. Cold War strategies to combat communism in Southern Africa, successive U.S. administrations did little to put pressure on the apartheid regime (despite strong suspicions and several CIA intelligence reports⁹ about South Africa's nuclear intentions). It is also worth noting that both the United States and the United Kingdom procured uranium for their nuclear weapons programs from South Africa in the 1940s and 1950s.¹⁰ The U.S. strategic relationship with an opaque nuclear South Africa is perhaps best described by a number of significant events during 1977. First, South Africa broke off negotiations with the IAEA regarding safeguards for its semi-commercial enrichment plant at Valindaba, which prompted, among other factors, the IAEA

to remove South Africa from its Board of Governors in June 1977. Then, a Soviet surveillance satellite discovered a nuclear test site in the Kalahari Desert (in the northwestern part of South Africa) on July 30, 1977. At the same time the Soviet Union intensified its allegations that the United States was helping South Africa acquire nuclear weapons technology.¹¹ After information about the detection was relayed to the U.S. government in August 1977, President Jimmy Carter ordered an independent investigation of the incident. The Carter administration subsequently secretly issued a stern warning to the South African government against using the facility. Although the planned South African nuclear test was canceled, and the site hurriedly closed, it is unclear why the United States chose not to take further action against South Africa. Even in the face of a call by African states on the U.N. Security Council to pass a tough sanctions resolution against South Africa—including a ban on nuclear cooperation—the United States vetoed the resolution and proposed a compromise that consisted of a temporary arms embargo. The United States at the time asserted that any break in nuclear cooperation will be counterproductive and that maintaining a nuclear relationship was necessary in order to exert pressure on South Africa to sign the NPT.¹² Ironically in December 1977, the Y-plant at Pelindaba commenced enrichment of bomb-grade HEU for South Africa's nuclear program.

5. *South Africa's Principled Support for the NPT: From Pariah to Poster Boy.* South Africa's announcement that it had developed a nuclear capability, then voluntarily destroyed it before joining the NPT as an NNWS in July 1991, occurred just prior to—and during the preparations for—a decision by the NPT states parties on whether or not to extend the life of the treaty. A year later, South Africa was transformed from a pariah state to a democratic society with Nelson Mandela elected as president. As such, South Africa almost overnight became the NPT “poster boy.” The post-apartheid South African government soon adopted a nonproliferation policy,¹³ which *inter alia* required South Africa to be “an active participant in the various nonproliferation regimes and suppliers group” and to use its membership of these regimes to “promote the importance of nonproliferation and to ensure that these controls do not become the means whereby developing countries are denied access to advanced technologies required.” This policy was particularly important given South Africa's leading role in both the NAM and the African group and created the opportunity for the country to become a “bridge” between the NWS, especially the United States and the United Kingdom, and the developing world. It also provided an opportunity for U.S. leadership to influence the nonproliferation policies and positions of the NAM.

6. *U.S. Promises in Exchange for Indefinite Extension.* South Africa's position was widely considered as crucial in promoting the indefinite extension of the NPT, or blocking NAM consensus on opposing options. Given long-standing U.S.-South African relations, and the good relationships between presidents Bill Clinton and Mandela and between Vice President Al Gore and (then) Deputy President Mbeki, the United States took the lead in wooing South Africa to support the indefinite extension of the treaty. As such the United States promised, in return for South Africa's support, that it would press forward on nuclear disarmament. In February 1995 two important letters were addressed to President Mandela in which clear nuclear disarmament and security assurance promises were made in exchange for South Africa's support for the indefinite extension of the treaty. Following a letter from General Colin Powell¹⁴ a letter from President Clinton highlighted U.S. commitments to nuclear disarmament, especially the deep reductions envisaged under both Strategic Arms Reduction Treaty (START) I and II. President Clinton stated, “I am committed to achieving a

Comprehensive Test Ban Treaty and have recently taken steps to accelerate progress toward such a treaty. I have also proposed a global ban on the production of nuclear material for nuclear weapons. But, if the duration of the NPT were placed in question, further arms control progress would become much more difficult.” President Clinton requested President Mandela to “soon make a public call for the indefinite and unconditional extension of the NPT.”¹⁵ While these letters did not directly influence South Africa’s eventual decision to support the indefinite extension decision at the 1995 Review and Extension Conference, they likely prompted then Deputy President Mbeki to call a meeting of South African nuclear nonproliferation experts and policymakers to discuss the country’s position in preparation for the conference. The deputy president argued that all the peoples of the world have a right not to be threatened by the annihilation inherent in all weapons of mass destruction, and since that right could be equated to a basic human right, South Africa had no other option but to support the indefinite extension of the treaty.¹⁶ It was, however, agreed that such an extension should not be agreed to without the reciprocal agreements on the accomplishment of the provisions of the treaty. The deputy president subsequently wrote a letter to Vice President Gore setting out the position that would be adopted by South Africa at the conference. Today, most, if not all the promises made in the Clinton letter have been abrogated, which may explain South Africa’s sense of frustration.

7. *Indefinite Extension as Part of a Package Deal.* Probably one of the most important factors in considering South Africa’s current position is the belief that the promises made in the context of the indefinite extension decision have not been made. Many also believe that the 1995 package of decisions was a mistake. Former South African Foreign Minister Nzo’s seminal statement to the 1995 Review and Extension Conference presented a set of “Principles of Nuclear Non-Proliferation and Disarmament” to the conference covering all aspects of the treaty, and, *inter alia*, committing the NWS along with a proposal on a “Strengthened Review Process.” These proposals survived—reasonably intact—throughout negotiations that took place at the 1995 conference and offered the bridge across the wide divide that existed between the NWS and the NNWS. As such it provided a bargain that enabled the conference to take a unanimous decision on indefinite extension, by first adopting a “Strengthened Review Process,” then a set of “Principles and Objectives for Nuclear Nonproliferation and Disarmament,” and finally a “Resolution on the Middle East.”¹⁷

In addition to South Africa’s pivotal role in support of the indefinite extension decision is its securing four important concessions from the NWS as part of the principles and objectives decision. These were (a) a commitment to completion of CTBT negotiations no later than 1996 and prior to its entry into force, a commitment to exercise utmost restraint—meaning no testing; (b) the immediate commencement and early conclusion of negotiations on a nondiscriminatory and universally applicable convention banning the production of fissile material for nuclear weapons or other nuclear explosive devices, in accordance with the statement of the special coordinator of the Conference on Disarmament and the mandate contained therein; and (c) the determined pursuit by the NWS of systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goals of eliminating those weapons, and by all states of general and complete disarmament under strict and effective international control.¹⁸ The fourth concession represented a long-standing objective of South Africa, i.e., the acknowledgment by the NWS that “further steps should be considered to assure non-nuclear weapon states party to the treaty against the use or threat of

use of nuclear weapons. These steps could take the form of an internationally legally binding instrument.”¹⁹ It is worth noting that most of these steps were included in the Clinton letters to Mandela and other heads of states.

Its diplomatic successes and approaches at the 1995 Review and Extension Conference brought South Africa directly into the limelight of the international disarmament and nonproliferation arena. South Africa had made its mark and would from this time onwards play a significant international role, “punching way above its weight class” in an arena dominated by big powers and NWS. But this fame came at a price: South Africa’s support for the indefinite extension led to strong criticism from many of its NAM partners, as well as from some policymakers in South Africa, that in doing so it had weakened the NAM’s only leverage on the NWS. While not true, many of these critics believed that the government had “sold out” to the United States.²⁰

8. *South Africa’s Contribution to the Success of 2000.* The impact of South Africa and its six NAC (New Agenda Coalition) partners on the outcome of the 2000 conference is often heralded as having forced the NWS to negotiate a package of practical steps on nuclear disarmament, the so-called 13 practical steps. In this regard it should be recalled that the strong support for NAC proposals prior to the 2000 conference presented a significant challenge to the NWS. The NAC established in June 1998 drew wide support from NNWS and civil society worldwide. The NWS reacted with vociferous opposition, applying considerable pressure on their military alliance partners and on the individual members of the NAC. For instance, Slovenia—one of the original eight NAC members—withdraw from the alliance as a direct result of its vulnerability to pressure given its desire to become a member of the EU and NATO. NAC proposals drew together the disparate supporters of the goal of nuclear disarmament and laid the foundation for the pressure that was built up within the NPT process to achieve a genuine vision of a world free of nuclear weapons and to demand an unequivocal commitment from the NWS to the nuclear disarmament obligation contained in the NPT.²¹ Given that the 2000 Review Conference was the first review after the indefinite extension of the treaty, it was important that the outcome of the conference solidifies—and does not put into question—the 1995 indefinite extension decision. As a consequence, the United States, supported by the United Kingdom, played a leading role in the negotiations with the NAC and in fact pressured other NWS (Russia, China, and France) into making significant concessions. South Africa and its NAC partners were equally committed to a successful outcome and wanted to ensure that the agreements reached in 1995 were not further undermined. South Africa therefore played a decisive role in moderating traditional hard-line NAM positions to be more in line with that of the NAC. As in 1995, South Africa served as the bridge upon which agreement between the NWS and NNWS was built. Unfortunately, most if not all the agreements reached between the NAC and the NWS have since been abrogated, negated, or simply ignored. Take for instance the lack of support from the United States for the CTBT, the rollback of the negotiating mandate of a fissban treaty, the abrogation of the ABM and START II treaties, and the almost complete lack of progress on the six steps undertaken by the NWS, including reducing the operational status of the weapon systems and reducing their tactical arsenals.

Another significant achievement reached at the 2000 Review Conference was the agreed-to division between the two elements contained in Article VI of the treaty, namely nuclear disarmament and general and complete disarmament. The Article VI language was

previously used by NWS in an ambiguous fashion where some attempted to argue that nuclear disarmament and the eventual elimination of all nuclear weapons was to be done in the context of general and complete disarmament. Due to South African and NAC insistence, the 2000 NPT Review Conference outcome makes it clear that nuclear disarmament and general and complete disarmament were two separate goals and that nuclear disarmament was to be accomplished in a separate process from that of general and complete disarmament. It also makes clear that general and complete disarmament is the ultimate goal and that nuclear disarmament will have to be accomplished on the way to general and complete disarmament. The realization of the effect of this agreement has been the primary focus of attempts by first France and later the United States to roll back the agreed-to outcome of 2000 Review Conference. This issue was instrumental in preventing the 2004 PrepCom from reaching agreement on the agenda for the 2005 conference, since both France and the United States refused to recognize the outcome of the 2000 Review Conference. The actions by these two NWS contributed significantly to the failure of the 2005 Review Conference.

Another major accomplishment for South Africa and the NAM at the 2000 conference was the acknowledgment by all state parties, including the NWS, that “the total elimination of nuclear weapons is the only absolute guarantee against the use or threat of use of nuclear weapons.” The conference agreed that legally binding security assurances by the five NWS to the NNWS would strengthen the nuclear nonproliferation regime, and it called on the “Preparatory Committee to make recommendations to the 2005 Review Conference on this issue.” Unfortunately, due to the positions of the United States in particular, the PrepCom was unable to make any recommendation toward this end.

While the outcome of the 2000 Review Conference is commonly viewed as a major accomplishment in the history of the NPT, the subsequent abrogation of key agreements, especially the 13 practical steps and the agreement on negative security assurances, have raised doubts about the validity of past agreements, in particular the indefinite extension of the treaty. Many states and policymakers, including some in South Africa, today believe that the 1995 decision was a mistake.

Lessons From South Africa’s Experience

Some important lessons can be drawn from South Africa’s nuclear weapons program, its decision to roll it back, and the validity of agreements reached in the context of the NPT.

Lessons From the Nuclear Weapons Program

- South Africa mastered the highly enriched uranium production process.
- The nation had a defense industry that could produce nuclear delivery systems.
- The program had good scientists and technicians.
- The program had a good foreign procurement network.
- The weapons’ design was kept simple and low in cost.
- International sanctions placed on South Africa in the 1970s slowed but did not stop its nuclear weapon program. In fact, the imposition of the sanctions in the 1970s may have hardened South Africa’s determination to build nuclear weapons.

- A number of South African politicians and other policymakers led international efforts to expose the apartheid government's nuclear weapons program. The fact that the United States knew about the program, yet chose not to take action against South Africa, may explain to some extent the current mistrust in South Africa about U.S. nonproliferation and disarmament initiatives. It is equally important to consider the consequences of protecting friends with nuclear weapons—even in the face of critical evidence and world condemnation.

Lessons From the Decision to Dismantle

- South Africa's decision to walk away from nuclear weapons and join the NPT was a principled one. Its subsequent positions in the context of the NPT are therefore also principled based.
- The decision to dismantle the program enabled the pariah state to break out of international isolation and to be recognized as a responsible member of the international community. This set a platform for South Africa's leadership role in nuclear nonproliferation and disarmament.
- South Africa's principled disarmament decision enabled it to become one of the strongest advocates for the total elimination of nuclear weapons. The Mandela government was able to convince especially the NAM to support the indefinite extension of the NPT based on a package that included a set of principles and objectives on nuclear disarmament and nonproliferation as well as a mechanism to strengthen the review of the treaty and these principles.
- South Africa proved that national security, and the security of the African region, is guaranteed by the confidence in a strong NPT and not by nuclear weapons. The possession of nuclear weapons provides only an illusion of security for those who possess nuclear weapons, but in reality such possession only serves to increase insecurity.
- Abandoning the nuclear weapons option alone does not sufficiently guarantee NNWS against the use or threat of use of nuclear weapons. Take for instance the U.S. and some other NWS' refusal to support the negative security requirements of most of the existing nuclear-weapons-free zones (NWFZs).

Lessons About the Validity of Agreements Reached in the Context of the NPT

- South Africa's pivotal role in 1995 brought both fame and deep criticism. While the concerns over South Africa's decision were relatively easy to address at the time, these critics have found renewed strength in the fact that many, if not most, of the promises made as part of the 1995 package deal have since been abrogated.
- The negotiations with the NWS that led to the 13 nuclear disarmament steps and the successful outcome of the 2000 Review Conference may not have been in good faith, since many of these agreements were soon negated or destroyed. For instance, the U.S. Senate rejected the CTBT and the Bush administration declared that it would not pursue the ratification of the treaty.
- The trust and good relations that once existed between South Africa and in particular the United States and the United Kingdom are no longer clearly defined. In fact South

African officials likely view U.S. and U.K. nonproliferation and disarmament with a great deal of suspicion.

- The “unequivocal undertaking” by the NWS to eliminate their nuclear arsenals and the practical steps agreed at the 2000 NPT Review Conference by the NWS constitute a solemn reaffirmation of their obligations under Article VI of the treaty. This undertaking and the outcome of the 2000 review Conference also reaffirmed the agreements that led to the indefinite extension of the treaty.
- South Africa’s critical views on the lack of progress in nuclear disarmament and its criticism aimed at the nuclear posture of NWS should be considered in the context of its role in securing significant promises in exchange for the indefinite extension of the NPT. Unfortunately most of these promises have not been honored. As a consequence South Africa now views initiatives by NWS to reinforce the nuclear nonproliferation regime with a great deal of skepticism if not suspicion.
- South Africa’s critical positions vis-à-vis initiatives to strengthen the nonproliferation pillar of the nuclear nonproliferation regime are directly related to its frustration over the lack of commitment by the NWS to their legally binding Article VI obligations as well as other political, but equally important, agreements reached in the context of the NPT’s indefinite extension and its review process. In this regard one should consider, among others, South Africa’s critical evaluation of efforts to limit or eliminate civilian use of HEU; its opposition to the universal application of the Additional Protocol as a legal requirement of the NPT; its refusal to join the U.S.-led Global Nuclear Energy Partnership, and its general skepticism over initiatives to control the nuclear fuel cycle.

The Nuclear Postures of the Five NWS

South Africa’s position vis-à-vis the nuclear postures of the NWS should be examined in the context of the country’s principled opposition to the use or threat of use of nuclear weapons by NWS; the rollback of the solemn “unequivocal undertaking” by the NWS to eliminate their nuclear weapon arsenal as part of a set of “systematic and practical steps”; and the fact that more and more demands are being made for NNWS to agree to new nonproliferation measures, while equivalent actions on nuclear disarmament are deliberately neglected. This paper highlights only the first two elements.

Use or Threat of Use of Nuclear Weapons

As already pointed out, South Africa’s critical views about the nuclear postures of the NWS are rooted in its own past experience. South Africa of the past chose nuclear weapons and stared down the nuclear abyss. But it concluded that its own security as well as regional and international security are guaranteed by the NPT and not by nuclear weapons and as such felt more secure through nuclear disarmament. South Africa therefore believes that nuclear weapons have no role in today’s world security order.

South Africa’s principled position in support of the total elimination of nuclear weapons, and the threat presented by the mere existence of these weapons, is the primary

driving force behind South Africa's long-standing efforts to secure a legally binding instrument against the use, or threat of use, of nuclear weapons. For this reason South Africa makes a clear linkage between nuclear doctrines of NWS and the threat of use of nuclear weapons. Given its own experience, South Africa believes that "genuine security cannot be achieved by non-nuclear weapons states. What is also required is for such states not to feel threatened by nuclear weapons."²² It is for this reason that South Africa maintains that a legally binding agreement in the context of the NPT or as a protocol to the treaty will strengthen the nuclear nonproliferation regime. This position is also supported by the NAM NPT parties as well as South Africa's NAC partners, thus forming a critical mass of states in favor of security assurances as a bulwark against the nuclear postures of NWS.

Recent years have been marked by new nuclear policies by at least two NWS (United States and Russia) that include the potential use of nuclear weapons, such as the Robust Nuclear Earth Penetrators (RNEP) "bunker-buster," against NNWS. These policies generated significant concern among many NNWS and gave rise to renewed efforts to secure legally binding negative security assurances. Given the principled reasons behind the need for such assurances, and the strong support by the NAM and the New Agenda Coalition countries for the need to negotiate a legally binding instrument linked to the NPT, this issue will continue to create deep dividing lines between South Africa and the NAM on the one side and the NWS on the other.

South Africa remains to be deeply concerned about in particular the nuclear policies of the United States, especially given the shift in U.S. doctrines that now highlight the threat or use of nuclear weapons to deter the acquisition or use of chemical, biological, radiological, or nuclear weapons by NNWS and non-state actors. With regards to the latter, terrorist networks like al Qaeda are believed active in more than 60 different countries, including South Africa. Each one of those states, therefore, could theoretically fall within the crosshairs of U.S. nuclear targeting.

This posture exposes a fundamental disharmony in U.S. nuclear policy. For example, in 1995, hoping to bolster the nonproliferation regime by convincing NPT parties to extend the treaty indefinitely, the United States solemnly promised (other NWS made similar promises) not to use or threaten to use nuclear weapons against NNWS party to the NPT unless such a state attacked the United States with the support of a nuclear ally. Based largely on those ostensible assurances, and other promises made in the 1995 "Principles and Objectives for Nuclear Nonproliferation and Disarmament," the NNWS agreed to the indefinite extension of the NPT. Yet within months the Department of Defense updated sub-rosa plans that called for nuclear strikes on certain non-nuclear states *not* aligned with any nuclear power in response to assaults on U.S. interests employing chemical or biological weapons (CBW), and even in cases of overwhelming conventional assault.

The current U.S. administration has in various ways stated that it is not bound to refrain from the use of nuclear weapons against NNWS. Take for instance the September 2002 National Security Strategy (NSS), which declared that preemptive action by the United States could include the use of nuclear weapons to counter a chemical weapon attack or to destroy a potential enemy's stocks of biological weapons before they could be used.²³ The Bush administration added in its December 2002 National Strategy to Combat Weapons of Mass Destruction that U.S. counter-proliferation forces "must possess the full range of

operational capabilities to counter the threat and use of WMD by states and terrorists against the United States, our military forces, and friends and allies.”²⁴ These statements suggest a possible first use of nuclear weapons (a) to retaliate against attacks using chemical or biological weapons or (b) to destroy enemy chemical or biological weapons stockpiles before they can be used in an attack.²⁵ In its most recent National Security Strategy, issued in 2006, the White House repeated its desire to use force first if necessary to prevent future attacks with biological and chemical as well as nuclear weapons: “There are few greater threats than a terrorist attack with WMD. ... To forestall or prevent such hostile acts by our adversaries, the United States will, if necessary, act preemptively in exercising our inherent right of self-defense.”²⁶

Acting on the agreement included in the 1995 principles and objectives decision, South Africa, in 1999 and at the 2000 Review Conference, offered concrete proposals on a draft protocol to the NPT on the prohibition of the use or threat of use of nuclear weapons against NNWS parties to the treaty. The protocol—which was to be solely negotiated and implemented in the context of the NPT—was unique in several regards. First, it incorporated both the negative and positive security assurances that the NWS had given in U.N. Security Council Resolution 984 of 1995. Second, it identified who would be offering the assurances—the NWS—and who would be receiving the assurances—the NNWS. Third, it qualified the assurances with the same language the United States had with its unilateral 1995 Review and Extension Conference declaration by stating, “The states receiving the security assurance provided for [shall be] in compliance with their obligations under Article II of the treaty.” All together, the South African “Draft Protocol” was a paragon for a protocol to the NPT establishing legally binding NSAs.²⁷

Placing its hopes in the 2005 RevCon, the Final Document of the 2000 Review Conference put forth the following: “The conference agrees that legally binding security assurances by the five [NWS] strengthen the nuclear non-proliferation regime. The conference calls upon the [PrepCom] to make recommendations to the 2005 Review Conference on this issue.”²⁸ Yet no formal NSA (negative security assurances) recommendations were recognized by the PrepCom or the 2005 Review Conference.

Concerns over nuclear postures and the refusal by most NWS to recognize the legitimate quest by the majority of NNWS for legally binding negative security assurances reached an ominous crescendo at the 2004 PrepCom and the 2005 RevCon where both South Africa and the NAC called upon the NWS “to respect fully their existing commitments with regard to security assurances pending the conclusion of multilaterally negotiated legally binding security assurances for all non-nuclear weapon states parties.”²⁹ Yet the U.S. delegation at both the 2004 PrepCom and the 2005 Review Conference refused to discuss these concerns. In contrast, the U.S. delegation to the 2005 Review Conference stated that “the end of the Cold War has further lessened the relevance of non-use assurances from the P-5 to the security of NPT NNWS, particularly when measured against the very real nuclear threats from NPT violators and non-state actors” and that “legally binding assurance sought by the majority of states has no relation to contemporary threats to the NPT.” South Africa and many other states believe that the United States may well have contributed to the failure of the 2005 NPT Review Conference by refusing even to discuss negative security assurances at the conference’s meetings.³⁰

Further emphasizing the United States' disregard of the quest by most NNWS, including some of its closest allies, for legally binding security assurances stands the U.S. voting record at the 2006 General Assembly where it, for the first time, voted against the traditional U.N. General Assembly resolution calling for negotiation of binding "negative security assurances" by NWS. During the debate in the General Assembly's First Committee, the U.S. delegation explained that the United States "opposes a treaty on negative security assurances or any other binding instrument on security assurances."³¹

Although U.S. nuclear doctrines have been the focus of many concerns regarding the use or threat of use of nuclear weapons, they also prompted a revision of other nuclear weapon states' doctrines, with the possible exception of China. In this regard it is important to note that the United States, Russian Federation, France, and the United Kingdom qualified their 1995 pledges not to use or threaten to use nuclear weapons against NNWS. Only China gave an unconditional assurance not to be "the first to use nuclear weapons against NNWS or nuclear-weapons-free zones at any time or under any circumstances." France, the Russian Federation, the United Kingdom, and the United States issued similar statements, also reaffirming that they would not use nuclear weapons against NNWS parties to the NPT, but they qualified their assurances by excluding cases of invasion or any other attack on their respective countries, territories, armed forces or other troops, or against their allies or a state toward which they have security commitments, carried out or sustained by such state in alliance or association with an NWS. Later (in 1996) the United States further qualified its pledges by stating that it would not be bound to refrain from a nuclear response to a chemical or biological attack from a member of the nuclear-weapon-free zone. President Clinton's secretary of defense said publicly, "If some nation were to attack the United States with chemical weapons, then they would fear the consequences of a response with any weapon in our inventory. ... We could make a devastating response without use of nuclear weapons, but we would not forswear that possibility."³² In addition, NATO retained the option to use nuclear weapons first in future conflicts and, like the United States, reaffirmed its right to use nuclear weapons against a chemical or biological attack.³³

It is also important to note that in its 2000 National Security Concept and Military Doctrine Russia revised its 1997 nuclear doctrine to a "first-use" strategy.³⁴ While the 1997 national security concept allowed the first use of nuclear arms only "in case of a threat to the existence of the Russian Federation," the new concept states that nuclear weapons may be used to "repulse armed aggression, if all other means of resolving the crisis have been exhausted." This more relaxed condition for the use of nuclear weapons appears to be a response to the decline of Russian conventional forces, which has accelerated in recent years because of Russia's economic troubles.

In March 2002, then British defense secretary Geoff Hoon stated that the United Kingdom was prepared to use nuclear weapons against rogue states such as Iraq if they ever used "weapons of mass destruction" against British troops in the field.³⁵

Former French President Jacques Chirac announced in January 2006 a shift in his country's nuclear deterrence doctrine stating that "vital interests" that require French nuclear weapons protection are potentially far beyond French borders. He also indicated that nuclear arms might be used in more focused attacks and not only for total destruction.³⁶ This shift in France's policy was reaffirmed by President Nicolas Sarkozy when he stated at the June 2007 G-8 summit that "France's nuclear strategy and nuclear doctrine are [based on the protection

of France's] vital interests. If France's vital interests were threatened, then, at that point, like all the other French presidents who have preceded me, I would be able to consider the use of nuclear weapons."³⁷

China is the only NWS that maintains a "no-first-use" policy. However, a statement made by General Zhu Chenghu implied that China is prepared to use nuclear weapons if the United States "draws their missiles and position-guided ammunition on to the target zone on China's territory."³⁸ Since general Zhu is considered to be a hard-liner, it is not clear whether his views are indicative of Chinese official policies.

Several options exist on how to address the NNWS' quest for legally binding negative security assurances ranging from a negotiated protocol to the NPT (as proposed by South Africa) to unilateral security assurances, such as were provided to Ukraine and those sought by North Korea. Regardless of how such assurances are to be formulated, it is, however, important to recognize that assurances offered within the context of the NPT, as opposed to another forum, would provide a significant benefit to NPT parties. They would serve as an incentive to those who remained outside the treaty, or to those who may consider leaving the regime. As such, security assurances should be granted only to states that have forgone the nuclear weapons option and not to those who are still keeping their options open. They should therefore not be applicable to non-NPT parties, or to state parties who are aspiring to acquire or develop nuclear weapons in contravention of the treaty. This would strengthen the regime and confirm the continued validity of the NPT and its indefinite extension parties, addressing concerns over possible scenarios in which some NWS may consider using nuclear weapons. For a more detailed discussion on these options see the article by George Bunn and Jean du Preez, "More Than Words: The Value of U.S. Non-Nuclear-Use Promises" in the July-August 2007 edition of *Arms Control Today*.

If, however, the NWS, perhaps with the exception of China, continue to ignore the long quest by responsible nations not to be threatened by P-5 nuclear arsenals, then the value of the NPT—as the guarantor of their national security—would diminish for South Africa and many other NNWS. The litmus test would be how the issue of security assurances is approached in the run-up to, and at, the 2010 NPT Review Conference. However, if the position that NWS retain the right to use or threaten to use nuclear weapons against states not having them remains unchanged, and if they continue to ignore the wide support for legally binding security guarantees, then the 2010 Review Conference may be destined to fail. Such failure could have serious consequences for the NPT regime. In this regard, it is important to note the joint NAC statement, which reflects also South Africa's concerns over "the emergence in recent years of new military doctrines emphasizing the importance of nuclear weapons not only to defense but also to the offensive capabilities of states. Plans to modernize nuclear forces have reinforced these doctrines. Moreover, certain policies have broadened the scope of potential use of nuclear weapons, for example as a preventive measure or in retaliation against the use of other WMD. We believe that if the nuclear weapon states continue to treat nuclear weapons as a security enhancer, there is real danger that other states will start pondering whether they should do the same."³⁹

Unequivocal Undertaking to Eliminate Nuclear Weapons as Part of Systematic and Progressive Efforts Toward Nuclear Disarmament

As already pointed out, South Africa is closely associated with both the nuclear disarmament action plan included in the 1995 decision on “Principles and Objectives for Nuclear Nonproliferation and Disarmament” and the 2000 “unequivocal undertaking” by the NWS to accomplish the total elimination of their nuclear arsenals as part of a set of practical steps for the “systematic and progressive efforts to implement Article VI” of the NPT. However, many, if not most, of these promises have not been met by the NWS and in some cases have been completely abrogated. Since several of these promises were directly related to South African diplomatic initiatives—if not its credibility—South Africa’s position on nuclear disarmament seems to have hardened in recent years. At the most recent 2007 session of the General Assembly First Committee debate, South Africa stated that it “remains deeply concerned over the massive number of nuclear weapons that continue to be deployed and stockpiled around the world, as well as current and new security doctrines that envisage the actual use of such weapons.”⁴⁰ This deep concern is related to the lack of progress in a number of an important South African and NAC objectives in the nuclear disarmament domain.

As part of the NAC, South Africa also criticized the NWS for keeping nuclear weapons on high alert, which it believes “only exacerbates the danger posed by the existence of these weapons.” The NAC also stressed that “states should not develop new nuclear weapons or nuclear weapons with new military capabilities or for new missions, or undertake the replacement or modernization of their nuclear weapon systems, which runs counter to the agreement reached at the 2000 Review Conference on a diminishing role for nuclear weapons and on the unequivocal undertaking to eliminate these weapons.”

South Africa’s criticisms about the lack of progress in nuclear disarmament are also reflected in the joint positions of the NAM as expressed at the 2007 NPT PrepCom. “The nuclear weapon states and those states remaining outside the NPT continue to develop and modernize their nuclear arsenals, threatening international peace and security. We must all call for an end to this madness and seek the elimination and ban on all forms of nuclear weapons and testing as well as the rejection of the doctrine of deterrence.” The NAM also raised the issue of nuclear sharing again by stating, “Nuclear weapon states, in cooperation among themselves and with non-nuclear weapons states, and with states not parties to the treaty, must refrain from nuclear sharing for military purposes under any kind of security arrangements.” This long-standing concern by the NAM not only refers to the NATO nuclear defense arrangements but is also related to NAM’s concerns over the renewal of the U.S.-U.K. Mutual Defense Agreement, a collaboration pact for sharing nuclear weapons technology and components, including Trident missiles.⁴¹

South Africa Reaction to the Recent Steps Taken by the United Kingdom

South Africa followed closely the consideration by the British Parliament of a white paper on *The Future of the United Kingdom’s Nuclear Deterrent* and the review of the United Kingdom’s Trident nuclear system. Following former Prime Minister Tony Blair’s December 4, 2006, announcement that the United Kingdom intends to renew its Trident missile platform, the South African government reacted unusually quickly by issuing an official statement on December 5, 2006: “With the Vanguard-class submarines reaching the end of their life, it is disappointing that the United Kingdom has not used this opportunity to demonstrate its commitments to irreversible elimination of its nuclear weapons arsenal,

consistent with its nuclear disarmament obligations and commitments. This would have been a landmark decision, to be followed by others, to eliminate all weapons of mass destruction.”⁴² Reacting to the U.K.’s reason for renewing the missile platform, i.e., that the continued possession of nuclear weapons will deter hostile forces that might arise over the next 20 to 50 years, particularly “re-emergence of a major nuclear threat,” “emerging nuclear states,” or “state-sponsored terrorism,”⁴³ the South African government reiterated its position that “nuclear weapons do not, in any possible way, contribute to international peace and security. These instruments of destruction are therefore not a source of security and do not serve any deterrent purpose whatsoever. Neither can they be regarded as a tool to prevent proliferation or as weapon against any terrorist threat.”⁴⁴ South Africa again, as it has often stated before, linked the continued retention of nuclear weapons by some countries as “a logical foundation for others to also aspire to develop such capabilities (nuclear weapons).”

In light of the U.K. Parliament’s March 14, 2007, vote to renew the Trident system the South African delegation to the 2007 PrepCom was one of a few delegations that strongly criticized the United Kingdom for “maintain(ing) its nuclear deterrent. This could have been a landmark decision for others to follow, (as it) could have provided the necessary impetus to a disarmament process that desperately needs to be reinvigorated.”⁴⁵ Not only would a decision not to renew Trident have been in line with the United Kingdom’s Article VI obligations and its “unequivocal undertaking” to eliminate its nuclear arsenal but it would have sent a powerful message of hope that nuclear disarmament is within reach—provided the necessary political will. Also just as South Africa’s decision to dismantle its nuclear program provided momentum for the NPT process, a different U.K. decision could have produced even more significant results.

Despite the decision to renew its nuclear missile platform, it is encouraging that the United Kingdom at the 2007 PrepCom reaffirmed its “unequivocal undertaking to accomplish the relevant disarmament measures contained in the 1995 Review Conference decisions and in the 2000 Final document.”⁴⁶ During the most recent United Nations First Committee debate the South African delegation acknowledged this important declaration by stating that we are “particularly encouraged by the recent statement of a nuclear weapons state, reaffirming its unequivocal undertaking to disarmament” South Africa used the opportunity to call on the other NWS to also reaffirm the same commitment.

The U.K. statement contained a number of other encouraging signals: for instance, that the “U.K. does not belong to an opposite camp that insist on nonproliferation first” and that parallel progress must be made in disarmament and nonproliferation. It is equally encouraging that the United Kingdom will reduce its stockpile of available warheads to fewer than 160, that its nuclear weapons systems have been reduced to one system, and that it has reduced the operations status of this system. These are all very encouraging signs about the U.K.’s commitment to its Article VI commitments. However, they are overshadowed by the decision to renew the nuclear missile delivery system for at least 40 years, which leads to questions about the U.K.’s renewed “unequivocal undertaking” to eliminate its nuclear arsenal.

It is also appropriate to recognize the apparent shift in approach by the United States. It is, however, interesting that this shift is not recognized in recent South African statements. While progress in nuclear disarmament should be measured by action—not words—it is encouraging that the United States, for the first time in many years, actually started to refer to the “D-word” again. This renewed emphasis on nuclear disarmament, as represented in a series

of papers released by Chris Ford, the U.S. special representative for nonproliferation, appears to signal a new approach in U.S. policy. It is a pity that the 2007 PrepCom was not allowed to debate the U.S. ideas in more detail, as I am sure that the South African and NAC delegations would have liked to do. The litmus test for the United States, the United Kingdom, and other NWS would, however, be how these statements will be put into action in such a way as to again gain the confidence of South Africa, the NAC, and other key NNWS that they are unequivocally and not halfheartedly committed to their Article VI obligations.

Potential Ingredients for Consensus in 2010

While the eventual outcome of the 2007 NPT PrepCom is widely considered as a positive development in the NPT parties' preparations for a the 2010 Review Conference, several "hard issues" need to be resolved to ensure a successful outcome. These include reaching agreement on how to deal with Iran and North Korea; addressing fears by many NNWS that nonproliferation efforts by especially the NWS are not aimed at further limiting their "inalienable right to peaceful nuclear energy"; addressing NNWS fears about the use and threat of use of nuclear weapons; and proof of concrete efforts by the NWS toward implementing their Article VI obligations. This would require close collaborations and cooperation between the NWS and key NNWS, including South Africa. Given the recent past, it would be important to restore the relationship of trust between NWS and South Africa and other NNWS such as the NAC. This can only be accomplished if these states are convinced about the seriousness of all NWS in their desire to address the concerns of all NPT parties in a comprehensive and balanced manner.

Political Momentum and Will

A number of initiatives can be taken to create political momentum in support of consensus at the 2010 Review Conference and overall implementation of the treaty.

- The P-5 should build on the momentum gained as a result of the agreement with North Korea and urgently move to negotiations leading to full disarmament under IAEA supervision. This would send a positive political message to the broader NPT membership. Likewise, the P-5, other Security Council members, Iran, and the IAEA should work toward settling their differences. The current stalemate signals a lack of confidence in the treaty regime, if not in the IAEA and the Security Council.
- Another important and positive political message would be to signal support for the CTBT, not only in Washington and Beijing but also in the capitals of other NPT Annex II states.
- A joint P-5 statement prior to the 2010 Review Conference, in which the NWS should recommit themselves to work toward a positive outcome, could add political muscle.
- The NWS should also lend their support for a NPT heads-of-state summit to be convened on the margins of the 2009 General Assembly. Such a summit could generate high-level political will in support of concrete action at the 2010 Review Conference. While this summit should send a strong political message in support of a successful review conference, care should be taken not to deepen existing divisions among state parties.

Time for a New Deal?

Based on a relationship of trust, a new deal between the NWS and NNWS could be formulated around a balanced plan of action to be implemented both prior to and at the 2010 conference. Such an action plan would do more to advance the full implementation of the treaty's objectives than a divisive debate on how to reflect the treaty's implementation during the preceding review cycle. Such a new deal should take into account the changes in the geopolitical and international security environment and serve as a "lodestar" to regain confidence in the treaty's core bargains, as the 1995 "principles and objectives" document was designed to do. As such, it should build on the treaty's own obligations and represent a balanced package deal on ways to deal with the most pressing challenges facing the treaty today. A new package deal could include the following elements:

- **Strengthening Existing Nonproliferation Obligations, Including Strengthened Safeguards as a Condition of Supply.** This would not limit the inalienable right of states to use the atom for peaceful purposes, but instead enhance international confidence in every state's ability to be a responsible possessor and user of advanced peaceful use nuclear material and technologies.
- **Peaceful Use of Nuclear Energy.** Article IV rights for states in full compliance with their nonproliferation and safeguards obligations should be reaffirmed. Compliance with the nonproliferation commitments could be encouraged through mechanisms on assurances of nuclear fuel supply, which would reduce the motivation to pursue enrichment by incentive rather than limitation of rights. However, suspicions on the part of many NNWS that such mechanisms would restrict individual states' access to technologies and material would need to be overcome. The concept of multilateral fuel cycle controls should be advanced, provided agreement can be reached on objective criteria on nuclear fuel supply mechanisms. The recommendations by the IAEA presented to the Board of Governors earlier this year could also make headway toward this end.
- **Countering Nuclear Terrorism.** Among others, the role of the IAEA Code of Conduct on the Safety and Security of Radioactive Sources, the need to fully implement and strengthen Security Council Resolution 1540, universal adherence to the Convention on the Physical Protection of Nuclear Material, and the phaseout of highly enriched uranium in the civilian sector should be emphasized. While the first three elements are already widely recognized and implemented, the phaseout of civilian HEU continues to face serious political obstacles. This could partly be resolved if the concerns of several NNWS, in particular South Africa, over the status of military stocks are also addressed.
- **Achievable Nuclear Disarmament.** Maintaining moratoria on nuclear testing and expanding existing moratoria on military fissile material production should be a high priority. At the same time, there should be a renewed commitment to the early entry-into-force of the Comprehensive Nuclear Test Ban Treaty (CTBT) while supporting the full implementation of the International Monitoring System (IMS). Given its relevance to other parts of the grand bargain, negotiations on a verifiable fissban treaty before the 2010 conference would provide much needed momentum. While most urgent with respect to Russia and the United States, all NWS should agree to reduce the operational status of their nuclear forces as entrenched policies and practice. NWS should undertake not to adopt nuclear doctrines or develop new weapons systems that blur the distinction between nuclear and conventional weapons or lower the nuclear threshold. At the same

time, Russia and the United States should implement their undertakings to eliminate specific types of nonstrategic or tactical nuclear weapons and agree to withdraw all these types of nuclear weapons to central storage on national territory for eventual elimination.

- **Security Assurances.** To defuse a potential deal-breaker in 2010, NWS should reaffirm, prior to the 2010 Review Conference, their political pledges not to use or threaten to use nuclear weapons against NNWS. The conference should be allowed to yet again establish a mechanism to consider ways to provide legally binding negative security assurances to NPT states parties in full compliance with their nonproliferation obligations. At the same time those NWS that have not done so should sign and ratify the applicable protocols of existing NWFZ.
- **Regional Approaches and Nuclear-Weapon-Free Zones.** The entry-into-force of the African and the Central Asian treaties should be a high priority for all states. Equally so would be the ratification by the NWS of relevant protocols to all existing NWFZ treaties, including those related to security assurances. The full implementation of the 1995 resolution on the Middle East should be pursued urgently. Regional approaches to verification, as a means of confidence building and enhanced compliance in the regions of most proliferation concern, should be considered, taking into account the experience of EURATOM and OPANAL while maintaining the IAEA safeguards as basis for any regional safeguards system.
- **Accountability.** To address the imbalance inherent in the design of the NPT, ways should be considered to increase the accountability of all states parties to their treaty obligations. The recent proposal by Brazil to create a database on all disarmament initiatives could be a useful tool in evaluating progress made toward elimination of nuclear weapons by all states.

It would be fair to conclude that there is a real possibility that a failure in 2010 could lead to the eventual irrelevance of the NPT. The challenge facing both NWS and NNWS is to ensure that the treaty remains relevant to all its parties and that the validity of the decision to extend it in perpetuity remains intact. However, this cannot be accomplished if individual elements of the NPT bargain are approached singularly, and neither can one nor another of these elements be ignored or minimized. Any desire, be it by the NNWS or the NWS, to address only one aspect of the NPT bargain is a recipe for failure and should be guarded against.

Footnotes:

1. This phrase, included in the so-called 13 steps on nuclear disarmament agreed to at the 2000 review conference of the NPT state parties, has become synonymous with the positions of South Africa and its New Agenda Coalition partners (Brazil, Egypt, Ireland, Mexico, New Zealand, and Sweden).

2. Of the five NPT nuclear weapon states (China, France, Russia, United Kingdom, and United States) only China maintains a posture of “no-first-use.”

3. Such as those envisaged under the Reliable Replacement Warhead program.

4. For the White House transcript of President Bush’s speech, see <http://www.whitehouse.gov/news/releases/2004/02/20040211-4.html>.

5. Address by South African President Thabo M. Mbeki at the Nigerian National War College in Abuja, Nigeria, December 8, 2003, <http://www.dfa.gov.za/docs/speeches/2003/mbek1208.htm>.

6. Ibid.

7. See the statement on “Effective International Arrangements to Assure Non-Nuclear Weapons States Against the Use or Threat of Use of Nuclear Weapons,” by the South African delegation to the 2007 Preparatory Committee, May 2007.

8. South Africa has submitted several proposals regarding the need for negative security assurances in the context of the NPT, including a draft protocol to the treaty.

9. A 1974 Department of State memorandum stated that continuing a nuclear relationship with South Africa was important in order to maintain nuclear safeguards in the country and to avoid alienating South African actors that oppose communism. The memorandum also noted that South Africa contains “27 percent of the free world’s supply of uranium.” It is worth noting that both the United States and the United Kingdom procured uranium for their nuclear weapons programs from South Africa in the 1940s and 1950s (U.S. Department of State, “Signing of Amendment to U.S./S.A. Atomic Energy Agreement,” memorandum, May 21, 1974, unclassified memo released August 19, 1987). A 1974 CIA Special National Intelligence Estimate stated that South Africa’s decision to pursue nuclear weapons will be based on its “growing feeling of isolation and helplessness, perceptions of major military threat, and desires for regional prestige,” although the estimate does not foresee a serious military threat from any of its African neighbors during the 1970s (U.S. Central Intelligence Agency, Directorate of Intelligence, “Prospects for Further Proliferation of Nuclear Weapons,” October 2, 1974, classified interagency intelligence memorandum, partially declassified and released, Digital National Security Archive, <http://nsarchive.chadwyck.com/>). Further evidence that the United States was fully aware of the nature of South Africa’s program is a partially declassified 1983 U.S. intelligence report that showed that South Africa formally launched a weapons program in 1973 and that scientists were instructed to develop gun-assembly, implosion, and thermonuclear weapon designs. The report concluded that research on both a gun-type device, using two modified naval guns, and on the firing system of an implosion device was conducted at the Somerset West explosives installation in South Africa. Moreover according to a 1984 CIA report, the South African Air Force (SAAF) used Buccaneer S MK 50 bombers to practice “computerized techniques to deliver nuclear bombs and escape the effect of the resulting

explosions.” Also interesting is that the Reagan administration approved in 1982 the sale of computers to South Africa that may have been used in the design and manufacture of nuclear weapons program.

10. The Combined Development Agency, founded by the United States and the United Kingdom in 1944 to procure uranium for the two countries’ nuclear weapons programs, established the South African firm Calcined Products (Pty) Limited (Calprods), with the objective of producing uranium as a by-product of the country’s gold mining operations (“Company Profile,” Nuclear Fuels Corporation of South Africa Limited [Nufcor], August 28, 1996).

11. U.S. Mission U.N., “News Coverage,” August 29, 1977, unclassified memorandum released, Digital National Security Archive, <http://nsarchive.chadwyck.com/>; U.S. Department of State, “Your Meeting With Gromyko: South African Nuclear Issues,” September 21, 1977, secret memorandum partially declassified and released, Digital National Security Archive, <http://nsarchive.chadwyck.com/>; U.S. Mission to the U.N., “Non-Proliferation Issues at the 32nd UNGA: South Africa Nuclear Issues,” October 6, 1977, confidential memorandum partially declassified and released, <http://nsarchive.chadwyck.com/>.

12. U.S. Department of State, “Milton R. Benjamin Article in Washington Post,” October 31, 1977, unclassified memorandum, Digital National Security Archive, <http://nsarchive.chadwyck.com/>.

13. South Africa’s nonproliferation of weapons of mass destruction policy as adopted by the South African cabinet on August 31, 1994, was designed to reinforce and promote South Africa as a responsible producer, possessor, and trader of defense-related products and technologies in the nuclear, biological, chemical, and missile related fields.

14. General Colin Powell wrote on February 8, 1995, “[W]e all hope for the day when there will be no more nuclear weapons on earth and none needed. But that day will never come if the world does not have a strong regime to deter non-nuclear nations from adding to the nuclear club. ... The new South Africa will bring enormous moral authority to the conference. As a nation that has forsworn nuclear weapons and joined the NPT, your position will carry great weight.”

15. Letter addressed to President Nelson Mandela by President William J. Clinton, dated February 13, 1995.

16. Personal experience by the author; also see Thomas Markram, “A Decade of Disarmament, Transformation and Progress: An Assessment of Development and Implementation of Policy on Disarmament, Non-Proliferation and Arms Control in South Africa 1994-2004,” SaferAfrica, 2004.

17. Ibid.

18. Decision 2: “Principles and Objectives for Nuclear Nonproliferation and Disarmament,” paragraph 4, adopted at the 1995 Review and Extension Conference.

19. Ibid., paragraph 8.

20. See for instance Peter Fabricius, “Did SA Bow to US Pressure,” *The Star*, April 20, 1995.

21. See Markram, “A Decade of Disarmament, Transformation and Progress.”

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22. See the statement on “Effective International Arrangements to Assure Non-Nuclear Weapons States Against the Use or Threat of Use of Nuclear Weapons,” by the South African delegation to the 2007 Preparatory Committee, May 2007.
23. White House, “National Security Strategy of the United States of America” (September 2002). Also see George Bunn and Jean du Preez, “More than Words: The Value of U.S. Non-Nuclear-Use Promises,” *Arms Control Today*, July–August 2007.
24. White House, “National Strategy to Combat Weapons of Mass Destruction” (December 2002). This is an unclassified version of a classified National Security Policy Document (NSPD) 17 issued earlier. Also see Bunn and du Preez.
25. Bunn and du Preez.
26. White House, National Security Strategy of the United States of America (2006), p.18. Also see Bunn and du Preez.
27. See Jean du Preez, “The Demise of Nuclear Negative Security Assurances,” paper presented at the Article VI Forum, September 28, 2006, Ottawa, Canada.
28. See Final Document of the 2000 Review Conference.
29. See Jean du Preez, “The Demise of Nuclear Negative Security Assurances.”
30. See Bunn and du Preez.
31. Explanation of the vote of the U.S. delegation on draft U.N. General Assembly Resolution, “Conclusion of Effective International Arrangements to Assure Non-Nuclear-Weapon States against the Use or Threat of Use of Nuclear Weapons,” UNGA Res. 61/57, October 23, 2006.
32. Arms Control Association, “New Nuclear Policies, New Weapons, New Dangers” (April 2003), www.armscontrol.org/factsheets/newnuclearweaponsissuebrief.asp.
33. See Thomas Graham and Leonor Tomero, “Obligations for Us All: NATO & Negative Security Assurances,” *Disarmament Diplomacy* No. 49 (August 2000), www.acronym.org.uk/dd/dd049/49nato.htm. Also see Bunn and du Preez.
34. See Philip Bleek, “Russia Adopts New Security Concept,” *Arms Control Today*, January/February 2000.
35. “U.K. ‘Prepared to Use Nuclear Weapons,’” BBC News (Wednesday, March 20, 2002).
36. See MacLachlan and Hibbs, “Chirac Shifts French Doctrine for Use of Nuclear Weapons,” *Nucleonics Week* (January 26, 2006).
37. For a transcript of the press interview at the G-8 summit see the website of the Acronym Institute, <http://www.acronym.org.uk/docs/0706/doc21.htm>.
38. See Harney, Sevastopulo, and Alden, “Top Chinese General Warns U.S. over Attack,” FT.com (July 15, 2005).
39. NAC statement made by Ireland at the 2007 NPT PrepCom.
40. See statement by Ambassador Glaudine Mtshali, permanent representative of South Africa to the Conference on Disarmament during the First Committee general debate, October 9, 2007.
41. See Rebecca Johnson, “Back from the Brink? The 2007 NPT PrepCom Report,” *Disarmament Diplomacy* 85, Summer 2007.
42. Statement by the South African government issued by the Department of Foreign Affairs, December 5, 2006.

43. See Rebecca Johnson's Memorandum to the Defence Committee on "The Future of the U.K.'s Strategic Nuclear Deterrent: The White Paper," The Acronym Institute for Disarmament Diplomacy, January 2007.

44. Ibid.

45. See statement by Ambassador Abdul Minty at the 2007 NPT PrepCom.

46. See the Statement by Ambassador John Duncan, head of the U.K. delegation to the 2007 PrepCom session, Vienna, April 30, 2007.

CHINA'S NUCLEAR POSTURE AND ARTICLE VI

Gu Guoliang

With the changing international security environment and the rapid economic growth at home, the pace of China's modernization of national defense has quickened. This has caused some concern outside China about the development of China's nuclear program. This paper will address China's nuclear posture from a Chinese scholar's perspective.

China's Nuclear Strategy and Posture

China's nuclear strategy and posture is self-defensive in nature and it is based on its national defense policy and nuclear policy. China has made both its defensive national defense policy and nuclear policy very clear in its Defense White Papers published in recent years.

China's nuclear posture has remained self-defensive. As a matter of fact, China has adopted and maintained its defensive nuclear posture ever since China had its nuclear weapons. The perception of nuclear weapons came from the early days when China first decided to develop its nuclear program in the 1950s.

The Historic Background of China's Nuclear Strategy

China decided to develop its nuclear weapons against the situation when China was facing nuclear blackmail several times during the Korean War and the Jinmen crisis in the 1950s.¹ It was against this background that China was forced to develop nuclear weapons. From the very first days, the Chinese leaders viewed nuclear weapons as means to deter blackmail and aggression, not as a weapon to be used. As early as in 1946, Chairman Mao Zedong made his well-known description of atom bombs as "paper tigers" during his talks with American journalist Anna Louis Strong.² Chairman Mao also made it clear that nuclear weapons could not be used and China only needed small and limited nuclear stockpiles for the purpose of countering nuclear blackmail and threats from other countries, during his talks with Chinese leaders and foreign visitors. Chairman Mao stated at a party meeting, "In today's world, we have to have the weapon to avoid being bullied."³ He also stated during his meeting with foreign visitors that China only needed a small amount of atom bombs for defensive purposes, and China would not use atom bombs, as it would be a crime to do so.⁴ That fully shows that China was forced to develop its nuclear weapons, and

1. *The Making of China's Atom Bomb* (Atomic Energy Publishing House, 1991), p. 35.

2. "Talks with American Journalist Anna Louis Strong," *Works of Mao Zedong*, v. 4.

3. *Works of Mao Zedong*, v. 7, p. 27.

4. Mao Zedong made these remarks during his meeting with British Marshal Bernard Law Montgomery on September 24, 1961, and his talks with the foreign visitors after their attending of the 11th World Conference on Prohibition of Atomic and Hydrogen Bombs on August 22, 1964.

the purpose of having nuclear weapons is for defensive purpose only. Later in the 1970s, Deng Xiaoping, the then chairman of the Chinese Military Commission, stated at a meeting, “In the long-term perspective, China’s possessing of nuclear weapons is of symbolic significance. If China spends too much on it, it will weaken our power.”⁵ The Chinese government has maintained this perception of nuclear weapons all the time until today, and China’s nuclear strategy has all along followed this principle of having a limited and effective nuclear deterrent force against nuclear threats and nuclear attacks.

The Main Features of China’s Nuclear Strategy and Nuclear Posture

China started to publish its defense white paper in 1998; China has explained its defense and nuclear policies in its defense papers of 1998, 2000, 2002, and 2004. The defense white paper of 2006, “China’s National Defense in 2006,” for the first time publicly used the word “nuclear strategy” to explain its basic nuclear policy. China’s nuclear strategy consists of the following main contents.

China’s nuclear strategy serves its general national defense policy and military strategy. “China’s National Defense in 2006,” published in December 2006, clearly states that “China’s nuclear strategy is subject to the state’s nuclear policy and military strategy.”⁶ According to the white defense paper, China’s national defense policy in the new century is to “uphold national security and unity, and ensure the interests of national development.” This includes guarding against and resisting aggression, defending against violation of China’s territorial sea and air space and borders, and countering terrorism, separatism, and extremism in all forms.⁷ With rapid economic development at home and the changing external security environment and the trend of military development in the world, China finds it essential to modernize its national defense and improve its operational capabilities of self-defense under the conditions of informationization. As China’s national defense policy is a defensive one, China’s nuclear strategy has been and will remain self-defensive.

In recent years, importance has been attached to the modernization of China’s strategic force—the Second Artillery Force. The main goal of the Second Artillery Force is progressively improving its force structure of having both nuclear and conventional missiles and raising its capabilities in strategic deterrence and conventional strike under conditions of informationization.⁸ Nevertheless, the improvement of China’s strategic deterrent capability does not mean China is changing its nuclear posture. China’s defense white paper of 2006 made it clear that “China upholds the principles of counterattack in self-defense and limited development of nuclear weapons and aims at building a lean and effective nuclear force capable of meeting national security needs.”⁹ It shows the direction and the basic principles of China’s nuclear policy remains unchanged, and it will not

5. *Biography of Deng Xiaoping* (People’s Publishing House, Beijing), p. 947.

6. China’s National Defense in 2006 (Information Office of the State Council of the People’s Republic of China, Beijing, December 2006).

7. *Ibid.*

8. *Ibid.*

9. *Ibid.*

change in the foreseeable future.

No-first-use policy is the core of China's nuclear strategy. China remains firmly committed to the policy of no-first use of nuclear weapons at any time and under any circumstances. It is known to all that on the first day after China exploded its first atomic bomb on October 16, 1964, the Chinese government issued a statement solemnly declaring that China would not be the first to use nuclear weapons at any time and under any circumstance. China later on also stated that it would not use or threaten to use nuclear weapons against any non-nuclear states or nuclear-weapon-free zones. China has remained firmly committed to this no-first-use and unconditional negative security assurance (NSA) policy ever since.

China's no-first-use policy means that China, different from some other nuclear states, does not seek first-strike and preemptive strike capability. It also means that China does not seek to use or threaten to use nuclear weapons against biological, chemical, or conventional threats. China reckons that its conventional forces are sufficient to deal with all the non-nuclear threats. Furthermore, using nuclear weapons to fight against biological or chemical weapons of a non-nuclear weapons state violates the negative security assurances made by the nuclear weapons states under the Non-Proliferation Treaty (NPT), to which China has adhered for many years. The perception that nuclear weapons cannot and should not be used has been the principle for the Chinese government all along.

China aims at building a lean and effective nuclear force. In recent years, some observers are saying that China is changing its nuclear posture by moving away from its "minimal deterrent" nuclear posture.¹⁰ While "minimal deterrence" and "limited deterrence" are commonly used in the West, China has not officially used either term to define its nuclear strategy and nuclear posture. China's defense white paper states that China "aims at building a lean and effective nuclear force."¹¹ This means that China just needs a small and limited second-strike capability, and China does not seek a war-fighting nuclear capability. China wants to maintain an effective nuclear counterattacking force in order to deter possible nuclear attacks by other countries. China does not need a dynamic quantity of nuclear arsenal, as China's nuclear force is not aimed for a first strike or preemptive strike capability.

Furthermore, China's signing of the Comprehensive Test Ban Treaty (CTBT) and its positive attitude regarding the negotiation of a Fissile Materials Cutoff Treaty (FMCT) have shown its willingness to put limits on its nuclear weapons' modernization.

While maintaining a small and limited nuclear arsenal, China endeavors to ensure the security and reliability of its nuclear weapons and maintains a credible nuclear deterrent force. Also, China has made it clear in its defense white papers and other official statements that it endeavors to ensure the security and reliability of its nuclear weapons and maintains

10. Harsh V. Pant, "China's Changing Nuclear Posture," *ISN Security Watch*, June 14, 2007.

11. China's National Defense in 2006 (Information Office of the State Council of the People's Republic of China, Beijing), December 2006.

a credible nuclear deterrent force. In other words, if the reliability and credibility of China's nuclear deterrent force is being harmed or neutralized, China will have to take countermeasures to preserve the credibility of its nuclear deterrent force. The emphasis of "raising its capabilities in strategic deterrence" is on the improvement of mobility and survivability of its limited nuclear weapons with a view to reducing the vulnerability of receiving the first nuclear attacks from other nuclear states and maintaining a credible retaliatory second-strike capability. The fundamental goal is to deter other countries from using or threatening to use nuclear weapons against China.

China's defensive nuclear strategy does not require China to have a large size of nuclear arsenals. Unlike the nuclear strategies of the United States and Russia, which are based on war-fighting capabilities, China's nuclear strategy is based on "effective deterrence." Unlike the nuclear strategies of the other nuclear states, which are based on first use of nuclear weapons against possible attacks, including both nuclear and conventional attacks, China's nuclear strategy is based on no-first use. China's nuclear weapons are used only for deterring nuclear attacks, not used for deterring conventional attacks. Therefore, the main purpose of China's nuclear weapons has been to deter nuclear attack and nuclear blackmail. China does not need war-fighting and first-strike capabilities to deter a nuclear attack. Furthermore, China's defensive nuclear strategy shows China's confidence in its strategic deterrent and conventional capabilities and Chinese leaders' judgment of the international security situation. The Chinese leaders, from Mao Zedong, Deng Xiaoping, to the present generation leaders, all believe that the possibility of a world war among major powers has been remote. Besides, China's conventional forces have greatly improved their capabilities in recent years.

China exercises great restraint in developing its nuclear force and does not enter into a nuclear arms race with any other country. It is based on its defensive nuclear strategy that China has time and again declared that it has never entered into and will never enter into a nuclear arms race with any other country. Among the five nuclear states, China's nuclear force is small. Besides, China has refrained itself from developing new types of nuclear weapons.

As a matter of fact, China has learned the lesson from the nuclear arms race between the United States and Soviet Union during the Cold War. It has proved that a nuclear arms race is costly and it does not help increase the effectiveness of nuclear deterrence. Rather, it leads to strategic instability and to the danger of nuclear wars among nuclear weapon states. In addition, such a nuclear arms race only exhausts substantial economic and technological resources. Obviously, it goes against China's long-term strategy of economic development.

China pursues a policy of coordinated development of national defense and economy. It keeps the modernization of China's national defense and armed forces as an integral part of its social and economic development, so as to ensure that the modernization of its national defense advances in step with the national modernization drive. As China achieves sustained economic growth, China's military expenditure has substantially increased. There has been improvement of China's nuclear force, including changing from the first

generation of using liquid fuel and fixed silos to the second generation using solid fuel.¹² But the principle of maintaining a defensive nuclear posture remains unchanged. The purpose of improvement of the nuclear force is still to ensure an effective nuclear force in the new strategic environment. The emphasis of nuclear improvement has still been placed on survivability and reliability.

Furthermore, as a member state to the NPT, China undertakes to comply with its provisions of Article VI by striving for nuclear disarmament. The Chinese government is actively supporting the nuclear disarmament process. Confined by these principles and conditions, China has exercised great restraint in developing its nuclear force.

China stands for the complete elimination and thorough destruction of nuclear weapons. It is the goal of China to thoroughly destroy nuclear weapons and free the world from such weapons. The end of the Cold War and the new security situation have made possible the substantial reduction of nuclear weapons. Major progress in the nuclear disarmament process will help reduce the danger of nuclear proliferation and finally lead to the realization of the goal of complete elimination and thorough destruction of nuclear weapons.

The Chinese government supports an early realization of the goal. China will disarm its nuclear force in pace with the other nuclear weapons states. Before a comprehensive nuclear disarmament, China will continue to maintain a very limited but effective nuclear deterrent force while continuing its effort to maintain stable strategic relations among nuclear weapon states.

China's Arms Control and Nonproliferation Policy

As a nuclear weapon state and a member state both to the NPT and IAEA, China vigorously supports and participates in the international nuclear nonproliferation efforts, promotes the process of nuclear disarmament, and works hard for the realization of the final goal of the complete prohibition and thorough destruction of nuclear weapons worldwide.¹³

China has always been opposed to the proliferation of nuclear weapons and their means of delivery. It supports the international community's active efforts of nonproliferation and has made its own contributions in this area.

Chinese Arms Control and Nonproliferation Policy Has Undergone an Evolving Process Since the End of the Cold War

With a constantly developing situation both internationally and at home, greater importance has been placed on the role of arms control and nonproliferation in China's security strategy and foreign policy. China has in the past adjusted its arms control and

12. Sung Xiangli, *2005 Reports of International Arms and Disarmament*, ed. China Arms Control and Disarmament Association, Beijing (World Knowledge Press, 2005).

13. *China's Endeavors for Arms Control, Disarmament and Non-Proliferation Policy*, September 2005.

nonproliferation policy to better serve its foreign and defense policy objectives and to adapt itself in the changed international environment.

During the Cold War, China was not a major player in world affairs, and the issue of arms control and nonproliferation was not a major component of China's foreign and defense policy. For most of the Cold War, China was a bystander watching and criticizing the arms race and the arms control negotiations between the United States and the Soviet Union, and China held a suspicious view about the international arms control and nonproliferation regimes. Thus, during the Cold War period, China remained outside of the key international arms control and nonproliferation treaties.

After the end of the Cold War, the world structure is no longer dominated by the confrontation of the East and West camps. The Cold War has been replaced by regional conflicts. The world is faced with multiple uncertain threats. Especially after the terrorist attacks of September 11, 2001, terrorism and the proliferation of weapons of mass destruction (WMD) have become a major concern of the international community. Antiterrorism and nonproliferation of weapons of mass destruction also have become common causes for the international community.

Facing the new international security environment, China has reviewed and adjusted its policy on arms control and nonproliferation and attached greater importance to its arms control and nonproliferation policy to adapt to the changed international environment and power structure. China does not want to see the emergence of any new nuclear states, especially not in its neighborhood.

The domestic factors have also played their roles in shaping China's arms control and nonproliferation policy. Since China started its economic reform and open-door policy in the late 1970s, it has come to understand the importance of integrating itself into international regimes and realized the benefits of joining such networks both politically and economically. China has taken lessons from the U.S.-Soviet arms race during the Cold War period—that participating in an arms race is not in the country's best interest and would not bring security or economic prosperity. Therefore, China needs to have arms control as well as balanced development of its economic and military powers. China's modernization of national defense is based on this perspective.

In the past decade, China has come to understand that proliferation of nuclear weapons and their means of delivery is detrimental to world peace and security and is not in China's security interest. Nonproliferation is in the common interest of all countries, including China. In fact, terrorism is also posing an enormous threat to the security and order of China. China has been concerned about the terrorist activities conducted by "East Turkistan" forces both in the Xinjiang Uygur Autonomous Region of China and outside China.

In the past decade, with sustained rapid economic growth, China's political influence and its role in the world has increasingly grown. The international community expects China to play a greater role in world affairs, including activities related to arms control and nonproliferation. China has become more conscious of its role as a responsible major power. It is based on its national interest that China has pursued an active

nonproliferation policy.

The Main Features of China's Nuclear Nonproliferation Policy

China is a state party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). It has always abided by its obligations under the treaty, and it pursues a policy of not advocating, not encouraging, and not engaging in the proliferation of nuclear weapons and not helping other countries to develop nuclear weapons.

China is also a state party to the International Atomic Energy Agency (IAEA). China has formulated three principles governing its nuclear exports: guarantees for peaceful use only, acceptance of the safeguards of the IAEA, and no re-transfer to a third country without prior approval of China. China has pledged not to provide assistance, including nuclear export and personnel and technical exchanges and cooperation, to nuclear facilities of non-nuclear weapon states not under the IAEA safeguards.

China holds that nuclear nonproliferation is in the common interest and a shared responsibility of the international community, and nuclear nonproliferation is an effective and necessary step toward the complete prohibition and total elimination of nuclear weapons. It is also an indispensable part of the international nuclear disarmament process.

While considering the proliferation of nuclear weapons a complicated issue facing the international community, China reckons the proper solution lies in political and diplomatic means and a comprehensive approach to address both the symptoms and root causes. It is of vital importance to remove the incentives of acquisition of nuclear weapons by cultivating a peaceful international environment where countries feel secure and base their relations on mutual trust, mutual benefit, and equality. Credible security guarantees and necessary incentives should be provided to those countries that are prepared to give up their aspirations to acquire nuclear weapons. We have seen success in countries like Brazil, South Africa, and others that voluntarily gave up their nuclear capabilities.

China calls on states to refrain from resorting to the use or threat of force. A strategy of preemption cannot fundamentally prevent the so-called "rogue states" from acquiring nuclear weapons, especially when different standards and criteria toward different countries are being applied. Proliferation of nuclear weapons can only be effectively handled by peaceful means. It is essential for the concerned countries to have dialogues and negotiations to solve the issues.

China supports an international nuclear nonproliferation regime that is fair, reasonable, non-discriminatory in nature, and with same standards and criteria.

China attaches great importance to the role of the United Nations and other international organizations in their nonproliferation efforts. The international community should safeguard and enhance the authority and effectiveness of the role of NPT and IAEA.

China is actively engaged in international cooperation, particularly among the major powers, in handling the issue of proliferation of nuclear weapons effectively. Proliferation of nuclear weapons is a global problem and one of the security concerns that all nations face in the 21st century. Therefore, it needs full cooperation of the international community.

China supports the legitimate rights to the use of nuclear energy for peaceful purposes; it also supports the efforts to prevent any state from engaging in nuclear weapons proliferation activity under the guise of the peaceful use of nuclear energy.

China Has Made Great Efforts to Contribute to the Cause of International Nonproliferation

Since the early 1990s, China has taken an increasingly active part in international nonproliferation efforts. China has signed all the international treaties related to nonproliferation and joined all the relevant international organizations. China has acceded to the major nonproliferation treaties and organizations such as Treaty on the Non-Proliferation of Nuclear Weapons (NPT), signed the Comprehensive Test Ban Treaty (CTBT), and joined the Zangger Committee and the Nuclear Supply Group (NSG).

In recent years, the Chinese government has promulgated a number of major regulations of export control, including nuclear, missile, and other sensitive components and materials, and the Chinese government is determined to fully implement all such regulations and has made great efforts to educate and train its industry about international nonproliferation treaties and domestic export control regulations. The Chinese Foreign Ministry, Ministry of Commerce, and Customs have worked in close cooperation and taken serious measures toward stopping and punishing illegal exports.

In recent years, China has implemented and enforced a number of laws and regulations that form a complete system for the export control of nuclear, biological, chemical, missile, and other sensitive items and technologies, as well as all military products. It has adopted international export control measures, including an export registration system, end-user and end-use certification system, licensing system, list control method, and “catch-all” principle, and it has stipulated corresponding penalties for breaches of these laws and regulations. China’s nonproliferation export control measures are basically in conformity with international practice.

China has maintained good cooperation with other countries and actively participated in the diplomatic efforts of the international community to address relevant nonproliferation issues, working to promote resolution of such issues by peaceful means through dialogues and cooperation. In recent years, the P-5 had good cooperation in dealing with the nuclear tests of India and Pakistan in May 1998, and they have had good cooperation in handling both the Democratic People’s Republic of Korea (DPRK) and Iran’s nuclear programs.

China has played an important part in bringing about the six-party talks and made great efforts in persuading DPPK to give up its nuclear program. China has worked together with the other parties of the six-party talks as well as the international community to counter the proliferation of both nuclear and missile proliferation in Northeast Asia and has supported the general goal of the Proliferation Security Initiative (PSI). China’s position is very clear. China stands for a non-nuclear Korean Peninsula. China stands for the maintenance of peace and stability of the Korean Peninsula. And China stands for peaceful solution of the DPRK’s nuclear program through dialogue. China does not wish to see another nuclear neighboring country. China needs a stable environment to concentrate

on its economic development. Nuclear and missile proliferation in East Asia are not in China's security interest. China has also played its positive role in handling the issue of Iran's enriched uranium program.

Since joining the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) in 1992, China has faithfully honored all its obligations and dedicated itself to maintaining and enhancing the universality, effectiveness, and authority of the NPT. China remains committed to promoting the three goals of the NPT, namely, nonproliferation of nuclear weapons, nuclear disarmament, and peaceful uses of nuclear energy.

China joined the International Atomic Energy Agency (IAEA) in 1984. In 1988, China signed the Agreement Between the People's Republic of China and the IAEA for the Application of Safeguards in China and voluntarily placed its civilian nuclear facilities under the IAEA safeguards. China signed with the IAEA the Protocol Additional to the IAEA Safeguards Agreement in 1998 and in March 2002 formally completed the domestic legal procedures necessary for the entry into force of the Additional Protocol, thus becoming the first nuclear weapon state to complete the relevant procedures.

In November 1991, the Chinese government announced that it would, on a continuing basis, notify the IAEA of China's export to or import from non-nuclear weapon states of any nuclear material of more than one effective kilogram. In July 1993, China formally undertook that it would voluntarily notify IAEA of all its import and export of nuclear material as well as its export of nuclear equipment and related non-nuclear material. In May 1996, China pledged not to provide assistance, including nuclear export and personnel and technical exchanges and cooperation, to nuclear facilities of non-nuclear weapon states not under the IAEA safeguards. At present, acceptance of the IAEA full-scope safeguards by importing countries has been set by China as the precondition for nuclear export.

In order to strengthen its nuclear export control mechanism, China has established and improved on its relevant domestic legal system. China joined the Zangger Committee in October 1997. On September 10, 1997, the Chinese State Council promulgated the Regulations of the People's Republic of China on Control of Nuclear Export, and in June 1998, China promulgated Regulations on the Control of Nuclear Dual-Use Items and Related Technologies Export, under which China exercises control over the export of materials and technologies included in the list of the Zangger Committee and the list of nuclear dual-use items and technologies currently in use internationally. These regulations stipulate that China shall not provide any assistance to any nuclear facility that is not under the IAEA safeguards.

In June 2004, China joined the Nuclear Suppliers Group (NSG). In order to comply with the requirements of the NSG, the Chinese government revised its Regulations of the People's Republic of China on Control of Nuclear Export in November 2006 and its Regulations of the People's Republic of China on Control of Export of Nuclear Dual-Use Products and the Related Technologies in January 2007. The revised regulations have further tightened nuclear export control, completing the process of transition from administrative control to legal control. The revised regulations have complied with the

requirement of NSG in the field of export control principles and the nuclear export control list.

China supports efforts of the Zangger Committee and the NSG to further strengthen nuclear export control regimes and the efforts to strengthen nuclear security and to guard against and combat nuclear terrorism. China has actively participated in the revision of the Convention on the Physical Protection of Nuclear Material and has made great efforts in strengthening the physical protection of nuclear facilities and materials and preventing terrorist organizations and other non-state entities from obtaining nuclear weapons.

China's Policy and Position on Nuclear Disarmament

Over the past years, China has made great efforts in promoting nuclear disarmament and implementing Article VI of NPT.

China Has Upheld the Following Basic Policy and Positions

China supports the conclusion of an international legal instrument on the early realization of the goal of complete prohibition and thorough destruction of nuclear weapons.

China maintains that nuclear powers with largest nuclear stockpiles should bear special responsibility for nuclear disarmament and take the lead in drastically reducing their nuclear arsenals in a verifiable, irreversible, and legally binding way, so as to create conditions for the realization of the final nuclear disarmament in a comprehensive and thorough manner. Wolfgang K. H. Panofsky, the well-known American particle physicist and director emeritus of the Stanford Linear Accelerator Center, recently wrote an article in *Foreign Affairs*, criticizing the Bush administration for taking a dangerous nuclear posture and urging the United States to drastically reduce its nuclear arsenal and move toward the eventual elimination of nuclear weapons.¹⁴

China supports agreements of de-alerting of nuclear weapons and de-targeting among nuclear states, with a view of avoiding unauthorized and accidental launching.

China does not wish to see a missile defense system produce negative impact on global strategic stability, bring new unstable factors to international and regional peace and security, or undermine legitimate security interests of other countries.

China opposes the weaponization of outer space. China has all along stood for peaceful use of outer space and supports the negotiation and conclusion of relevant international legal instrument to prohibit deployment of weapons in outer space and the threat or use of force against objects in outer space so as to ensure that outer space is used purely for peaceful purposes.

China Has Made Good Efforts in Implementing Article VI of the NPT

As a nuclear weapon state, China has never evaded its due responsibilities and

14. Wolfgang K. H. Panofsky, "Nuclear Insecurity," *Foreign Affairs*, September/October 2007.

obligations in nuclear disarmament. China has persistently exercised the utmost restraint on the scale and development of its nuclear weapons. China has conducted the smallest number of nuclear tests among the five nuclear weapon states. China has never taken part and will never take part in any nuclear arms race. China has never deployed nuclear weapons outside its own territories.

In the meantime, China has suggested that nuclear weapon states should reach common agreements on no-first use and de-targeting of nuclear weapons against each other.

Ever since the first day when it came into possession of nuclear weapons, China has committed unconditionally not to use or threaten to use nuclear weapons against non-nuclear weapon states or nuclear-weapon-free zones. In April 1995, the Chinese government made a statement, reiterating its unconditional provision of negative security assurances to all non-nuclear weapon states and at the same time undertaking to provide these countries with positive security assurances. In 2000, China and other nuclear weapon states issued a joint statement, reaffirming their security assurance commitment made in Resolution 984 of the U.N. Security Council in 1995. China calls upon the other nuclear weapon states to unconditionally provide positive and negative security assurances to all non-nuclear weapon states and to conclude, through negotiations, an international legal instrument to this end at an early date.

China respects and supports the efforts by relevant countries and regions to establish nuclear-weapon-free zones. Proceeding from this position, China has signed and ratified Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean, Protocols II and III of the South Pacific Nuclear-Free Zone Treaty and Protocols I and II of the African Nuclear-Weapon-Free Zone Treaty. China supports the efforts by members of the Association of Southeast Asian Nations (ASEAN) and the five Central Asian countries to establish nuclear-weapon-free zones. China also supports endeavors to establish nuclear-weapon-free zones in the Middle East.

China firmly supports the Comprehensive Nuclear Test Ban Treaty (CTBT). China made significant contributions to the conclusion of the treaty and was among the first to sign it. In July 1996, the Chinese government declared a moratorium on nuclear tests, and has all along honored such commitment. China supports the early entry into force of the CTBT and hopes that all countries will sign and ratify it at an early date. The Chinese government has submitted its ratification proposal to the Chinese People's Congress for its review and is waiting for the approval of the congress. The U.S. ratification of CTBT will certainly make way for the early approval of Chinese People's Congress. In the meantime, China has actively participated in the work of the CTBT Preparatory Commission and the Conferences on Facilitating the Entry into Force of the CTBT. China will continue to maintain the moratorium on nuclear tests before CTBT comes into force.

China supports the Conference on Disarmament in arriving at a comprehensive and balanced program of work as soon as possible so as to begin substantive work on such important issues as nuclear disarmament, banning the production of fissile materials for nuclear weapons or other explosive devices, prevention of an arms race in outer space, and

negative security assurances. China has de-linked the negotiation of Fissile Material Cutoff Treaty (FMCT) with the negotiation on prevention of an arms race in outer space, even though China still attaches great importance to the negotiation of the latter topic.

The Right Approach to Strengthen the NPT

The NPT embodied a bargain between the nuclear states and non-nuclear states. The nuclear weapon states bear a particular responsibility under the NPT to pursue effective measures relating to cessation of the nuclear arms race and to nuclear disarmament. In exchange, the non-nuclear states were guaranteed free access to nuclear energy technology as long as they promised to forswear nuclear weapons. This commitment was formalized in Article VI, which states that “each of the parties to the treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the arms race at an early date and to nuclear disarmament and on a treaty on general and complete disarmament under strict and effective international control.”

Both the nuclear weapon states and the non-nuclear weapon states should undertake their obligation stipulated in the NPT. While the non-nuclear states should undertake not to acquire nuclear weapons under the guise of peaceful use of nuclear energy, the nuclear weapon states should take the following measures to further promote nuclear disarmament process.

A balance should be struck between nonproliferation and peaceful uses. While nuclear weapon states should respect the legitimate rights of the non-nuclear states for peaceful use of nuclear energy, the non-nuclear states should not pursue proliferation activities under the pretext of peaceful uses. The relationship among nuclear disarmament, nuclear nonproliferation, and peaceful use of nuclear energy should be properly handled, so as to make them mutually complementary and reinforcing.

Nuclear weapon states should abandon the policies of nuclear deterrence based on the first use of nuclear weapons and reduce the role of nuclear weapons in their national security.

Nuclear weapon states should support the conclusion of an international legal instrument on the complete prohibition and thorough destruction of nuclear weapons. Before the goal of complete prohibition and thorough destruction of nuclear weapons is achieved, nuclear weapon states should commit themselves to no-first use of nuclear weapons and undertake unconditionally not to use or threaten to use nuclear weapons against non-nuclear weapon states or nuclear-weapon-free zones.

The two countries possessing the largest nuclear arsenals bear special and primary responsibilities for nuclear disarmament. Although the two largest nuclear powers concluded the Moscow Treaty, which requires both countries to reduce strategic nuclear warheads to 1,700–2,200 by December 31, 2012, the United States and Russia still possess huge nuclear stockpiles.

Nuclear weapon states should refrain from researching new weapons designs and developing and possessing new low-yield weapons that will lead to a reduction in the threshold of nuclear weapons use.

Nuclear weapon states should not target their nuclear weapons against any countries, nor should they list any countries as targets of nuclear strikes.

Nuclear weapon states should take all necessary steps to avoid accidental or unauthorized launches of nuclear weapons.

Finally, both the nuclear weapon states and the non-nuclear weapon states should strive for enhancing the universality and the authority of the Treaty on the Non-Proliferation of Nuclear Weapons. Measures should be taken to encourage and reward those countries that are outside NPT to accede to the treaty and isolate and punish those countries that refuse to join or withdraw from the treaty.

Conclusion

The Chinese government has already decided on its long-term strategy of national development for the next few decades. China will continue to concentrate on its economic development while simultaneously building up a defensive force. Therefore, China's nuclear posture and its nuclear policy are established and predictable. China will not enter into an arms race and will continue to stand for complete prohibition and thorough destruction of nuclear weapons. It will continue to pursue a policy of no-first use of nuclear weapons, and it undertakes not to use or threaten to use nuclear weapons against non-nuclear weapon states. It will continue to support efforts to build up regional nuclear-weapon-free zones. China will continue to support the conclusion of the FMCT, as well as an international legal instrument on preventing the weaponization of outer space through negotiations. China will also continue to pursue a proactive arms control and nonproliferation policy. China will continue to pursue a policy of not supporting, not encouraging, and not assisting other countries to develop nuclear weapons. While China supports the principle of peaceful use of nuclear energy, it will work together with the IAEA to ensure it is done under full safeguards and oversight. China will continue to play its critical role and work together with the international community to solve the DPRK's nuclear issue under the framework of the six-party talks and Iran's uranium enrichment program under the framework of the United Nations. China will redouble its efforts in enforcing its regulations of nuclear export control. China will continue to cooperate with other countries to promote nuclear disarmament and fight against nuclear proliferation.

With the changing international situation, China needs to modernize its lagging national defense solely for defensive purposes. China will continue with its nuclear weapons modernization, but its main purpose remains to improve the general survivability of its nuclear weapon force so as to ensure the effectiveness of nuclear deterrence into the future. China is a non-allied country and pursues an independent foreign policy. China has to rely on itself to have a credible nuclear deterrent force and an effective conventional force to defend its sovereignty and territorial integrity. China has neither the intention nor the capability to join the arms race. China will, together with other countries, continue to participate in international arms control and nonproliferation efforts.

China maintains that the right approach to strengthen NPT is to enforce the compliance of Article VI. Both the nuclear weapon states and the non-nuclear weapon

states should undertake their obligation stipulated in the NPT. A balance should be struck between nonproliferation and peaceful uses. While nuclear weapon states should respect the legitimate rights of the non-nuclear states for peaceful use of nuclear energy, the non-nuclear states should not pursue proliferation activities under the pretext of peaceful uses. The relationship among nuclear disarmament, nuclear non-proliferation, and peaceful use of nuclear energy should be properly handled, so as to make them mutually complementary and reinforcing. Detailed arrangements should be made to guide the implementation of the above-mentioned principles.

PUTTING A STOP TO NUCLEAR MADNESS

Roddam Narasimha

Nuclear war ... will mean ... the end of life as we know it on our planet Earth. ... We seek your support to put a stop to this madness.

—Rajiv Gandhi at the U.N. General Assembly,
June 9, 1988

Introduction

In the speech cited above, the late Prime Minister Rajiv Gandhi argued forcefully and eloquently for a world free of nuclear weapons. Over more than half a century India has consistently stood for nuclear disarmament and a policy of peaceful coexistence. Until about a year ago it had seemed as if this was a lost cause or a pipe dream, for the countries that had already acquired nuclear weapons, including in particular the so-called nuclear weapon states of the Non-Proliferation Treaty (NPT), were unwilling to give up their nuclear arsenals. Thus although there were continuing discussions at Geneva and elsewhere, and NPT review conferences were held every five years, nuclear disarmament kept receding from public attention.

However, the whole picture has suddenly changed with the appearance of an article by four distinguished American leaders (George Shultz, William Perry, Henry Kissinger and Sam Nunn) in *The Wall Street Journal* of January 8, 2007. This short article had the same title as Rajiv Gandhi's speech, namely "A World Free of Nuclear Weapons." It was a striking call by two former secretaries of state, one former secretary of defense, and a former chairman of the Senate Armed Services Committee for a revival of the vision of a nuclear-free world, and for a bold initiative to be taken by the United States to work energetically toward achieving that goal. It is a significant international development when such influential U.S. leaders join the chorus of the International Court of Justice, the Canberra Commission, and various other bodies and recall the fearful implications of a nuclearized world highlighted by presidents Dwight D. Eisenhower and John F. Kennedy about half a century ago. Other U.S. leaders, including some current presidential aspirants, have supported the idea of a world without nuclear weapons. It looks as if, for the first time in history, nuclear disarmament is moving away from being the preserve of romantic peaceniks to a viable, even desirable, strategic option. This development must be seized as an opportunity with all the seriousness it deserves.

I am grateful to Professor S. Rajagopal, Dr. V. Siddhartha, and Ambassador M. Rasgotra for their comments on a draft of this paper.

This paper revisits some proposals that I had made in 2004 regarding nuclear disarmament at a similar conference in Stanford. There were two major principles underlying the proposals. The first was the acceptance of a No-Loser Principle in moving toward nuclear zero, and the second was a plea for greater empowerment of the International Atomic Energy Agency (IAEA) as an instrument in helping the world move toward that goal. I would like to present an update of these views, in the hope that the discussion of practical steps toward freeing the world of nuclear weapons will sound less romantic or far-fetched in the changed world of today. The end of the Cold War and the new danger of nuclear weapons falling into the hands of terrorist groups give us a new perspective on a nuclear-free world. The possibility that all nations on the side of the forces of order may be able to unite to achieve this objective seems a little less remote now than before.

Terrorism

The immediate trigger for the initiative of Shultz et al. is the growing threat of nuclear weapons falling into the hands of global terrorist networks of otherwise amorphous and chiefly non-state actors. This possibility has changed the nature of the problems that the forces of order have to tackle. In the first place such networks, and the nuclear black markets that service them, have exploited the very same economic policies that have encouraged globalization, transnational enterprises, freer flow of trade, etc. [1]. Secondly, such non-state actors cannot be managed by a strategy of nuclear deterrence. The use of nuclear attack in the name of a war on terrorism can be counterproductive for a wide variety of reasons: unacceptable collateral damage, international opprobrium, and the likely increase in the terrorists' ranks as they acquire more new recruits than any they might lose through the attack.

The black markets are not limited to a few "rogue states" by any means. For example, recent reports [2] suggest that the Italian mafia group 'Ndrangheta, in collusion with former employees of the Italian Atomic Energy Agency (ENEA), have been making illegal shipments of radioactive/nuclear waste to Somalia. It is not difficult to imagine a situation where state actors (including scientists) will, for reasons of ideology or private gain, supply nuclear materials and even put together crude nuclear bombs for such terrorist groups. In such cases classical mutual deterrence theory will no longer be relevant; the forces of the state will be vulnerable to blackmail and attack but will not be in a position to deter non-state actors by Cold War methods. The attacked state can hand out punishment by proxy, but it cannot in general nuke only the terrorists.

The NPT Problem

Another major problem we have to face is the changing status of the NPT. It might at first seem extraordinary to find flaws in a treaty that has already acquired 188 apparently voluntary signatures, only India, Pakistan, and Israel (D3) having opted to stay out. On behalf of the treaty its major authors have always argued that it represents a bargain among its signatories and that, at the very least, the fear that used to be entertained in the 1970s that

something like 30 countries in the world might possess nuclear weapons before long has been set to rest.

There are problems with this argument. First of all it is well known that not all the signatories to the NPT are happy with it. Among the unhappy signatories are such groups as the New Agenda Coalition, the Group of Six, etc. Secondly, apart from the three non-signatories who consider that the NPT is not in their national interest, it is now clear that at least three other countries (Iraq, Iran, and North Korea) have currently, or have had sometime in the past, a nuclear program of their own. Three other Asian countries—Japan, Taiwan, and South Korea—have debated within themselves at various times whether their decision not to go nuclear remains justified; some of their neighbours continue to exploit or develop nuclear arsenals, and it is not clear how robust the nuclear shield promised by the United States is. There appears to be a long arc between the eastern Mediterranean and the western Pacific where the value of the so-called bargain of the NPT has been either denied or in serious doubt. This is not an accident, but rather an indication of dissatisfaction with it in major Asian countries. The reason is chiefly the growing conviction that to retain sufficient strategic space to protect the national interest nuclear weapons are a useful, even necessary, component of the arsenal of an independent nation. Arguments that the strategic value of nuclear weapons has declined will carry conviction only if the P-5 nations move toward disarmament. The treaty is thus out of touch with Asian realities, in particular as they have developed over the last few decades. This is hardly a surprise, as an agreement concluded some 40 years ago, when the memory of the European domination of Asia was still fresh in the minds of the victors in the Second World War, cannot be relevant to a rising Asia. Much has indeed happened since the treaty froze on January 1, 1967.

Also, Article VI of the treaty has been virtually forgotten. The promise of “negotiations in good faith of effective measures relating to ... nuclear disarmament,” enjoined by this article, has not been pursued with any serious purpose, in all of the 30 years since the treaty entered into force. The lack of any real progress toward nuclear disarmament shows that the NPT is not a credible instrument for achieving that goal. The paradox in the situation is highlighted by the way that both sides of the argument are now brought forward: On the one hand it is claimed that progress on disarmament *is* being made (“witness the reduction in nuclear weapons that the United States and Russia have been negotiating”) and on the other hand efforts continue in the United States (and possibly also Russia) to develop more effective nuclear weapons (mini-nukes, deep earth penetrators, etc.). The new nuclear doctrine under consideration in the United States talks of preemptive strikes.

Furthermore, the NPT is now technologically anachronistic, because some of the assumptions on which it was based are no longer valid. Many countries that were technologically weak in the 1960s have in the last three or four decades made considerable progress. The basic skills and the information required to make nuclear weapons are now more widely available. The NPT did not require the so-called non-nuclear weapon states to abandon their rights to manufacture fissile materials or to establish uranium enrichment plants (for example), or in fact even to *develop* nuclear weapons technology. All that Article II of the NPT requires is that non-nuclear states do “not *manufacture* or otherwise *acquire* nuclear weapons or other nuclear explosive devices” (italics mine). Thus when Iran set up an enrichment plant at Natanz, it was not violating the NPT. The question of violation arises only because of its failure to declare that it had this plant or to notify its import of 1.8 tons of

uranium in 1991. In any case signatories to the treaty can opt out of it by giving a notice of three months and a statement of the reasons for withdrawal (Article X.1), as North Korea (DPRK) has done.

Finally, in spite of the treaty itself and the innumerable technology denial clubs that purport to prevent the proliferation of nuclear weapons, the evidence grows that the treaty (in particular Articles I and II) has been subverted by its own authors and signatories in both West and East.

The question now before us is whether it is possible to ensure that both the willing and unwilling signatories, as well as the others who have refused to sign, can be brought into a new regime that can more robustly ensure that not only the development of nuclear weapons but also the threat of their use by all who possess them is more effectively and equitably controlled. These views have been reinforced by IAEA Director General Mohamed ElBaradei in an invited article in *The Economist* (October 16, 2003). He notes the asymmetry inherent in the treaty and how the disarmament that was to be pursued in good faith according to Article VI “had nearly ground to a halt by the end of the century, with nearly thirty thousand warheads still in existence.” We cannot agree too strongly with his conclusion that “... it is time to begin designing a framework more suited to the threats and realities of the 21st century.”

So, as disenchantment with NPT has grown, and the number of nuclear states multiplies, especially in Asia, terrorism is not the only reason to consider a nuclear-free world.

An Indian Perspective

As far as India is concerned, comprehensive global nuclear disarmament has always been a primary objective. The nuclear tests carried out by India, first in 1974 and then in 1998, do not indicate a move away from that objective. As has been argued elsewhere [3], the basic determinant of Indian nuclear policy has been the maintenance of a certain threshold of strategic autonomy. Whenever developments elsewhere in the world have shrunk the available strategic space, the balance has been restored through “making a statement”—nuclear *if necessary*. The preferred option has nevertheless always remained nuclear disarmament: It is the ultimate goal. In May 1984 India was one of the authors of the Six-Nation Initiative (the others being Sweden, Argentina, Greece, Mexico, and Tanzania) on nuclear disarmament. In his speech of June 1988 cited earlier, then Prime Minister Rajiv Gandhi placed a detailed proposal for a nuclear-free world before the United Nations General Assembly. On April 6, 2001, nearly three years after the 1998 tests, Prime Minister Vajpayee said, “India has always stood for global nuclear disarmament, but we have taken certain steps in self-defense. If other countries decide to destroy their nuclear arsenals, we are also prepared to do so” [4]. On October 2, 2007, Indian National Congress President Sonia Gandhi spoke despairingly of the “collective failure” of the international community to move toward comprehensive disarmament.

A world with nuclear weapons is inherently unsafe, because of the enormous destruction that can result from even isolated failures or accidents, irrespective of whether they occur for technological, operational, or political reasons. I believe that India’s security

situation will improve if there are no nuclear weapons at all in the world—just as certainly as it will be adversely affected if only some countries are going to possess them forever. No one can sustain the logic of how nuclear weapons are necessary for one’s own security but not for that of others.

I would like to submit that the United States and its allies would also be safer in a nuclear-weapon-free world. The simple reason for this is that the devastation caused even by a single nuclear attack—no matter how strong the retaliation—could be unacceptable. The potential entry of non-state actors into the nuclear arena only reinforces the need for a new consensus.

Multilateral Sanctions *Do* Work (Most of the Time)

The events of the last few years in Iraq have a strong message on our present theme. As is now well known, the detailed work done by the IAEA showed no evidence of weapons of mass destruction (WMD) in Iraq. As Hans Blix says in his revealing book [5] (p. 259)—

We now know that ... the armed operation in Iraq ... was like surgery intended to remove something malignant finding that the malignancy was not there. Moreover, the absence of prohibited items was most likely a result of the imposition of the regime of inspection, eradication, and monitoring by the United Nations, supported by military pressure from the United States and the U.K.¹ *The United Nations and the world had succeeded in disarming Iraq without knowing it* (italics added).

Curiously, the effectiveness of sanctions had been acknowledged already in September 2002 in the well-known British dossier, which, as Blix remarks [5] (p. 231)—

was detailed on this point and explained that as long as sanctions remained effective, Iraq would not be able to produce a nuclear weapon. This did not differ from the IAEA’s assessment. If sanctions were removed or became ineffective, the British dossier said, it would take Iraq at least five years to produce the required fissile material for a bomb; if Iraq was able to obtain such material and other needed components from foreign sources, it would only take a year or two.

Blix goes on to say how, since the war—

[w]e have learnt about the miserable conditions in which [even] the nuclear scientists [in Iraq] worked at this time ... there simply was no possibility for a nuclear weapons programme.

The inescapable conclusion that follows from all the Iraq experience is this: that the policy of sustained multilateral sanctions (including the variety called “smart”) that had been in force was in fact effective. This is a conclusion of profound importance, for it shows that, in spite of the nuclear black markets, there *is* a largely peaceful (even if rather slow) alternative to the shock and awe of war.

1. Surely this cannot refer to the recent Iraq war; presumably it is the Gulf War of 1991 and the subsequent pressure even before the war of 2002 that is meant.

Sanctions have also worked in the case of Libya, and to some extent in the fall of the apartheid regime in South Africa. Recent developments in North Korea (DPRK) are particularly illuminating. If a successful outcome now appears likely in this case, it can be attributed to a combination of the incentives and assistance offered in the spirit of the promotive clauses of the NPT, the economic and other sanctions imposed on the country, multilateral action involving nations with a strong and direct interest in the dismantling of the DPRK nuclear weapons program, and, finally, considerable patience. There is no inherent reason why a similar initiative should not work in Iran, especially if a disarmament initiative is on hand.

Toward Nuclear Zero: The No-Loser Principle

If disarmament is the ultimate objective—and I believe that the vast majority of nations and humanity will accept this proposition—one must come to the conclusion that the key to the acceptance of a process toward nuclear zero resides in the way that the associated nuclear arms reduction is timed or sequenced. *Sequence is everything* and has been all along. After all, one of the major reasons for the failure of the Baruch Plan, in the late 1940s, was the disagreement between the United States and USSR on the *order* in which the elements of the plan were to be implemented. (The USSR wanted nuclear weapons outlawed *before* a verification system was in place, and the United States wanted it after [6]). It is therefore important to ensure that, throughout the trajectory of any nuclear reduction process from the present toward zero, no country should feel threatened or feel that the chances of being a victim of nuclear attack or even of nuclear compellence have gone up. That is, in determining the trajectory, we must accept a “No-Loser Principle”; i.e., no country loses strategically (*only*) because of giving up nuclear weapons. (It might lose on other grounds—e.g., economic.) The adoption of such a principle enhances the chances of achieving success in disarmament. It also poses serious problems, especially in those cases where nuclear weapons are seen as constituting an equalizer: Russia and China versus United States, India versus China, Pakistan versus India, etc.; these equations are hard to tackle and will need some special attention. It is for such reasons that the trajectory itself must be carefully calibrated.

If it is accepted that moving toward nuclear zero is a worthwhile objective, how long would it take to achieve it? Joseph Rotblat has estimated that it is technically feasible to achieve the goal in a time frame of 10 years [7]. From experience with the START talks this target is perhaps politically not feasible. At the other end of the spectrum are experts who have estimated a time frame of 50 years. This time frame is equally clearly too long and, in a world where both political and technological changes are taking place rapidly and in generally unpredictable ways, it is unwise to undertake to look ahead five decades from now. A strategic move toward nuclear zero would have to lead to visible results in five to 10 years and be completed in something like 20 years’ time if it has to capture the imagination and win the support of the people and nations of the world. Rajiv Gandhi’s plan of 1988 was right in proposing a similar time frame.

The No-Loser Principle demands that different countries will have to be permitted to move on different trajectories during the disarmament process, depending on the nuclear arsenals in their current possession. We could, following the NAS/CISAC report [8], mark

way stations on the route toward nuclear zero: reduction of country inventory sizes to the order of 10^3 , 10^2 and 10^1 . To be consistent with the proposed time frame, the first way station should be not more than five years from start and the second another five years from the first. The third station (which will be the hardest) may be expected to take longer, so it is important to establish the credibility of the whole scheme before that stage is reached. The first series of cuts will inevitably have to come from the United States and Russia. With the No-Loser Principle the other three of the P-5 would not have to achieve any substantial reduction in this first stage. In the second stage all countries, the P-5 as well as others, should be required to reduce their stockpiles to no more than about a hundred weapons at most. In the third stage the number of weapons would be drastically reduced to small defensive arsenals, perhaps with some weapons in international custody. A tentative, illustrative trajectory is displayed in Table 1 (below); in the third stage Europe will have a small unified arsenal. Many ticklish strategic questions will arise, and these will have to be analysed in detail. Once global nuclear disarmament is seen as a serious possibility, it is likely that a variety of options will open up for negotiations.

Regarding the sequence the following is offered as a basis for discussion.

1. Announcement of a Nuclear Weapons Convention, to discuss renunciation of use and threat of use of nuclear weapons, first in a joint declaration, to be followed thereafter by a treaty (which will set out the whole road map)
2. Strict measures to ensure that nuclear materials or weapons do not fall into the hands of terrorist groups
3. De-targeting, followed by de-mating and separation of warheads from delivery systems of all deployed nuclear weapons
4. Ban on technology development toward performance enhancement of nuclear weapons as such
5. Comprehensive Test Ban
6. Moratorium on all further production of nuclear weapons and materials
7. Declaration of no-first use
8. Withdrawal of nuclear weapons presently deployed on foreign soil, the high seas, or outer space, and prohibition of all further such deployment
9. Empowerment of IAEA to establish a representative International Monitoring Agency (IMA), including an internationally managed Reconnaissance/Surveillance Service, funded, equipped, and manned by signatories to the (new) treaty and declaration of internationally guaranteed protection to whistle-blowers
10. Phased program to reduce existing arsenals of nuclear weapons and stockpiles of fissile materials, due respect being given to the No-Loser Principle
11. Closing down of warhead manufacturing facilities
12. Freeze on production of material usable in nuclear weapons and placing all material for non-weapons applications under full international safeguards

13. Placing any remaining warheads, fissile materials, and facilities under strict control of IAEA

14. Closing down most of the nuclear-weapon R&D laboratories

Work on steps 2 to 7 should be taken up simultaneously or in quick succession.

For generating the wide agreement that is required for achieving significant nuclear arms reduction, not only the actual warheads themselves but also the inventory of components (including fissile material) to build them would have to be subject to the reduction regime. Tactical warheads pose great problems, as their delivery systems are easier to hide and more difficult to count. These problems will become particularly severe as the cuts in strategic-warhead inventories bite deeply into current arsenals.

A credible, transparent accounting system, subject to truly international monitoring, is also essential. If worldwide confidence in the possibility of an irreversible move toward nuclear zero is strong, an International Monitoring Agency, with contributions from different countries in terms of funding, monitoring facilities, and manpower, would become feasible. Indeed, the manpower for monitoring activities can be multiplied manyfold if a credible international protection system for whistle-blowers were to be established. With the widespread public desire for a non-self-disadvantaging regime of nuclear elimination, recruiting people-power for monitoring should not pose problems if international backing were available. Reporting on local activity that may be suspicious is daily becoming easier with the spread of the Internet and other rapid communication devices, as Holdren [9] has pointed out.

Monitoring Implementation of the Road Map

Any plan for disarmament will need a powerful, credible, professional monitoring mechanism. The experience in Iraq shows that we fortunately have the seeds of such a mechanism in IAEA.

The IAEA came into being in 1957 during President Eisenhower's time, well before the NPT. It was established chiefly to accelerate and enlarge the applications of nuclear energy for peaceful purposes, ensuring that development of the peaceful atom would not be diverted for achieving military purposes. Importantly, the statutes of the agency include (Clause 3a.5) the establishment and administration of safeguards to prevent military applications, the safeguards being applied at the request of any party. The agency reports (3b.) to the United Nations General Assembly, the Security Council, and other bodies and is intended to provide assistance to members irrespective of political, economic, military, and other conditions. There is an explicit declaration that the sovereign rights of the states will receive "due observance"; Section 4c. explicitly *recognizes the sovereign equality of all members*. The General Conference is the ultimate authority for the agency and consists of one delegate from each party with one vote (there are now 147 members). In many cases decisions can be taken by a simple majority; in a few special cases a two-thirds majority is needed. There is also a Board of Governors with 10 members from countries advanced in nuclear technology, plus one from the most advanced in each of six specified regions, plus 20 regional representatives and a few others. Each governor once again has only one vote.

The IAEA has both rights and responsibilities. It has to make sure that there is no transfer from nuclear energy to military applications and that all nuclear material is properly accounted for and stockpiling is prevented. Inspectors may be sent to any state after consultation with the state and shall have access at all times to all places. If the state does not comply, the agency may withdraw material and equipment it has made available and terminate assistance to the state. Agency staff members have privileges and immunities. Any disputes arising in the IAEA may be referred to the International Court of Justice; both individual countries and the General Conference have the right to do so. A country that defaults on dues or violates any statutes may be suspended from membership.

In contrast to the asymmetries of the NPT, the IAEA is by and large acceptably democratic and transparent in its operations. The considerable powers of the large General Conference and the representative character of the Board of Governors are the major reasons for the regard in which the IAEA has been generally held. The courageous work of Hans Blix and Mohamed ElBaradei during the Iraq crisis has only served to enhance the credibility of IAEA.

This experience with the IAEA may be contrasted with that of the NPT where PrepCom (Preparatory Committee) 2003 had correctly noted that the abuse of the treaty by members was a more serious problem than the acts of outsiders. The nuclear black market mentioned earlier has grown over the years under the very eyes of the NPT states; and one is tempted to ask whether an empowered IAEA would not have done a better job of it.

Empowering the IAEA

In the nuclear field the IAEA is currently the only international body with the requisite credentials. To make it an effective tool for pursuing disarmament, the agency will have to be empowered for the task. The complex web of relations between the agency, the NPT and the U.N. General Assembly and Security Council, the threat posed by global terrorism, and the ever-changing political, economic, strategic, and technological complexion of the world—all these raise problems that do not lend themselves to simple answers. In these circumstances the most prudent policy to follow would be to move incrementally toward enhancing the moral and physical authority of and the material and human resources available to those international institutions that have established a worthy track record in tackling issues of concern. The crucial step forward may well be an unambiguous signal that many of the leading nations of the world are willing to contemplate a different way of managing the global regulation of nuclear technologies, for peaceful as well as for military applications. It is in this spirit that the following suggestions are made.

To begin with, the most severe current problem of the IAEA is that it works on a small budget (in the neighborhood of \$200 million) and has difficulty in enforcing any directives without the cooperation of the P-5 and, in particular, the United States. The very first piece of action that is required, therefore, is to increase the agency's budget, spreading it more evenly across the world and utilizing the provision for inviting voluntary contributions to support its programs.

At this point we should go back to ElBaradei's analysis and consider the modest proposals that he has made.

The first is to limit the processing of weapon-usable material in civilian nuclear programs, as well as the production of new material through reprocessing and enrichment, by restricting these operations exclusively to facilities under multinational control. It is not explicitly stated whether this would apply to *all* members of the IAEA (including the P-5), but it will have to if the agency's authority is to be upheld.

The second proposal is that deployed nuclear energy systems should, by design, avoid the use of materials that may be used directly for making nuclear weapons, i.e., should promote proliferation-resistant technologies, on which some development has already taken place.

The third proposal, which is consistent with IAEA objectives, is that the management and disposal of spent fuel and radioactive waste should be carried out on a multinational basis, as the number of appropriate sites across the globe will be limited and countries with small nuclear programs for power generation or research may find domestic establishment of the required facilities too expensive.

Good as these proposals are, they do not go far enough to address the deeper problems connected with disarmament that we have highlighted. The present proposal is that an expansion of the powers of the IAEA toward achieving the disarmament objectives is a step that needs now to be discussed among the nations of the world. This will clearly call for a convention. Now why should such a convention be expected to work when the Conference on Disarmament (CD) at Geneva is continually paralyzed by fruitless debate? The answer is that conditions have changed since the Geneva Conference was established; IAEA (unlike CD) is equipped to undertake monitoring operations and has a permanent structure that is more effective, flexible, and action oriented. At any rate we do not see a more peaceful, equitable, and professionally competent alternative to proceeding along these lines.

The present proposal is that an enhancement of the powers of the IAEA toward achieving disarmament objectives is a step that needs now to be discussed seriously in such a convention.

As the first step in such a process we can ask ourselves what functions of the NPT can be transferred to the IAEA. Reexamining the objectives of the NPT, the following should be noncontroversial.

1. Avoiding nuclear war
2. Cooperation on safeguards of peaceful nuclear activities, including the flow of materials
3. Promotion of peaceful applications (including nuclear explosions) and information exchange

On the other hand there are three objectives on which there will be considerable disagreement.

1. Prevention of wider dissemination of nuclear weapons
2. Pursuing negotiations toward nuclear disarmament
3. Ban on nuclear tests

These objectives can only be fulfilled with some radical thinking on a possible new framework. In particular a difficult problem with nuclear disarmament is that it is coupled with the issue of “general and complete disarmament under strict and effective international control,” as Article VI of the NPT now demands. The 2000 NPT review indeed suggested that the issues of nuclear and conventional disarmament be decoupled. This will clearly be acceptable only if a comprehensive new global security framework can be adopted.

There is also the difficult question of the distinction made in the NPT between nuclear and non-nuclear weapon states. Here it is possible to conceive of a situation where countries will be free to declare themselves as either nuclear or non-nuclear weapon states, ensuring that the obligations of the nuclear weapon states and the benefits for the non-nuclear ones will both be sufficiently high to maintain a proper global balance. The obligations may include much higher payments toward the budget of the IAEA and greater insistence on the need to share information on peaceful applications. We can even imagine working toward giving the General Conference of the agency sufficient authority not only to recommend suspension of members (which it already has) but also to impose different kinds of sanctions—and even in rare cases military action, when approved by the vast majority of the conference (for example, four-fifths of the membership).

Much from the other articles should be widely acceptable.

We would like to add some more specific proposals to the above framework.

It would first of all be worthwhile to draw up a plan that will rapidly transform the IAEA by recognizing it as the registry of *all* international traffic (including those from and to the P-5) in any nuclear material, power systems, and weapons.

It seems clear from accounts of the IAEA that it fortunately has several international civil servants of integrity who are able to carry out their duties generally without the political biases of the nations they come from. (We must, however, admit that this has not always been so.) Furthermore, if the IAEA’s powers were enhanced, there appears to be no reason why it cannot harness the abilities of the large number of able scientists and engineers across the world who are committed to the cause of prevention of development and use of nuclear weapons.

It might also be worthwhile to set up an incentive fund with the IAEA for encouraging effective and responsible use of nuclear energy. If nonproliferation enhances greatly the security of nations, especially the P-5, it would be useful to set up a system of security-oriented incentives that accompany the imposition of sanctions to promote responsible behavior and to discourage irresponsible behavior by making its economic and security costs prohibitive. If such actions can be taken, they will have the wide approval of a large majority of the members of the IAEA (and, we suspect, the large majority of the unwilling or restless signatories to the NPT as well), and the chances are bright that such sanctions can in fact be universally enforced.

These proposals, if put into effect, will undoubtedly change the character of the IAEA. Even now there are voices that say that the IAEA should only be a promotional agency and not a global nuclear cop. While the role of such a cop has already in part been imposed on the agency by the NPT, we should realize that a structure that was given to the agency when it was conceived in the 1950s is in need of transformation to tackle the

problems of the 21st century. Indeed the IAEA should become a more dynamic organization, continually adapting itself to changing circumstances in the world—changing not only because of politics and economics but also because of technology. In fact it may well be worth considering whether the IAEA could not transform itself into a vigorous and active International Nuclear Technologies Regulatory Agency (INTRA), working rather like a parliament that slowly wins power for itself from other international institutions that have outlived their utility. After all, the IAEA has a largely democratic structure, a credible track record, and a more practical, acceptable, and professional culture than most other U.N. bodies.

References

1. M. Fitzpatrick (ed.), *Nuclear Black Markets* (London, IISS, 2007).
2. Report in the *Guardian*, reproduced in *Deccan Herald*, October 10, 2007.
3. R. Narasimha, *The evolution of India's nuclear policies*, Proc. XIII Amaldi Conference, Accademia Nazionale dei Lincei, Rome 2001. A fuller version of this paper is available on the author's website, www.nias.res.in.
4. *The New Indian Express*, April 7, 2001.
5. H. Blix, *Disarming Iraq* (Pantheon Books, 2004).
6. S. Fetter, *Towards Nuclear Zero*, presentation at first CISAC-NIAS Dialogue, May 20, 1999; F. Calogero, *The paths to prohibition of nuclear weapons*, 13th International Amaldi Conference, Accademia Nazionale dei Lincei, Rome 2001.
7. R. Sood, F. N. von Hippel, and M. H. Halperin, *The Road to Nuclear Zero: Three Approaches* (Center for the Advanced Study of India, Philadelphia, 1998).
8. NAS/CISAC, *The Future of U.S. Nuclear Weapons Policy* (National Academy Press, Washington, D.C., 1997).
9. J. Holdren, "Getting to zero: Is pursuing a nuclear-weapon-free world too difficult? Too dangerous? Too distracting?" in *The Force of Reason: Eliminating Nuclear Weapons and Ending War*, eds. Maxwell Bruce and Tom Milne (London, MacMillan, 1999).

Table 1: Proposed Reduction Trajectory

	2008	2010	2015	2020	2027
United States	12 070	10 000	~ 1000	100	50
Russia	22 500	10 000	~ 1000	100	30
China	400	400	300	30	30
France	450	450	200	30	30
United Kingdom	260	260	200	(Europe)	(Europe)
India	100	100	100	20	20
Pakistan	100	100	100	10	10

STEPS TOWARD NUCLEAR DISARMAMENT

Hans Blix

The public has become more concerned about global warming than about nuclear weapons. The “inconvenient truth” about global warming is entering the minds of people all over the world and leading to demands for action. A long process of research, reporting, and public debate has led to this. Is a similar—but shorter—process possible to create awareness of the danger of global rearming and lead to demands for disarmament?

During the Cold War there was much public anxiety about the nuclear arsenals of the great powers and the threat they posed to life on the Earth. As the Cold War ended, many international conflicts dissolved and the superpowers reduced their excessive arsenals. The public relaxed. Climate change came to replace nuclear weapons as a principal object of anxiety. This is where we are today. However, the ongoing consolidation and development of nuclear weapons programs and the growing friction between the major nuclear weapon states (NWS) should give rise to renewed anxiety. There should be demand for action against both threats.

Military Means to Secure World Order

The anxiety that does exist about nuclear weapons is less about the some 27,000 nuclear weapons that are still with us than about efforts by “rogue states” or “terrorists” to acquire such weapons. The foremost task, we are told, is to prevent the worst weapons getting into the worst hands and new military—even nuclear—capabilities are said to be needed.

The U.S. National Security Strategy published in 2006 began with the words “America is at war ...” and President Bush said in 2005 that 9/11 was the Pearl Harbor of the Third World War. World military expenses stood last year at \$1.2 billion—about half falling on the United States.

In the view of some, world order seems to have been largely equated with military order. The defense departments of the world are in charge of maintaining or creating this order. NATO countries in Europe have been asked to increase their military budgets and the military alliance is ready to serve world peace outside Europe and to extend membership to Georgia and Ukraine—maybe also Kazakhstan and Azerbaijan. African countries are asked to receive a U.S. military command but have seemed negative so far to this offer to strengthen order on their continent (*The Guardian*, June 26, 2007).

A Reuters press notice on July 11, 2007, reported on the addition of a third U.S. aircraft carrier, the *Enterprise*, to the fleet in the Gulf and a statement explained that it would provide “navy power to counter the assertive, disruptive and coercive behavior of some countries as well as supporting U.S. soldiers and marines in Iraq and Afghanistan.”

The military wind that swept through Afghanistan in 2002 with success and worldwide support continues to blow strongly but now without such support and even though the experiences in Iraq and Lebanon have demonstrated its inability to bring about the

promised order. Political leaders in the United States still talk about all options being on the table—including, one must assume, military and even nuclear—to prevent nuclear proliferation. However, military language—such as deployment of aircraft carriers and naval Proliferation Security Initiative (PSI) exercises—is used mainly in talking to Iran.

Regrettably, the military wind has been blowing for some time also in Russia and China, big powers with accelerating economic resources. These countries clearly do not feel confident that the U.S. missile shield is developed only to meet threats from rogue states and terrorists but fear that a longer-term aim is to neutralize their capability to retaliate against a possible attack. In Moscow the reactions to NATO expansions and missile defense installations in Russia's vicinity have evidently been strong and contributed to plans for increased military resources. Russian policymakers may not have been swayed by the words of good intention in the U.S. National Defense Strategy of 2005:

The end of the Cold War and our capacity to influence global events open the prospects for a new and peaceful system in the world.

Last year, Kofi Annan warned that the world “is sleepwalking” into new arms races. With the U.K. decision to move to a modernized nuclear Trident system, the U.S. administration proposing a modernized standard nuclear weapon, with China demonstrating its capacity for military action in space by shooting down a satellite, and with Russia announcing modernized nuclear capable missiles, more people in the world are waking up from their sleep walk and asking whether we cannot revive diplomacy and disarmament.

Why Did the End of the Cold War Not Bring Sustained Disarmament?

Why is it that the end of the Cold War did not lead to an escalation of disarmament? Why did the openings to global disarmament and peace begun by Presidents Gorbachev, Reagan, and Bush not expand and continue? It is true that the 1990s did bring some significant dividends in the arms and security fields: the Presidential Nuclear Initiatives limiting the holdings and deployment of U.S. and Soviet nonstrategic weapons (1991 and 1992); the unlimited extension of the NPT (1995); the signature of the Comprehensive Test Ban Treaty (1996); and the Chemical Weapons Convention (1997). But there it ends. Ratification of the CTBT was rejected by the U.S. Senate. Negotiation of the cutoff treaty did not take off. The Conference on Disarmament closed shop.

Even though Iraq's and the Democratic People's Republic of Korea's violations of the NPT undermined confidence in that treaty, these cases, alone, hardly suffice to explain the dead end that international disarmament ran into at the very time when, many, like the Canberra Commission, not unreasonably expected harvest time. It is hard to ignore that this was not only a period of lost tensions and new opportunities for cooperation. It was also the “unilateral moment” at which the U.S. military power had become so superior to that of all other states that it saw no gain in seeking treaty-based restraints for others by offering to sacrifice any freedom of action for itself. Indeed, limitations flowing from arms control and disarmament treaties were not the only ones seen as undesirable. There was also a tendency to regard restraints flowing from existing rules of international law, including treaty law, like the U.N. Charter and the Geneva Conventions, as irrelevant.

It may be that in Washington after Iraq the “unilateral moment” of U.S. military power is seen as over, that world order is no longer equated with military order, that “arms control and disarmament” could, again, become the name of a unit in the State Department, that diplomacy and some binding treaty obligations in the field are again seen as valuable, and that even the “corrupt” and “irrelevant” United Nations is seen to have some attraction. There are some welcome signs pointing in these directions. However, it is difficult so far to see any broad-based interest in significant measures of nuclear disarmament as part of an effort to create a more secure world order. At least to the outsider, attention in Washington, as in London and probably the other P-5 capitals, seems more directed to new nuclear weapons programs. What, then, are the rationales for such programs? To what 21st-century conflicts are they thought to be relevant?

Rationales for Nuclear Weapon Programs

Conflicts between states used to be about borders or territory, religion or ideology. However, armed conflicts about ideological domination seem unlikely after the end of militant communism, and any suggestion of a possible war between Islamic and non-Islamic states seems farfetched. There are no known conflicts between the P-5 states about borders or territory. Admittedly, the Taiwan issue is potentially dangerous, but neither that issue nor the Kashmir issue nor the conflicts in the Middle East and Africa provide credible rationales for nuclear rearmament in any of the P-5 states. The actual and potential conflicts we hear about are primarily two, namely, with so-called rogue states and terrorists, equipped or seeking to acquire nuclear weapons.

Non-state actors—lumped together under the label “terrorists”—may not be deterred from pursuing “terrorist” acts by retaliatory acts against the territory from which they operate (if it can be identified), and they may not worry anyway about being wiped out by such acts. However, suggesting that nuclear weapons—whether earth penetrating or others—could be of use against terrorists that may be dispersed in the world is like recommending that we should shoot mosquitoes with cannons. Another matter is that states that, knowingly or unknowingly, host actors bent on terrorist deeds directed against other states may be deterred from such support by the threat of armed retaliation. It is hard to see, however, that nuclear weapons should be needed as effective deterrent.

From the political rhetoric one might get the impression that “rogue states”—or in a less loaded term “states of concern”—are a large, undefined, and probably growing category that may seek to acquire nuclear weapons. However, the development of nuclear weapons requires political will as well as resources and a technical capability. Fortunately, the world is not milling with such states. For a good number of years, only four states—Iraq, Libya, Iran, and the DPRK—have been indicted, and it is difficult to see any other. Iraq and Libya no longer have any nuclear weapons programs and can pose no threats that call for nuclear weapons anywhere else. The DPRK developed nuclear weapons, and Iran is suspected by many as having the ambition to do so. In both these cases diplomatic negotiations are pursued to ensure the absence of nuclear weapons programs.

Economic pressures—some authorized by the Security Council—are applied both on North Korea and Iran. However, military threats and gestures have been largely avoided as probably too risky and possibly counterproductive in the case of North Korea. In the case of

Iran the United States does exert military pressure although it is questionable whether it serves to soften the negotiating stand of Iran or to strengthen the position of those in Iran who advocate a hard line and resistance to foreign pressures. To argue that the case of Iran could provide a reason for the development of earth-penetrating nuclear weapons, or indeed any use or threat of use of nuclear weapons, would seem reckless.

Is MAD Still Alive?

It is hard to believe that the concerns about the risk of proliferation of nuclear weapons to “rogue states” or “terrorists” could be an important reason why nuclear weapon states hold onto and develop their programs. The contrary argument is also made—perhaps with somewhat better reason—that this very retention and further development may stimulate proliferation: If nuclear weapons are alleged to be vital for the security of some, why not for others?

When the U.K. government focused its argument for an extension of the Trident program on the undeniable reality that the future is uncertain, was it not, in fact, thinking more of the future Russia than the future Iran? Similarly, while the U.S. government does not fail to acknowledge the détente that prevails in its relations with Russia and China and express the wish to expand cooperation, nevertheless some of its actions point to a less than solid confidence in the stability of these relations: States bordering Russia are encouraged to join NATO, astronomical sums are spent on a missile shield whose long-term function many doubt is only a protection against missiles from Iran or the DPRK, and a nuclear agreement is made with India that many interpret as a first step in a possible future defense cooperation against Chinese expansion.

The development of weapons programs, the expansion of formal military alliances, or the entering into other relations with potential security impacts are parts of traditional power politics. It may be questioned, however, whether such politics are not outmoded and even counterproductive in the present era. What future differences between big powers whose interdependence is rapidly accelerating could be of such gravity that they would justify the threat or use of nuclear weapons? As noted above, the traditional sources of conflicts—borders, territory, religion, or ideology—are hardly relevant any longer.

We can foresee future competition between big powers as between others, for instance, about access to oil, gas, and raw materials. There may be disagreements about the emissions of carbon dioxide and about exchange rates. But can it be argued that such differences—or even disputes about Taiwan or Kashmir—would justify a continued development of nuclear weapons?

Can we not see already now that the traditional policies, currently applied, risk to produce the insecurity that they were meant to eliminate? The consolidation and modernization of nuclear weapons in one state will lead to corresponding measures in other states feeling exposed, efforts by one state to dominate space will cause a space race, and alliance-building among some is likely to generate the building of alliances among others.

Alternative Approaches for the 21st Century

Discussion of the vital issue of how we can avoid the use of armed force, notably nuclear weapons, and create and maintain a nonviolent world order is often made difficult by the fact that the discussants come to the table from different worlds of thinking.

- Those from the disarmament community tend to focus on how to achieve military stability at lower levels of armament, often with limited attention to the political ambitions and concerns of the various actors.
- Those from the international law community look mainly for the development and general acceptance of rules that by their existence obviate conflicts (like the law of the sea) or demand restraints on state action to prevent that controversy from developing into armed conflict (like U.N. Charter rules regarding the right of individual and collective self-defense).
- Those who are experts on international organizations tend to look at constitutional structures, rules for joint decision and arrangements for joint actions and operations (like peacekeeping, peace building, and economic or military sanctions).
- Sociologists, economists, and religious groups will tell us how changes in social structures and economies and development of respect for, say, human rights can help build a world less prone to use armed force.

Developing a world order that does not risk being disrupted by major violence and mega-weapons must be not only a multinational but also a multidisciplinary effort. It cannot be limited to the study of the collective security system established in the U.N. Charter in 1945. Nor can it be limited to a study of the ambitions, military strength, and strategy of key countries or non-state actors. It needs to take the whole present constitutional, military, political, economic, and social reality of the world into account. The ambition of this paper, however, is modest. It seeks to verify the case for nuclear disarmament, to discuss alleged obstacles to it and steps that may lead to it. Some features mentioned in the foregoing are among the important premises for the discussion:

- We can no longer see any conflicts—about borders, territory, or ideology—that could prompt a threat or use of nuclear weapons between major military powers.
- In the absence of such conflicts the continued existence and further development of nuclear weapons programs constitute perhaps the major source of mutual concern between major military powers. The weapons are not there for future conflicts. They *are* the conflict.
- A stepwise reduction and eventual global outlawing of nuclear weapons would change the political climate in the world, reduce tensions, increase mutual confidence, facilitate cooperation, and release enormous research and economic resources.
- The current retention and development of nuclear weapons programs in several states is not called for by the existence of “rogue states” and “terrorists.”
- States cannot be expected to forgo nuclear weapons except under conditions that they perceive as not endangering their security.

- Currently, the interdependence of states, including the major military powers, is growing at a pace never experienced before, making it more difficult for the states dependent upon one another to turn to the use of armed force. In an op-ed article during the past summer Stanley A. Weiss (*International Herald-Tribune*, July 7-8, 2007) wrote as follows:

In a globalized economy trade reduces the prospect of war. The U.S.-China trade relationship—nearing \$300 billion—makes a military confrontation between the two giants improbable.

He added that “conversely, the more economically isolated a nation is, the more intransigent and dangerous it can become,” and he pointed out that North Africa and the Middle East are least integrated into the global economy.

- The growing interdependence calls, as never before, for common rules and sustained jointly organized action, for instance:
 - to avoid perilous climate change;
 - to defend against pandemics;
 - to assist “failed states” to recover;
 - to intervene against aggression, global terrorism, genocide, criminality, and trafficking in people and drugs;
 - to maintain global communications, economic health and development; and
 - to protect global natural resources and space against depletion and destruction.

If joint sustained action is recognized to be needed and is organized and taken against a virus, why not also against weapons?

- The United Nations and U.N. organizations are not the world’s only instruments for intergovernmental cooperation and joint state action, but they have been set up and developed to serve vital common interests of the world’s states and derive special authority from being universal. Like other institutions they need updating.

The Weapons of Mass Destruction Commission

In his song about Dr. Werner von Braun, the Harvard mathematician, Tom Lehrer, explained that “you, too, may become a great hero, once you learn to count backward to zero.” Well, counting backward to zero before the firing of missiles might be less difficult than counting the world’s nuclear weapons backward to zero. I am not sure how broad confidence I would have on weapons counting. When I was engaged in the verification and elimination of Iraq’s weapons of mass destruction, my reports in 2003 about zero findings did not enjoy the confidence of everybody. ... However, I hope that the counting that has been made subsequently by others may have restored some confidence in my credentials for dealing with a countdown for nuclear weapons. Whether or not that is the case, I am so engaged.

In early 2003 the then Swedish Foreign Minister, Anna Lindh, who was tragically murdered in a Stockholm department store later that year, phoned me from time to time and

asked me about the progress of United Nations Monitoring, Verification, and Inspection Commission (UNMOVIC) inspections in Iraq. Like several other European foreign ministers she was worried about the drift to war. In my talks with Anna Lindh, I mentioned my experience at the International Atomic Energy Agency (IAEA) that many European states had been rather reluctant in their acceptance and support of the nuclear safeguards system of the agency. European reluctance in the case of Iraq was one thing, I said, but it seemed to me that generally Europe had as good reasons as the United States, Australia, and Canada to be proactive against proliferation. I found she was on the same wavelength and a year later, when I read the *European Strategy Against the Proliferation of Weapons of Mass Destruction*, I could see that the European Union circle of states had articulated assessments and policy lines with which I warmly agreed. Let me quote some passages:

The EU is determined to play a part in addressing the problems of regional instability and insecurity and the situations of conflict which lie behind many weapons programs. ... The best solution to the problem of proliferation of WMD is that countries should no longer feel they need them. If possible, political solutions should be found to the problems, which lead them to seek WMD. The more secure countries feel, the more likely they are to abandon programs: disarmament measures can lead to a virtuous circle just as weapons programs can lead to an arms race.

As I left the United Nations at the end of June 2003, Anna Lindh asked me to establish an international commission to examine how the world could tackle the threat of weapons of mass destruction, including nuclear weapons. I am glad to acknowledge that on several important matters the commission, which I had the honor to chair, reasons in a manner similar to the European strategy that Anna Lindh helped to work out: *WMDC, Weapons of Terror Freeing the World of Nuclear, Biological and Chemical Arms* (www.wmdcommission.org).

Here at Stanford I am particularly happy to acknowledge my gratitude to Bill Perry, who was one of the 14 members of the commission and who helped to keep the report both measured and constructive. The report has now been translated into Arabic, Chinese, Japanese, Russian, and Spanish, and the recommendations, synopsis, and introduction are circulated as a U.N. Document (UN Doc. A/60/934).

The hope of the commission is that the report will provide an overview of arguments and recommendations, opportunities, and obstacles on a road to freeing the world of WMD. Whereas paradoxically the second half of the 1990s turned out to be an inopportune time for proposals on arms control and disarmament, I sense that a decade later the climate is different. I have described clouds that could darken the sky. Let me now point to some glimpses of sunshine.

Glimpses of Sunshine

After about 10 years without agreement even on a work program for the Geneva Conference on Disarmament and after the complete freeze in which arms control and disarmament issues landed after the NPT 2005 Review Conference and the U.N. Summit of the same year, it might not take much to brighten the scene. In 2007 there are some positive notes to report from the governmental level:

- Meetings at the Conference on Disarmament have given some—yet unfulfilled—hope that agreement on a work program may come to be adopted, comprising “negotiations” on a treaty banning the production of fissile material for nuclear weapons and “substantive discussions” on nuclear disarmament and the prevention of nuclear war, on issues related to the prevention of an arms race in outer space, and on assurances to non-nuclear weapon states against the threat or use of nuclear weapons.
- The first meeting of the preparatory committee for the 2010 Review Conference of the NPT might be said at least to have cracked the ice from 2005 and ended with a factual summary by the chair (May 11, 2007), raising some hope for substantive progress at the next preparatory meeting.
- In a letter accompanying the U.K. White Paper (December 4, 2006) on the nuclear weapons program (Trident), the foreign secretary, Ms. Margaret Becket, wrote as follows:

We stand by our unequivocal undertaking to accomplish the total elimination of nuclear weapons and we will continue to press for multilateral negotiations toward mutual, balanced and verifiable reductions in nuclear weapons.

Although it is difficult to assess, it would seem that the engagement and pressure by the non-governmental sector for nuclear arms control and disarmament has increased considerably in the period after 2005. A great many books are published by individual experts and nongovernmental organizations and think tanks, and even governments have been calling meetings on the subject and have published reports of their discussions, papers, and conclusions. The *Report of the WMDC* falls into this category.

The *Wall Street Journal* Article of January 4, 2007

Much attention has been devoted to the op-ed article, titled “A World Free of Nuclear Weapons,” that was published in the *Wall Street Journal* on January 4, 2007, by the former U.S. secretaries of state, George P. Shultz and Henry A. Kissinger; the former U.S. secretary of defense, William J. Perry; and former Senator Sam Nunn. In my view it was an act of statesmanship to publish the article, and the authors and all who assisted and supported them deserve our respect and gratitude.

The article expresses the view that while nuclear weapons were essential to maintain security during the Cold War, reliance on nuclear weapons is now becoming “increasingly hazardous and decreasingly effective.” It urges the U.S. leadership to take the world to “a new consensus for reversing reliance on nuclear weapons globally to preventing their proliferation into dangerous hands, and ultimately ending them as a threat to the world.”

The article notes that the NPT envisioned the end of all nuclear weapons by non-nuclear states’ agreeing not to obtain them and nuclear weapon states’ agreeing to divest themselves of these weapons over time. It may be added that the commitment by the nuclear weapon states was certainly seen by the non-nuclear weapon states in 1970 as a vital part of the quid pro quo for their commitment and that their acceptance in 1995 of an extension of the treaty was similarly predicated on the confirmation by the nuclear weapon states parties

of their commitment to divest themselves of their nuclear weapons. The article registers rightly that “the non-nuclear weapon states have grown increasingly skeptical of the sincerity of the nuclear powers.” One might even say that many of them feel cheated.

While the article notes with approval the many initiatives and programs that have been taken to reduce the risk of proliferation of nuclear weapons, it urges the United States to work intensely with leaders of countries in possession of nuclear weapons “to turn the goal of a world without nuclear weapons into a joint enterprise.” It lists a series of steps on which agreement would be urgent, including the following:

- taking nuclear weapons off hair-trigger alert;
- substantial reductions in nuclear weapons in all NWS;
- elimination of short-range nuclear weapons designed to be forward-employed;
- initiating a bipartisan process in the United States for a ratification of the Comprehensive Test Ban Treaty;
- providing maximum security for all nuclear weapons and relevant fissile material in the world;
- getting control of uranium enrichment; and
- cutting off the production of fissile material for weapons.

Steps Leading Toward Nuclear Disarmament Fall Into Different Categories.

If one concludes that nuclear disarmament is possible, urgently needed to reverse incipient arms races, and beneficial for world security, one will be asked, as I am, to list steps to be taken short, medium, and long term. Before I go beyond citing steps listed by the authors of the *WSJ* article, I note that steps and measures recommended fall into different categories.

The recommendations cited above all relate to well-known categories of steps regarding nuclear weapons. However, a final recommendation in the list has a different thrust, namely that the United States should *redouble its efforts to resolve regional confrontations and conflicts that give rise to new nuclear powers.*

This non-hardware-related recommendation is in line with what both the WMDC report and the European nonproliferation strategy see as the most central efforts needed—economic or foreign policy actions that reduce or eliminate the need perceived by states to acquire or retain nuclear weapons. To repeat the quote from the strategy: “[I]f possible, political solutions should be found to the problems, which lead countries to seek WMD. The more secure countries feel, the more likely they are to abandon programs.”

To make the point more concretely, let me take the issue of nuclear weapons in the Middle East. The concept of a Middle East nuclear-weapon-free zone, involving *inter alia* the neutralization of Israel’s nuclear weapons, has long had—somewhat mechanical—universal support, but it is evident that the realization of the hardware-related proposal is unrealistic except in a context that provides security to the relevant parties, such as a general peace settlement. By contrast, redoubling the efforts to resolve regional confrontations and

conflicts, as recommended by the authors of the *Wall Street Journal* article, could be helpful as non-hardware-related measures, which may *lead* to projects for the elimination of the nuclear threat in the region. The distinction I am trying to make is merely to underline that some measures relate to preconditions that are needed for disarmament action rather than the action itself. Such measures must be an integral part of the disarmament discussion.

Other examples of non-hardware-related measures that may lead to nuclear disarmament are offered by the cases of North Korea and Iran. For a very long time the North Korean government has complained that it will not make concessions about its nuclear program so long as it is faced with a “hostile attitude” of the United States. It has sometimes suggested a “non-aggression pact.” If the North Korean government is sincere in what it says, a rational approach to persuade the country to divest itself of a nuclear weapons capability could be to offer—as now is done—guarantees about its security and the opening of diplomatic relations as part of a larger package. Seeking to obtain the same result by verbal threats of the use of force or naval exercises that carry the same message might be counterproductive.

A similar consideration might apply in the case of Iran. The enrichment program of Iran appears to have its roots in the 1980s, a time when the country was at war with Iraq. If, at that time, Iran had thoughts of developing nuclear weapons, one would assume that such thoughts were prompted by security concerns about the Iraqi nuclear program (Israel attacked Osirak in 1981). Today, Iran could hardly be concerned about Iraq as a threat to its security, but security might still be a part of the rationale for its nuclear enrichment program. If so, perhaps U.S. or Security Council offers of security guarantees to Iran might help to achieve a suspension of a possibly weapon-related Iranian enrichment program. The presence of three U.S. aircraft carriers sent to the Gulf to “counter the assertive, disruptive and coercive behavior of some countries” might have the opposite effect.

One might further see the shaping of the political process and procedures to achieve nuclear disarmament as important steps distinct from those described above. As stated in the *Wall Street Journal* article (and similar lines of thought are found in WMDC recommendation number 20), to bring about a reversal of present trends and move the world to nuclear disarmament will require significant U.S. leadership and intensive work with leaders of other nuclear weapon states to turn the initiative into a joint enterprise. While many measures, small and big, will be required over a long time, the process will need to be set in motion by initiatives signaling that the United States is serious in a wish to cooperate to phase out nuclear weapons. Such a process must be supported and complemented by U.S. foreign policies that seek continued global and regional detente and a strengthening of multilateral institutions and instruments.

Let me note lastly, in this context, that the choice of forum and procedures for the negotiation of nuclear disarmament are steps that can facilitate or impede results. The Conference on Disarmament (CD) has been unable to adopt a work program for more than 10 years. The consensus required by its rules of procedure has not been attained. The WMDC proposes a change of rules allowing the CD to adopt work programs by a qualified majority. Evidently, all members of the CD would still be able to block the adoption of draft substantive proposals. Nevertheless, consequences could follow from a mere discussion of an item in the forum that was created for such discussion.

The WMDC further proposes that the U.N. General Assembly should meet at summit level—after thorough preparations—to discuss disarmament, nonproliferation, and terrorist use of weapons of mass destruction. For a reversal of current trends and a revival of disarmament, the announcing of policies, initiatives, and proposals needs to take place in a forum of high visibility. A U.N. summit would offer such a forum. Especially desirable after the failures in 2005, there would be an opportunity for the world's governments to signal progress and present new hopes to a weapon-weary world. When the conditions are right, events such as summits can accelerate the pace by which governments negotiate agreements to present. Perhaps a U.N. summit should be scheduled for some date before the NPT Review Conference in 2010 to lay the political basis for substantial and positive results at that conference. Needless to say, if preparations for a summit were to show that little tangible would be ready by 2010, the idea would be off.

Steps Toward Nuclear Disarmament

I shall now turn to the disarmament steps referred to in the title of this paper.

Hitchcock's famous thriller was about 39 steps; the Review Conference of the NPT in 2000 listed 13 steps; the article in the *Wall Street Journal* presented an open-ended list of eight items; and the report of the WMDC that I headed contained 30 recommendations related to nuclear weapons.

Although lists of disarmament steps vary somewhat from one proposal to another, as the dates of the lists and the preoccupations of authors vary, many points are identical in different lists, and most are familiar to the disarmament community. I shall not discuss all steps that have been proposed but point to some differences between lists drawn up and the priorities that different parties may have. I shall thereafter discuss a number of steps and lastly make some comments on the final phases of the disarmament process.

The 13 steps (from 2000) did not contain any point about preventing the placing of weapons in space. The subject that is of high concern today is taken up by the WMDC (recommendations 45 and 46), and it appears that there is broad support for substantive discussions on it at the Conference on Disarmament.

Steps to bring about better security for nuclear weapons and nuclear-related material, which may be seen as related to the threat of terrorism, are taken up both in the *WSJ* list and in the report of the WMDC (recommendations 10 and 14). The subject is not touched in any one of the 13 steps from 2000—a time when the subject was not yet of great concern. Nor did the 13 steps say anything about the fuel cycle, a subject that has become a matter of active concern and interest in the last few years and is dealt with by the WMDC (recommendations 8 and 9) and listed by the authors of the *WSJ* article.

Possible Nuclear Weapons States Priorities

It might be that nuclear weapon states could find it tempting to begin disarmament by steps that they may see as least difficult for themselves—perhaps taking nuclear weapons off hair-trigger alert (number 1 in the *WSJ* list; WMDC recommendation number 17). Such a step could conceivably be taken unilaterally. If an agreement is seen as necessary, it would

presumably only need to be one between nuclear weapon states. Such a step would certainly be warmly welcomed but would hardly be seen as something momentous. Nuclear weapon states might also be tempted to continue and intensify steps that they already see as relatively free of problems or even advantageous to themselves. Achieving maximum security for nuclear weapons and fissile material everywhere (number 5 in the *WSJ* list) might be such a step. It is ongoing, relatively uncontroversial, and meets concerns that terrorists might steal nuclear weapons or acquire fissile material.

Nuclear weapon states may also feel tempted to move early to strengthen and consolidate efforts that they (the United States and Russia) have already started, to discourage or prevent more states from embarking upon the enrichment of uranium (number 6 in the *WSJ* list). The rationale for such efforts is the concern that more enrichment installations might increase the risk of diversion of fissile material or even the risk of production of weapons grade uranium under the guise of fuel production.

A wave of proposals of this kind began to surface when it became known that Iran was developing a capability to enrich uranium ostensibly to produce fuel for nuclear power reactors. It is almost certain, however, that working out an internationally acceptable fuel cycle scheme would be difficult, and results would hardly be available to solve the Iran issue.

Non-nuclear weapon states may object that efforts by Iraq, Libya, Iran, and (perhaps) North Korea to develop enrichment capability with clear or possible weapons intentions should not be made a reason for keeping other uranium producers, like, say, Australia, Brazil, Canada, Kazakhstan, or South Africa, from refining their mineral resources. They may add that the essence of such schemes would be to create a legal or de facto cartel, the core of which would be the P-5. A push for schemes of this kind risks being seen not as principally serving common disarmament aims but as consolidating the power of the P-5.

The matter is being discussed within the framework of the IAEA, and that is where all voices can be heard and where it belongs. It sounds plausible to suggest that an expected expansion of nuclear power in the world will lead to a need for more enrichment capacity that could be misused. However, the expansion is at any rate some 10 years away, enrichment is no longer taking place in Iraq and Libya, and specific solutions may, hopefully, be found for North Korea and Iran. There are no new cases of states planning to embark on enrichment with doubtful intentions.

Another matter is that one can see already now that enrichment of uranium would raise suspicions in two regions where mutual confidence is low: the Korean Peninsula and the Middle East. Fuel cycle activities—both enrichment and reprocessing—in these regions would be likely to cause tension. Perhaps it would be less difficult to achieve solutions for regions where solutions are specifically needed than pursuing schemes for the whole world. In the case of Korea, the Denuclearization Declaration of 1992 by the two Korean states excluded enrichment and reprocessing facilities in both states, and this feature seems to be envisaged also in the arrangements now discussed. The WMDC pointed to the possibility of a similar verified arrangement for the other sensitive region—the Middle East—requiring Iran and all other states in the region (including Israel) to suspend for a prolonged period any enrichment and reprocessing.

Priorities of the World At Large

There is little doubt that the majority of states in the world would like to see priority given to nuclear disarmament steps about which they feel there are commitments, notably those made in connection with the extension of the NPT in 1995 and the 13 steps listed at the 2000 NPT Review conference (WMDC recommendation 2). As endorsed by governments these commitments have a special status. One cannot simply brush them aside as political wish lists covered by years of dust. It is true that step seven in the list of 13—the entry into force of Strategic Arms Reduction Treaty (START) II, conclusion of START III, and preservation of the Anti-Ballistic Missile (ABM) Treaty—was ignored and can no more be fulfilled. However, no other point in the list can be argued to be obsolete, and new initiatives for nuclear disarmament by the United States and Russia would certainly constitute a response even to the seventh step required in 2000.

The *WSJ* article cites the basic binding bargain in the 1970 Non-Proliferation Treaty. The commitments of 1995 and the 13 steps of 2000 were not embodied in treaties, but whatever status different governments want to attribute to them, respect—or lack of respect—will influence the feeling of faith of a large number of states vis-à-vis the P-5 nuclear weapon states that are also the permanent members of the Security Council.

Priority step number one is undoubtedly action to bring the Comprehensive Test Ban Treaty into force. It is at the top of the list of the 13 steps and it is included in the list of the *WSJ* article. The WMDC expresses the view that—

[a] U.S. decision to ratify the CTBT would strongly influence other countries to follow suit. It would decisively improve the chances for entry into force of the treaty and would have more positive ramifications for arms control and disarmament than any other single measure. (Report, p. 107)

The rejection of the treaty by the U.S. Senate occurred in a rather special circumstance and despite broad support for the treaty in the military sphere. It is encouraging that there are bipartisan efforts in the United States to move to ratification. It is positive that the nuclear tests by India and Pakistan (in 1998) and by North Korea (in 2007) were condemned by the U.N. Security Council. It is awkward that votes indispensable for the condemnations came from China and the United States, two permanent members that have not themselves made the legal commitment to refrain from testing but only so far observe a moratorium.

Priority step number two is possibly the negotiation of a verified ban on production of enriched uranium and plutonium for weapons (FMCT). One reason is that the matter has been on the table for such a long time: Step number three in the list of 13 from the NPT Review Conference in 2000 called for the negotiations of a cutoff treaty to be concluded within five years. Another reason is the intrinsic value of the measure. Disarmament requires not only the dismantling of nuclear weapons and the disposal of the fissile material; it also requires that the tap for more fissile material for weapons be closed.

It is welcomed that the United States has tabled a draft treaty, and there is much support for starting negotiations and to leave to these negotiations issues on which the draft appears inadequate—verification and existing stocks. The current U.S. draft does not envisage any international verification, although IAEA safeguards verification already is applied in many fuel cycle facilities around the world.

The absence of verification would appear particularly awkward in the cases of India and Pakistan. The nuclear cooperation agreement between the United States and India will allow the export to India of uranium fuel, which could free up Indian uranium for enrichment to weapons grade. Without international inspection there might be little confidence in Pakistan and China that India would not increase its stock of fissile material for weapons. This might prompt them to increase their stocks. Conversely, regardless of what its own stocks are, India will need to feel confident that China and Pakistan are not producing more fissile material for weapons. Such confidence will require international verification.

All enrichment facilities in non-nuclear weapon states (for instance, Japan) are under IAEA safeguards, and some such facilities in P-5 states (for instance in China, France, and the United Kingdom) are under international (EURATOM or IAEA) verification, but several more such facilities (for instance in the United States) would come under international inspection in a cutoff agreement. Gaining experience of international inspection of facilities for the production of fissile material may well be useful to nuclear weapon states years before they—hopefully—come to more advanced stages in a disarmament process. The “trilateral initiative,” which I helped to take, had a similar aim—apart from assuring the world that “excess fissile material” from weapons did not go into new weapons.

There can be no doubt that the whole world community attaches high priority to steps leading to a reduction in the size of nuclear forces in all nuclear weapon states. The view of the authors of the *WSJ* article will have broad support that the United States should take the initiative to and make the action a joint initiative of all nuclear weapon states. However, the matter concerns the whole world, and it must also be the subject of substantive discussion at an early stage in the forum of the Conference on Disarmament, as required by one of the 13 points from the 2000 NPT Review Conference and as apparently was contemplated in consultations in Geneva in 2007.

Steps leading to the physical elimination of short-range nonstrategic nuclear weapons, such as demolition munitions, mines, and artillery shells, would be of special value for several reasons. One is that small-size weapons may be particularly attractive as objects of theft. Another is that if a continued existence of and reliance on small-size nuclear weapons is accompanied by doctrines tolerating low thresholds for use, the existence of the weapons may add to the risk that other states may acquire them. The Presidential Nuclear Initiatives from 1991 showed that action in this area was possible. The unilateral commitments then made should be allowed to be firmed up as binding treaties and extended (WMDC recommendation 21; cf. *WSJ* list).

Some other steps relating to nonstrategic weapons would be of special political value at the present time. The withdrawal of nonstrategic Russian nuclear weapons from positions close to the European Union to central storages deeper in Russia and the withdrawal to the United States of NATO nuclear weapons would help to ease some of the tensions resulting from the U.S. plans to set up installations linked to the missile shield in Poland and the Czech Republic and the Russian intention to withdraw from the 1990 Treaty on Conventional Forces in Europe (the CFE treaty.)

Counting Down to Zero

Most visions for disarmament set as their goal a world free of the threat of nuclear weapons. The *WSJ* article talks about “ultimately ending them as a threat to the world” and notes that the NPT “envisions the end of all nuclear weapons.”

The WMDC report says about the vast majority of states: “Renouncing nuclear weapons for themselves, they wish to see steps that will lead to the outlawing of nuclear weapons for all” (Report, p. 25).

The commission’s own view is that—

[there] must be no compromise on the goal of outlawing nuclear weapons. This goal was accepted as a legally binding commitment as early as 1970, when the NPT entered into force. There can be no going back from it, and all steps in the disarmament process must be taken with this in view.

Such statements of end goals frequently draw comments about utopianism and naiveté, and the question is likely to be asked how law-abiding and treaty-abiding states could dare to dismantle their last nuclear weapon and take the risk that some other nuclear weapon state (or “rogue state” or even a terrorist group) might have hidden a nuclear weapon somewhere and use it to threaten or blackmail.

A first response to such comment would be that it is well understood that a decision to dismantle the last nuclear weapon is not the same as, say, making a commitment not to be the first to use nuclear weapons or that, similarly, there is some distance between a decision to scrap nuclear mines and one to scrap the last strategic nuclear warheads. However, concerns of these kinds are not practical problems for quite some time. During this time, growing interdependence and cooperation will most likely tie states closer together and make efforts of breakout less likely. In any case, right now the challenge we face is different, namely to reverse a rearmament trend to one of disarmament. The steps we discuss for now and the near future are desirable and possible regardless of questions that may be raised about later and last phases.

A second response is that even if we know the direction in which we shall go and have enough steps mapped to keep us walking for a good while, it is certainly desirable that we explore and discuss the challenges that may have to be met beyond steps now identified. The WMDC recommends that nuclear weapon states should begin to examine how they can manage their security without nuclear weapons, as indeed most states in the world have to do.

We should note that while Article VI of the NPT calls for negotiations not only toward nuclear disarmament but also toward a treaty on general and complete disarmament, the parties are clearly content to defer the latter negotiation and not concern themselves for the time being with conventional weapons. So long as this is the case, even attaining a reduction of nuclear weapons to zero will allow states to use conventional weapons freely for their defense.

We should also note that the world has been able to outlaw and maintain complete bans on all chemical and biological weapons even though some states could illegally retain quantities of either. Biological and chemical weapons are not, it is true, considered as strategic in the same way as nuclear weapons are. Nevertheless, the undetected Soviet

violation during the Cold War of the unverified ban on B-weapons tells us something about the potential value of international verification and also about the importance of transparency.

It is true that you can hardly ever attain verification of 100 percent certainty. You cannot prove the negative. Nevertheless, the obligation of states to accept verification is important, and modern means of verification are vastly better than those that existed even 10 years ago and take us a long way. National systems of verification will continue to exist, but only inspection systems that are owned by the whole international community are likely to be given access everywhere. This is one reason why nuclear weapon states ought to get used to them, the sooner the better. Stopping the access of international inspection could occur but would send a warning signal to the state community.

While the further development and use of verification is an important part of a future journey to reliable nuclear disarmament, there are other features that may be even more important. In the WMDC report we wrote that the “greatest challenge in the process of disarmament is to pursue political development, globally and regionally, that makes all states feel secure without WMD” (p. 27). As I have noted, the point is in line with the *WSJ* stressing the need for foreign policies resolving regional confrontations and conflicts and with the thinking in the EU strategy that “disarmament measures can lead to a virtuous circle just as weapons programs can lead to an arms race.”

The United Nations Charter is a living constitution, and its development and application are likely to become important factors in future nuclear disarmament. Just as the end of the Cold War drastically eroded the rationale for nuclear weapons, it drastically improved the outlook for the authorization or taking of joint action through the United Nations, in particular through the Security Council. A large number of U.N. peacekeeping operations are currently employing something like one hundred thousand persons—soldiers, police, and civil servants—in peacekeeping, an activity that developed through political and constitutional practice and that is not mentioned by one word in the U.N. Charter.

While some people may hope for a transformation of the United Nations to a world government, which would have a monopoly on the possession and use of weapons (as governments of states have), such ideas are not for our time. Some may, indeed, have ideas that go in the opposite direction. An article about U.N. reform last year by the former speaker of the U.S. House of Representatives, Newt Gingrich, had the title, “A limited U.N. is best for America” (*IHT* 13 Sept 2005). Yet, there may be ideas that fall between the extremes and that are realistic and constructive. The political climate may slowly become more favorable to them.

We should note that although the Security Council has never devoted itself to nuclear disarmament and discussed the nuclear arsenals of the P-5 states that dominate the council, it has increasingly engaged in the issue of nuclear weapons testing and proliferation of nuclear weapons, as in the cases of Iraq, North Korea, and Iran. However, it has also adopted resolutions designed to prevent or impede nuclear proliferation more generally. Resolution 1540 is meant to supplement the NPT obligations of states parties by enjoining all U.N. member states to enact legislation making it illegal for individuals subject to their jurisdiction to acquire or develop nuclear or other weapons of mass destruction. The council, which has the right to judge whether a situation constitutes a threat to the peace and, if it so does, has

the right to authorize action—even armed action, might be said by the latest evolution to have embarked on a semi-legislative activity.

Reliance on and development of the authority of the Security Council has many attractions. There is no automatic paralysis, as there tended to be during the Cold War. The P-5 members are currently pragmatic. However, all of them protect their own interests, and even if the veto has become more sparingly used, the right of veto is a reality. Some modifications in the composition of the council, making it more representative and somewhat limiting the veto, could strengthen the role of the council. However, any changes that could dilute or reduce the power of individual P-5 members have so far proved unattainable. In my view change is more likely to come through a continued change of practices, involving more and closer cooperation based upon the increasing interdependence that is developing every day.

THE INSTABILITY OF SMALL NUMBERS REVISITED: PROSPECTS FOR DISARMAMENT AND NONPROLIFERATION

Charles L. Glaser

The possibility of nuclear disarmament has received extensive attention since the dawn of the nuclear age. The end of the Cold War generated new interest in this age-old question. During the Cold War nuclear competition was viewed primarily, if not exclusively, in terms of the U.S.-Soviet rivalry. To many observers, therefore, the dissolution of the Soviet Union and the end of Cold War created the opportunity to rid the world of nuclear weapons.

Still more recently, growing concern about nuclear proliferation, and maybe especially about the possibility of terrorists acquiring nuclear weapons, has further increased interest in disarmament. Many politicians and experts believe that there is a link between the nuclear states' efforts to reduce their nuclear arsenals and the prospects for controlling nuclear proliferation. This link is most specifically established by the nuclear powers' commitment, made in Article VI of the nuclear Non-Proliferation Treaty (NPT), to pursue negotiations in good faith on measures working toward nuclear disarmament.

Related, growing interest in nuclear disarmament is both fueled by and reflected in recent calls by prominent experts for a moving in this direction. In January of this year, George Shultz, William Perry, Henry Kissinger, and Sam Nunn stated the following.

Deterrence continues to be a relevant consideration for many states with regard to threats from other states. But reliance on nuclear weapons for this purpose is becoming increasingly hazardous and decreasingly effective. ... We endorse setting the goal of a world free of nuclear weapons.¹

In 2007, the Weapons of Mass Destruction Commission, chaired by Hans Blix, concluded as follows.

All States possessing nuclear weapons should begin planning for security without nuclear weapons. They should start preparing for the outlawing of nuclear weapons through joint practical and incremental measures that include definitions, benchmarks, and transparency requirements for nuclear disarmament.²

This paper examines the case for disarmament, focusing on barriers created by the sensitivity of zero or small numbers of nuclear weapons to violation of a disarmament agreement. In particular, I explore whether these barriers are now lower than in the past. In addition, the paper explores whether the incentives for disarmament are now greater, creating

1. "A World Free of Nuclear Weapons," *Wall Street Journal*, January 4, 2007, p. A15.

2. The Weapons of Mass Destruction Commission, Hans Blix, chairman, *Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Weapons*, Stockholm, Sweden, June 1, 2006, p. 196.

the possibility that the case for disarmament is now stronger, even if the barriers are not lower.

The first section of the paper reviews the traditional/established problems with zero or small numbers of nuclear weapons; the second reviews the possible “solutions.” A central theme is that the key barrier to disarmament is political: If political relations ever become good enough that this barrier could be overcome, then the nuclear states would already be so secure that disarmament would not significantly increase their security; it might even decrease their security. To put the current challenges and opportunities for disarmament in context, the third section briefly considers the current quality of major power relations and the roles played by U.S. nuclear weapons, including the continuing importance of extended deterrence; the implications of the United States’ unipolar position and its advantages in conventional force capabilities; and the importance of nuclear states beyond the P-5 countries. The fourth explores possible links between achieving disarmament and preventing proliferation. The final section presents a summary case against nuclear disarmament and then argues that the more important possibility is an arms control regime that moves the nuclear states to small nuclear forces.

The Established Problems with Nuclear Disarmament

Most analysis of disarmament focuses on two states, at least in part reflecting the importance of the United States and Soviet Union during the Cold War.³ The following summary adopts this two-state perspective; following sections note where it might need to be broadened.

The most obvious problem with nuclear disarmament is that states’ security would be very sensitive to cheating. A state without nuclear weapons could be at a large disadvantage if suddenly facing an adversary that had one or more nuclear weapons that could be used for coercion or actual destruction. By comparison, when states have large survivable nuclear forces, differences in force size make little, if any, difference.

This sensitivity to cheating creates two daunting challenges. First, states entering into a disarmament agreement would need to be confident that the opposing state was giving up all of its nuclear weapons and the fissile material that could be used to build new ones. The task is especially daunting for countries that already have large arsenals. In the early 1990s, U.S. estimates of the number of Russian warheads were uncertain to within 5,000 warheads.

3. For a sampling of analysis across this period see Philip Noel-Baker, *The Arms Race: A Program for Disarmament* (New York: Oceana Publications, 1958); Richard J. Barnett and Richard A. Falk, eds., *Security in Disarmament* (Princeton: Princeton University Press, 1965); Thomas C. Schelling, *The Stability of Total Disarmament*, Institute for Defense Analysis, Study Memorandum No. 1 (Washington, D.C.: October 6, 1961) and *Arms and Influence* (New Haven: Yale University Press, 1966), pp. 248-59; Jonathan Schell, *The Abolition* (New York: Avon Books, 1984); Charles L. Glaser, *Analyzing Strategic Nuclear Policy* (Princeton: Princeton University Press, 1990), ch. 6; and Regina C. Karp, ed., *Security Without Nuclear Weapons? Different Perspectives on Non-Nuclear Security* (Oxford: Oxford University Press, 1992).

Although a variety of cooperative measures could greatly reduce this uncertainty, especially if started well before states reduced their forces to small numbers, the prospects for gaining the necessary confidence appear to be quite poor.⁴ The problem is made still more difficult by uncertainties about the states' production of fissile material. States face significant uncertainties about the amount of fissile material they have produced (unlike warheads, which are accounted for more precisely). Steve Fetter argues that states are likely to face a 5 percent uncertainty in their production of fissile material, which in the mid-1990s would translate into material sufficient for the United States and Russia to make about 5,000 nuclear weapons, the United Kingdom, France, or China to make about 100 nuclear weapons, and Israel or India to make about 5 nuclear weapons.⁵ Opposing states are likely to face even larger uncertainty about others' production.

Second, arm races from disarmament could be a significant danger. Even if a state were confident that all of its adversary's nuclear weapons had been dismantled and fissile material had been secured, it would also have to be confident that a rearmament race would not leave it at a disadvantage. A state's security could be very sensitive to falling behind in a rearmament race, so states would demand high confidence in their ability to compete effectively. In addition to reducing the danger if a disarmament agreement collapses, the ability to compete effectively in a rearmament race should help to deter breakdown of the agreement, thereby increasing a state's willingness to disarm. The ability of a disarmament agreement to prevent states from gaining a significant advantage by breaking out would depend upon a number of factors: 1) Equal rearmament rates—parity in the potential to rearm; 2) Absolute rearmament rates—the slower the rate of rearmament, the less valuable a head start in rearming and, related, the smaller the pressure to rearm because the adversary might be; 3) Detection time—the more quickly breakout can be detected, the smaller a lead the adversary can gain; and 4) Survivability of rearmament capabilities to breakout—if a state's rearmament capabilities are survivable, then although an adversary may be able to acquire a lead in a rearmament race, it cannot deny the state the ability eventually to inflict nuclear damage, which reduces (but does not eliminate) the coercive potential of gaining such a lead in a rearmament race.

Meeting these requirements promises to be exceedingly difficult. States would have to coordinate their potential for nuclear rearmament, including their nuclear energy facilities; would likely have to all allow unlimited on-site inspection of all relevant areas in which nuclear weapons had been deployed, stored, and produced; and would have to agree to limits on conventional forces that could pose a threat to rearmament capabilities.

Some proponents of disarmament argue that uncertainties about whether all nuclear weapons have been dismantled can contribute to deterrence—a state considering whether to break out of a disarmament agreement would have to worry that its adversary has hidden

4. Steve Fetter, *Verifying Nuclear Disarmament*, Occasional Paper No. 29 (Washington, D.C.: Stimson Center, October 1996), pp. 9-13, describes cooperative approaches for reducing this uncertainty and cites an official 1992 estimate of warhead uncertainty.

5. Fetter, *Verifying Nuclear Disarmament*, pp. 14-20. These estimates do not include fissile material produced in civilian reactors.

some weapons, which would greatly reduce the state's ability to gain a nuclear advantage, which will deter it from trying. Similarly, some proponents argue that reasonable efforts to establish well-matched rearmament capabilities would be sufficient, because uncertainties about which state has an advantage would deter both states from trying to break out.

The counterarguments, however, are far more compelling. States are unlikely to be willing to rely on these uncertainties to deter. A state that believes its opponent is potentially threatening will want high confidence in its nuclear deterrent. Therefore, when a state's ability to deter is sensitive to small differences in nuclear forces, as it would be in a disarmed world, a state would be unwilling to base its security on the expectation that the opponent's uncertainty about whether the state has hidden weapons or would win a rearmament race. Instead, the state will worry that its adversary may be willing to run high risks to gain a nuclear advantage and that, if the disarmament regime is tested, the adversary might gain a critical nuclear advantage.

Potential Solutions to These Disarmament Problems

Strategic Defenses. Defenses against ballistic missiles and bombers might play a role in reducing the danger posed by hidden weapons and breakout. Obviously, if a state could defend against all of the weapons an adversary had hidden and could launch, then these forbidden weapons would pose no danger; partially effective defenses would reduce the danger. In addition, defenses could reduce the difference in states' rearmament rates, thereby helping to counter the barriers created by the complexity of establishing rearmament parity.

However, defenses would likely create serious problems of their own. A state that achieved an advantage in strategic defense capabilities would, in effect, have improved its relative ability to rearm—the adversary would then have to build a larger nuclear force, which would take more time, to acquire the same ability to inflict damage. Thus, for disarmament to be reinforced by strategic defense, the states would have to coordinate their deployment more effectively and with greater confidence than they could coordinate the deployment of their rearmament capabilities. But there is no reason to believe that these defensive capabilities would be easier to coordinate; if anything, given the complexity of strategic defensive systems, coordinating states' capabilities is likely to be harder. Similarly, uncertainties about the effectiveness of defenses would translate into greater uncertainty about relative rearmament capabilities. Differences in strategic defensive capabilities would create similar problems in solving the problem of hidden weapons—a state with an advantage in defenses would be less vulnerable and maybe therefore less deterred from using its own hidden weapons. And the matching of rearmament capabilities would require that states have equal capabilities to expand their strategic defenses; this would likely be easier if defenses were banned than if they were allowed in strategically significant numbers.

An International Nuclear Force. An international nuclear force might reduce or eliminate the sensitivity of disarmament to hidden weapons and breakout. If a state cheated, it would face a relatively large and secure international force. Consequently, breakout could not provide significant advantages, and if necessary other states would have time to rearm before the violator acquired the capability to undermine the international force. Plans for the transition to an international force would have to design a safe transition from national

nuclear forces to the international force, including addressing the security concerns of both (previously) nuclear and non-nuclear states.⁶

The primary problem with this solution is that it would require that states have tremendous confidence in the control and the employment of the international force. The international organization that controlled the force would have to guarantee that nuclear weapons could not be used without its authorization. This might be achieved by a sort of permissive action link that required all of the key states in the organization (for example, the members of the U.N. Security Council) to approve the use of the weapons. However, this creates a related problem—if a single state can veto the use of the international nuclear force, then the international force could not be counted on to be available to respond to that state's rearmament. More complicated decision rules, those not requiring unanimity, cannot avoid creating a different fear—states would then have to worry that other states would gang up to use (or threaten to use) nuclear weapons against them. A different, maybe more tractable problem is that states might have to worry that a state would use its conventional forces to capture some or all of the international force, thereby achieving a rapid nuclear breakout. Sophisticated technical controls on the international force might therefore need to be supplemented by arms control limits on states' conventional forces to provide confidence in the security of the international force.

The solution in these problems is, in the end, fundamentally political. If the major powers that would have responsibility for the international nuclear force are confident in each others' motives and believe that the nuclear force would be used when specified by international agreements and not under other conditions, then they might be willing to transfer responsibility for their security to the international force. This political alignment between the major powers would also be valuable in establishing a number of other components of the international regime that would likely accompany the creation of an international nuclear force, including providing regional security that would reduce incentives for proliferation, establishing a deep norm against the use of force, and providing multinational security guarantees to states that were vulnerable to conventional attack. This solution, of course, raises the basic question: if the major powers can accomplish all of this, is there value in moving to an international force? I return to this issue below.

Radically Improved Political Relations. A more direct solution to the military-technical demands created by disarmament is for the nuclear states to radically improve their political relations, thereby greatly reducing or eliminating the barriers created by the severe demands of monitoring and rearmament parity. Unlike a state that has serious doubts about its adversary's malign motives and territorial expansionist objectives, a state that has confidence that the opposing state has benign motives and intentions would see smaller risks in disarmament. Intrusive inspections would not be problematic because giving the opposing state access to sensitive facilities and weapons designs would not pose a substantial risk. The possibility that the other state had hidden weapons and fissile material would not prevent the states from proceeding with disarmament, because they would be confident that, even if these

6. For a careful discussion of these issues see Roger D. Speed, *The International Control of Nuclear Weapons* (Stanford: Center for International Security and Arms Control, June 1994).

military advantages existed, they would not be used against it. Similarly, the possibility that the adversary possessed an advantage in breakout capability would not threaten the state's security. In short, deep harmony among states that possess nuclear weapons could make disarmament possible, if they were confident that it would last indefinitely.

One remaining problem could be that non-nuclear states might at some time down the road decide to acquire nuclear weapons, which would make disarmament too risky. In addition to requiring that all states join the monitoring regime, the nuclear states would need to adopt one or more solutions to this problem. As discussed above, they could agree on an international nuclear force that could reduce the short-term danger posed by nuclear proliferation. They could create a global collective security system that would provide for the security of all states, thereby eliminating their security-driven need for nuclear weapons. Or, they could establish an international regime that was capable of preventing any country from acquiring nuclear weapons, by threatening conventional attacks and invasion. As I discuss more fully below, compared with a nuclear world, the credibility of these preventive threats would be high in a disarmed world because the major powers would be much more vulnerable to nuclear proliferation than they are today.

A far more basic issue, however, concerns the benefits of nuclear disarmament under such positive political conditions. If the nuclear powers enjoyed such outstanding political relations, they could be certain of avoiding a nuclear war for the indefinite future, and a conventional war as well. Disarmament would not reduce the probability of nuclear war, so it would not provide what is commonly understood to be its key benefit.

A counterargument is that disarmament would reinforce such positive political relations by reducing the threat—military, political, and symbolic—that nuclear arsenals represent. Maybe, but this leaves open the question of how political relations would have improved so dramatically in the face of nuclear arsenals in the first place.

The alternative argument seems more compelling—nuclear disarmament might reduce the prospects for preserving such near-perfect major power relations. When a state's military capabilities are sensitive to small changes in an opposing state's forces, leaders must be on the lookout for even a small decline in the quality of relations—small political disputes or misunderstandings could raise worrisome doubts about the adequacy of military capabilities, raising pressures to reevaluate both the political relationship and the disarmament regime. In contrast, deployed survivable nuclear forces provide states with a hedge against fluctuations in political relations that are likely to allow modest troubles to pass without straining promising political relations.

Small, But Non-Zero, National Nuclear Forces. Yet another way to manage the problems of disarmament would be for the major nuclear powers—especially the United States and Russia—to drastically reduce their nuclear forces, but not to disarm. The remaining forces would provide a hedge against failures of the arms control regime: A state that has some survivable nuclear weapons is far less threatened by the possibility of hidden weapons, and by disadvantages in and uncertainties about rates of nuclear rearmament. This in turn reduces the requirements for constructing and monitoring the reductions agreement, which increases its feasibility.

From the perspective of disarmament, small forces become interesting once they are sufficiently small that an all-out war would be significantly less damaging than if fought with

today's quite large forces. This would require very deep reductions—to levels of a few hundred weapons and quite possibly lower.⁷ The smaller the force, the larger the benefit in terms of the costs of an all-out war. Restated in familiar nuclear terminology, reductions could start to reduce the costs of war once states no longer had assured destruction capabilities, and the benefits would increase as they moved further below assured destruction capabilities.⁸

To minimize the probability of nuclear war, an agreement that allowed states to deploy small nuclear forces would have to meet the standard requirements of deterrence, crisis stability, and arms race stability/robustness. Although assured destruction capabilities are often viewed as a requirement for deterrence, much smaller retaliatory capabilities are likely to be sufficient to deter both nuclear attacks and conventional wars, because the costs that such a force could inflict would exceed the benefits that even a determined adversary would see in expansion. A relatively small force would have to be highly survivable to ensure crisis stability. High levels of survivability are less important when a state has an assured destruction capability, because its vulnerable forces are essentially redundant. They do not provide the ability to inflict damage much greater than can be inflicted by the survivable forces, and, therefore, the adversary has little incentive to destroy them in a first strike. In contrast, vulnerable forces could create preemptive incentives when states' forces are small, so high survivability would have to be a still higher priority when moving to a deep reductions regime.

Arms races stability—that is, insensitivity to breakout—is the major advantage of small forces relative to disarmament, but small forces tend to be less robust than large diversified assured-destruction forces. This is because a given amount of cheating (or uncertainty) will have a larger impact on small forces than large ones. To enhance the arms race stability of small forces, states would need to cooperate in many of the same ways as required to stabilize disarmament—reducing and coordinating rearmament rates and ensuring rapid warning of breakout. Overall, then, small nuclear forces could be designed to meet the requirements of deterrence and stability. However, a satisfactory small force would have to meet force planning criteria that were significantly more demanding than in a world of large forces, and states might have less confidence in the adequacy of their forces.

In short, we can view small, sub-assured destruction forces as balancing the potential costs of a nuclear war and the potential risks of disarmament; although small forces can do more damage than zero nuclear weapons, they are less sensitive to uncertainties about the implementation of the agreement and to cheating and therefore are likely to be more

7. The implications of specific levels of forces would depend on a host of variables not discussed here, including as follows: 1) which state the damage is measured against—for example, reductions in U.S. forces that would be sufficient to reduce the damage that the United States could inflict against Russia or China would not be sufficient to reduce the damage against smaller states; 2) the size, deployment, and operation of the weapons; and 3) states' targeting strategies and the specific war scenarios.

8. This formulation glosses over the question of survivability of forces and whether damage potential is measured in terms of whether a state strikes first or second. As discussed below, for small forces to be appealing they would have to be highly survivable.

politically feasible. And it is important to remember that nuclear war can occur even after states have disarmed, it just cannot happen as quickly. Consequently, the robustness of small numbers could make nuclear war less likely across time than when starting from a disarmed world.

Key Specifics of the Current Geopolitical Situation

The preceding discussion provided a summary of the basic general security logic of disarmament and small numbers. We can get a fuller understanding of the current desirability and feasibility of disarmament (and small numbers) by considering a few specific features of the current international environment, some of which help to clarify differences with the Cold War. This section of the paper looks briefly at 1) current major power relations and roles of U.S. nuclear weapons; 2) unipolarity and U.S. advantages in advanced conventional force capabilities; and 3) nuclear weapons beyond the P-5.

1) Major Power Relations and the Roles Played by U.S. Nuclear Weapons

As the preceding discussion makes clear, the implications of military stability cannot be understood independent of political relations. The end of the Cold War marked a tremendous improvement in U.S.-Soviet/Russian relations. Many observers believed then that the opportunity for moving toward disarmament had greatly increased, and many continue to believe this is true.

However, although much better than during the Cold War, major power relations are still not good enough to support disarmament. Although the ideological, territorial, and nuclear competitions that largely defined the Cold War are gone, U.S.-Russia relations are far from rosy. The United States continues to worry about Russia's efforts to reexert control along its periphery; the two countries have only partially agreed on how to deal with key nonproliferation challenges, for example, Iran; and Russia at least appears to be quite worried by minor changes in U.S. strategic forces (specifically its plans for missile defenses deployed in Europe). This said, there are not now any plausible scenarios in which nuclear weapons would play an important role in a U.S.-Russian dispute, which arguably suggests that disarmament might be politically feasible. But uncertainty about Russia's future goals, especially as it becomes more powerful, make this assessment overly optimistic.

The U.S. political relationship with China is still less promising for nuclear disarmament. The United States would fear that China would use a nuclear advantage/monopoly to conquer Taiwan, and China would fear that the United States would use a nuclear monopoly to support Taiwan's independence. The Nuclear Posture Review (NPR) identifies a role for nuclear weapons in a military confrontation over Taiwan. More broadly, the overall relationship is at best edgy, with the United States concerned about the goals of a rising China and paying worried attention to its growing military budget, advancing space capabilities, and modernizing nuclear force. The NPR argues that "due to the combination of China's still developing strategic objectives and its ongoing

modernization of its nuclear and non-nuclear forces, China is a country that could be involved in an immediate or potential contingency.”⁹

In addition, the United States remains committed to a number of important alliances that involve extended nuclear deterrence commitments; consequently, the political relationships between these allies and their adversaries need to be considered. If these political relationships are not sufficiently good to support disarmament, then U.S. allies might conclude that their security requires acquisition of nuclear weapons, which would undermine the prospects for a global disarmament regime. NATO has reduced the importance of nuclear escalation in its military doctrine, but nuclear use and the U.S. nuclear guarantee remain elements of its overall policy. However, many observers probably believe that external threats to NATO are sufficiently small and relations within NATO are sufficiently good that nuclear deterrence is no longer essential. In contrast, nuclear deterrence plays a far more important role in providing security to U.S. allies in Northeast Asia. For example, Japan is concerned about growing Chinese power, and military capabilities and political relations between the two countries remain strained. Japan relies on U.S. conventional and nuclear guarantees and might well conclude that conventional deterrence, even with U.S. backing, was insufficient for dealing with the threat posed by China or that China was too likely to hide or reacquire nuclear weapons.

A stronger case can be made that political relations are now good enough to support a move to small nuclear arsenals. Although the NPR calls for maintaining around 2,000 deployed warheads, its analysis does not provide the analytic foundation required to justify such a large force. The large redundant forces that the United States built during the Cold War resulted from the combination of extremely cautious/risk-averse worst-case analysis with a flawed understanding of the nuclear revolution. A reasonable case can be made that such risk-averse analysis was warranted, given the nature of U.S.-Soviet relations and the intensity of the superpower competition. In comparison, the U.S. relationships with Russia and China are much better, creating the opportunity for less risk-averse, although still prudent, nuclear planning. This assessment suggests the possibility of moving to much smaller nuclear forces, especially if these ambitious efforts would have nonproliferation benefits, as discussed below.

2) Unipolarity and Advantages in Conventional Force Capabilities

States’ conventional capabilities could influence the prospects for disarmament in a variety of ways. The United States’ advantage in raw power and advanced conventional forces could lead its allies to believe that nuclear weapons were less necessary because the United States would be able to defend them. The implications of U.S. power advantages, however, are moderate—reduced by its distance from its allies; Japan, for example, will find U.S. power less comforting, because the United States is far away compared with China.

In contrast, unipolarity and U.S. advantages in conventional weaponry could lead current and potential future adversaries to conclude that nuclear weapons are now more important for their security. Small and medium powers are now vulnerable to relatively low-

9. *Nuclear Posture Review* [excerpts], January 8, 2002, <http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm>, p. 16-17.

cost invasion by the United States—as demonstrated by the two Gulf Wars. Advanced U.S. conventional forces make large fractions of these countries' conventional forces and nuclear facilities vulnerable to U.S. airpower. Future advances in intelligence and targeting may even render their mobile forces vulnerable to long-range U.S. strikes. The security concerns raised by these military vulnerabilities could be increased by the lack of major power allies—smaller powers that might have previously relied on a major power to help balance U.S. power are much more likely to be left on their own. Nuclear weapons are, as a result, more attractive. North Korea and Iran are likely examples of states influenced by this logic. And, Russia and China, while not actively favoring proliferation, might see some positive value if it constrains U.S. geopolitical ambitions. Somewhat ironically, therefore, U.S. unipolarity could make nuclear disarmament more difficult to achieve.

3) Nuclear Weapons Beyond the P-5

In addition to the NPT nuclear states, a few other states have acquired nuclear weapons—India, Pakistan, Israel, and North Korea. The feasibility of global nuclear disarmament will depend on the willingness of these states (and possibly others that acquire nuclear weapons in the interim) to trade away their nuclear weapons. The P-5 nuclear states would make disarmament by all other nuclear states a condition for their own disarmament.

The preceding general analysis of disarmament applies to these other nuclear states, as well as to today's major nuclear powers. They will require that disarmament meet a range of demanding military-technical criteria and that their political relations with key potential adversaries be quite good. Even under these conditions states are likely to desire conventional forces that they believe will be effective for deterrence and defense. As a result, weaker states may find that the inadequacy of their conventional forces makes them unwilling to accept nuclear disarmament. For example, Pakistan might conclude that it was more secure with both India and itself having nuclear weapons than neither having them; in comparison, India appears better positioned to willingly shift back to a non-nuclear world. Although not currently suffering conventional inferiority, Israel might conclude, in light of its small size and population, that it cannot be confident of sustaining its conventional forces advantages indefinitely and therefore would be unwilling to trade away its nuclear weapons.

The major powers might be able to help reduce the constraints created by these conventional force imbalances by establishing international balancing institutions. Through either bilateral or multilateral alliances they could provide security guarantees to the conventionally weaker state. Although this type of alliance might not serve the narrow security interests of the major power(s) that are providing security guarantees, they might be willing to pay this price to help achieve disarmament. Establishing the long-term credibility of these alliance commitments could be a major challenge. To help add credibility, a weaker state's commitment to nuclear disarmament could be made contingent on the effective continuation of the alliance, thereby helping to lock in the major powers. This would not, however, allay concerns about wartime failures of the alliance.

Links Between Proliferation and Disarmament

Much of the current interest in nuclear disarmament is motivated by concern about nuclear proliferation by states and acquisition of nuclear weapons by terrorists, not by

concern about nuclear war between current nuclear powers. Proponents of disarmament have identified a variety of ways in which moving toward disarmament could contribute to stemming proliferation. If it would have this effect, then disarmament, or moving seriously in that direction, could be desirable, even if it did not increase security between nuclear states. In fact, disarmament could be the nuclear powers' best option even if it reduced their security vis-à-vis each other. Put another way, the various stability problems outlined above might not make disarmament undesirable, if its nonproliferation benefits were sufficiently large.

This section briefly considers three arguments linking disarmament with slowing proliferation. First, and most common, proponents argue that by fulfilling their Article VI NPT commitment the nuclear weapons states will reinforce the NPT norm against proliferation and build broader support for opposing proliferation. According to this argument, some states are pursuing nuclear weapons partly because the nuclear weapons states have failed to meet their Article VI commitment, thereby weakening the NPT norm against proliferation. Related, some states, specifically India, claim that they refused to sign the NPT partly because it is a discriminatory treaty that allows specific states to deploy nuclear weapons while denying all others the option. At first order, however, it seems unlikely that the nuclear powers' failure to move more rapidly toward disarmament would prove decisive in other states' decisions to acquire nuclear weapons. As long as a non-nuclear state prefers to forgo nuclear weapons in exchange for its neighbors doing likewise, it will believe that the NPT serves its interests. Nevertheless, a more fine-grained analysis suggests ways in which the decisions of the nuclear states might influence non-nuclear states. For example, in a state that is internally divided over whether to acquire nuclear weapons, actions by the nuclear states that demonstrate their commitment to disarmament could enhance the domestic political power of opponents of going nuclear.¹⁰

A different variant of this argument focuses on the enforcement of nonproliferation, instead of incentives for acquiring nuclear weapons, arguing that movement toward disarmament will increase the willingness of states to oppose proliferation. For example, Sam Nunn argued recently that U.S. and Russian reductions of nuclear weapons would—

strengthen our fight against the spread of nuclear weapons. This is not because our example will inspire Iran, North Korea or al Qaeda to say we have seen the light but because many more nations will be willing to join us in a firm and vigorous approach to stop the proliferation of nuclear weapons and materials and prevent catastrophic terrorism.¹¹

Again, there does not seem to be a direct security-based argument for why movement toward disarmament should energize an international coalition against potential proliferators. States that believe their security is severely threatened by proliferation should be willing to oppose it whether or not the United States and Russia (and the other nuclear powers) are moving

10. This argument is laid out by Scott D. Sagan, "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb," *International Security*, Vol. 21, No. 3 (Winter 1996/97), pp. 72-73.

11. "The Mountaintop: A World Free of Nuclear Weapons," Council on Foreign Relations, June 14, 2007.

toward zero nuclear weapons. The argument therefore must be linked to states' sense of a fair bargain and of respect for their own international standing.¹² Other states may simply be unwilling to work hard to strengthen and implement the NPT and the regime more broadly if the nuclear powers, especially the United States, are unwilling to meet their side of the NPT bargain. According to this argument, they may be unwilling to devote themselves to nonproliferation, even though this reduces their security. The importance of these non-security factors is hard to evaluate in general and could in principle dominate a state's decision. However, because states usually give high priority to achieving their security goals, moving toward disarmament seems unlikely to be the key to energizing an international coalition against proliferation.

Second, some proponents of disarmament argue that by keeping large arsenals, the nuclear powers communicate that nuclear weapons have great value. Closely related, they argue that getting rid of nuclear weapons would reveal their limited value, thereby helping to convince states not to acquire nuclear weapons. However, the nuclear powers are unlikely to disarm unless they believe that without nuclear weapons they will be very secure vis-à-vis each other. The United States is large, extremely powerful, and well protected by geography. Nevertheless, as argued above, it would not disarm until its political relations with potential adversaries were extremely good and expected to remain that way. Other states understand this. Disarming, therefore, would not provide new information about the value of nuclear weapons, but instead about the security of the states that were willing to relinquish them. States that were insecure would continue to see substantial security value in nuclear weapons. And some potential proliferators might see nuclear weapons as more valuable, because in a disarmed world even a few nuclear weapons could provide extensive coercive leverage and support expansionist goals.

Third, disarmament could support nonproliferation by making breakout by any state so dangerous that all of the other states would be willing to use conventional force to prevent proliferation and to punish the violator. Given the extraordinary danger posed by a breakdown in the regime, the major powers would be compelled to use conventional force to preserve their own security and the disarmament regime. Moreover, in light of the universal global cooperation required to achieve disarmament, the use of conventional force would be viewed as legitimate, which would further enhance the major powers' ability to coordinate their responses and in turn to deter proliferation. In contrast, although today nuclear proliferation is widely viewed as a major security threat, few states support the use of conventional force to prevent it. Opposition to using airpower to destroy Iran's nuclear facilities provides a clear example. Part of this unwillingness likely reflects an assessment of the danger—although undesirable, many states (probably most and possibly all states) are in the end willing to live with a nuclear Iran, relying on nuclear deterrence to reduce the danger. By greatly increasing the danger of nuclear proliferation, disarmament would change this calculation, thereby significantly increasing the probability of both deterring breakout and using force to prevent proliferation if deterrence fails.

12. This argument is laid out, in a somewhat different context, by Charles L. Glaser and Steve Fetter, "Counterforce Revisited: Assessing the Nuclear Posture Review's New Missions," *International Security*, Vol. 30, No. 2 (Fall 2005), pp. 115-118.

Two additional features of any realistic disarmament regime would reinforce its potential effectiveness for preventing proliferation. Disarmament would only be possible if accompanied by stringent supplier guidelines and a highly intrusive global monitoring regime; this would reduce the probability of not detecting breakout and increase the probability of providing states with timely warning of the need to respond. And disarmament would require excellent political relations between the major powers, which would further increase their prospects for coordinating counter-proliferation reactions. Although efforts to free ride would likely still be a problem, the combination of severe security threats and harmonious political relations would work to diminish it.

Nevertheless, disarmament would still be risky; cheating might not be detected in a timely fashion, and states might fail to band together to prevent it. Therefore, if political conditions were eventually to present the opportunity, the United States would need to carefully compare the risk-generating disarmament approach to its other options for preventing proliferation and also to the dangers of proliferation itself.

Conclusion: A Case For Moving to Small Numbers, But Not Disarmament

Although political relations between the major powers are now unusually good, the possibility that disarmament will become politically feasible in the foreseeable future remains small. And given the history of international relations, we have reason to doubt that political relations will ever meet the demanding standards required for disarmament. The preceding analysis also raises questions about whether disarmament would ever be worth the risks.

Considering disarmament as a tool for preventing proliferation does, however, add an important dimension to the standard analysis and could bolster the case for disarmament. A key issue here is how strong the positive links between disarmament and nonproliferation actually are. As suggested above, there are strong reasons for questioning that disarmament will have an overall positive effect.

The feasibility of moving to small nuclear arsenals appears significantly greater. The risks are smaller because small arsenals provide a valuable hedge against the dangers of disarmament. And major-power political relations are now good enough that arguments for very large forces are less compelling and, related, these risks of smaller nuclear forces might be acceptable.

Although maybe modest compared with disarmament, moving to small forces—in the range of, say, a couple hundred warheads to many tens of warheads for the United States—is a highly ambitious goal. It would involve radical changes in nuclear states' force structures, strategic doctrines, and operations. Whether moving to small forces would be feasible and desirable requires analysis of a variety of difficult questions, many of which do not arise for disarmament. First, given the important role that nonproliferation now has in discussions of disarmament, we need to ask whether the shift to small nuclear forces would provide the same benefits as going all the way to disarmament. As sketched above, disarmament might not yield the promised benefits. But, arguably, small forces are even less likely to be effective in this regard. Small forces leave no doubt about the value of nuclear weapons (not that there would actually be any doubt anyway), preserve a discriminatory regime, and do

less to generate risks that might compel the major powers into using conventional force to prevent proliferation.

Second, there are the standard questions of how large the allowed forces would be, what measures they should be evaluated against, and how the arms agreement would be monitored. What role, if any, would missile defense and other strategic defenses play in a world of small nuclear arsenals? How should countries think about the adequacy of their nuclear forces when many states have nuclear arsenals of comparable size and quality?

Third, there is the difficult question of which states would be allowed to keep nuclear weapons. Would the nuclear states be limited to the NPT's five nuclear powers, or would India, Pakistan, and Israel (and other states that might have acquired nuclear weapons before the low numbers agreement is put into place) also be allowed to deploy nuclear forces? Would the countries that are allowed to deploy nuclear forces be allowed equal numbers, or would the then "superpowers"—the United States, China, and maybe Russia—be allowed to deploy larger forces? Might Britain and France disarm completely, entrusting responsibility for their nuclear deterrence to the United States, leaving only three nuclear powers? Etc.

Moving to small nuclear arsenals can be viewed as a step along the route to disarmament. This framing, however, links small arsenals to the feasibility and desirability of disarmament and thereby risks leading us to conclude incorrectly that small forces are also infeasible, to overlook their potential benefits, and to gloss over potential complications of design, strategic evaluation, and political feasibility. Assessing small arsenals on their own terms promises to avoid these shortcomings and inform the current debate.

COMMENTS ON “STEPS TOWARD NUCLEAR DISARMAMENT” BY HANS BLIX AND “THE INSTABILITY OF SMALL NUMBERS REVISITED: PROSPECTS FOR DISARMAMENT AND NONPROLIFERATION” BY CHARLES L. GLASER

Roger Speed

I would like to thank Dr. Hans Blix and Professor Charles Glaser for their interesting and insightful papers on what many consider the most critical issue of our era: removing the threat of nuclear weapons. The fact that the two authors come to opposite conclusions is symptomatic of the dilemma we face: There would seem to be a strong imperative to abolish nuclear weapons, but at the same time little actual progress is made toward achieving this goal.

I can find little to disagree with in Blix’s careful arguments for nuclear disarmament or in the concrete steps he offers for making progress in that direction. Thus, I will just comment and elaborate on a few points and make a few suggestions.

Blix notes at the beginning of his paper that the general public no longer seems very interested in the issue of nuclear disarmament. Of course, this just echoes the views of their political leaders. The question is why don’t these leaders take abolition seriously.

It would seem that there are essentially two intertwined arguments for abolition: morality and risk. Nuclear deterrence has always posed an ethical dilemma. The strategy contemplates (in the name of peace) the death of millions of innocent people and the possible destruction of whole societies, a thought that a century ago would have been morally unimaginable. The only thing that makes the strategy bearable at all is the promise that the weapons will never be used. But that of course is the problem.

It is certainly true that deterrence of a nuclear war has worked so far. But irrationality and miscalculation are not unknown among national leaders. Moreover, the doctrine does not adequately account for stumbling into war by accident, or perhaps through the unauthorized launch of a weapon by some irrational (or fanatical) person or group. While the chance of either event occurring is hopefully small, it is not beyond possibility, and these problems may become particularly acute if nuclear weapons spread to countries in politically unstable regions.

During the Cold War, to many of us, it seemed that we had no other choice than to rely on nuclear deterrence. But now, the risks (both existential and moral) inherent in the strategy seem much higher than any possible gains, particularly when an alternative might actually be achievable.

In the case of the United States, one would think that we would be in the forefront of efforts to get rid of these weapons. Since the United States is isolated by distance from most of the potentially threatening countries in the world, the only thing that poses an existential threat to our homeland is nuclear weapons. But we are not in the forefront, and the same can be said of the other nuclear powers.

Apparently in the minds of the leaders of the nuclear powers these arguments for abolition are not compelling. Perhaps this is because of two counterarguments: risk and utility.

As both papers point out, in a disarmed world, possession of even a few nuclear weapons would appear to give the nuclear state commanding power. Thus, there would be strong incentives for states to hide nuclear weapons (if they had them) or to covertly build nuclear weapons. Since it is generally believed that abolition could not be verified, the risk of abolition might be considered higher than maintaining the status quo. (This is why looking seriously and in detail at the “endgame” of a path to abolition is critically important.)

But beyond fears about verification, nuclear powers actually like these weapons. For example, U.S. policymakers (as the Nuclear Posture Review showed) still believe that nuclear weapons have useful, positive roles in assuring allies and deterring, dissuading, or defeating enemies. These weapons coupled with overwhelming conventional superiority are used to support an expansive foreign policy designed to maintain U.S. political and military world dominance in order to advance a “global democratic revolution” and to “end tyranny on earth.” With such ambitions, one needs every tool available.

Of course, the other nuclear powers have their own rationales for keeping their weapons. And since most of these powers believe that we cannot verifiably get rid of nuclear weapons anyway, why bother to take the issue too seriously (as opposed to giving lip service to abolition if it will keep others from joining the nuclear club, which is of course a good thing).

What might change the calculus? The spread of nuclear weapons could greatly increase the probability of nuclear use. Also, nuclear weapons in the hands of more Third World countries would inhibit the freedom of action of the current nuclear powers to intervene in many regions of the world—a particular concern for the United States. Thus, the nuclear powers vigorously oppose such proliferation.

Of course, the Non-Proliferation Treaty (NPT) is designed to stop this proliferation. But the question is can proliferation really be stopped without disarmament and (as Blix points out) without systematically addressing the genuine security needs of both the nuclear and non-nuclear states. So far the nuclear powers seem to believe that it can be. But will the non-nuclear states continue to believe in the NPT under these circumstances?

Well, we could argue that the road to abolition is long, and many useful things can be done in the meantime. Thus, Blix outlines important, feasible, concrete steps that if taken would point in the direction of abolition—some of which are actually supported by the nuclear powers. Such steps as taking weapons off hair-trigger alert, eliminating short-range nuclear weapons, developing stronger material controls, etc., are good in themselves and could help stabilize deterrence. But they are not necessarily steps toward disarmament. Even the Comprehensive Test Ban Treaty (CTBT) could be seen as a way to ensure P-5 dominance.

As Blix notes, those of the 13 steps from the 2000 NPT Review Conference that are really radical and might more clearly indicate a willingness to disarm have generally been ignored by the nuclear powers. Thus, we seem to be at an impasse, with the nuclear powers not yielding and with the possibility that the non-nuclear powers may someday jump ship.

It seems clear that the United States is not likely to take a leading active role for disarmament under the present militarized U.S. foreign policy, and there are few (if any) active politicians on the scene who are willing to suggest dramatic changes in that policy. While Democrats and Republicans may differ over this particular war (or at least its implementation), they (along with the foreign policy establishment) seem virtually united in their unwillingness to challenge the U.S.'s vast empire of military bases and commitments around the world, even if the Cold War rationale for these policies has vanished.

Nevertheless, if such politicians were somehow to arise, what could be done? Blix suggests that we must ultimately think about developing an alternative world order, if the hopes for disarmament are to be realized. I agree. It seems to me that the ultimate objective will remain elusive unless a strong coherent vision and practical road map are articulated.

Of course, there is a multitude of studies and books trying to address these issues. For example, one suggestion¹ would involve the nuclear and non-nuclear powers being willing to strike a new "bargain" where the great powers would give up some of their traditional "rights" and powers and agree to provide security guarantees to states willing to forgo the development of nuclear weapons. This new international security regime (which should be codified in a formal treaty) would eliminate nuclear weapons as instruments of state policy, provide positive security guarantees against nuclear threats, restrain the unsanctioned use of conventional force abroad, and institute a system of strong controls to preclude the development of new national nuclear arsenals. And finally it would include a commitment to take immediate and concrete steps to reduce nuclear arsenals until over time (in the words of the William Perry, George Shultz, Henry Kissinger, and Sam Nunn article) we could "ultimately [end nuclear weapons] as a threat to the world."

Implementing any such plan would obviously be a tall order. And of course the last step (whether this plan or some other) brings back the issue of verifiability and Glaser's argument that a world ostensibly without nuclear weapons would be more dangerous than one where the nuclear powers retained small deployed nuclear forces *forever*.

He argues strongly that complete disarmament cannot be adequately verified to prevent cheating and that disarmament under these circumstances could lead to instabilities or even domination by a nuclear cheater. He thus argues that it would be far safer for nuclear states to maintain a force "of a few hundred weapons or quite possibly lower." This of course raises the issue of whether countries, if they are not planning to go

1. Roger D. Speed, *The International Control of Nuclear Weapons* (Stanford: Center for International Security and Arms Control, June 1994).

to zero, have any real incentive to push to very low numbers. For operational, policy, and perhaps stability reasons, states will argue that they would feel much more secure with 500 or 1,500 weapons rather than 100 or 200. After all, what's the difference—if you are not going to zero?

Glaser argues that there is a difference because small forces would be less than an “assured destruction” force level and would thus limit damage in case war did occur. While it seems obvious that it would be much better to be living under the threat of only a few hundred nuclear weapons rather than, say, 1,500, the truth is that 100 nuclear weapons could destroy any country on the planet as a functioning society, and for most countries much smaller numbers would suffice for their destruction.

So if we take Glaser's view, we would ultimately be left in the position that we are today, although at much smaller force levels, which would certainly be better—or at least cheaper. But the existential threat brought on by state rivalries with their nuclear arsenals would not disappear. The inequalities between the have and have-not nuclear states would still exist along with the subliminal message of “if the United States, the most powerful conventional power on earth still needs nuclear weapons, why don't I,” particularly if the United States is still trying to play world policeman and enforcing its dictates on a reluctant world.

Is Glaser right about verification? I don't know, and the problem is that under the usual plans for disarmament, we will probably never get far enough along to find out, because states will not take abolition seriously out of fear of what could happen if the final step to zero were taken.

Is there an alternative? One possibility is that we need to slightly change our focus. It is not nuclear weapons per se, but nuclear weapons in the hands of rival nation-states that is the source of the problem. What is needed is the abolition of state nuclear weapons and perhaps the creation (at least during a transition phase) of an international nuclear force under the control of the U.N. Security Council (UNSC) as a hedge against cheating. Such a force would have no offensive role but just serve to deter and possibly retaliate against any cheater. Glaser argues that it would be too complicated to set up and control such a force to everyone's satisfaction and that political agreement to such a force is unlikely to be achieved and thus rejects it.

While I tend to disagree with this assessment, there is perhaps another alternative. First, all states would (among other things needed to create a new international “bargain”) have to renounce the role of nuclear weapons as instruments of policy. Then the objective should not just be to reduce the stockpiles to very low levels but to also promise one further transitional step—the sequestering of all national nuclear arsenals in their home countries—but under UNSC control. The warheads would be separated from their delivery systems and stored in dispersed hardened bunkers guarded by U.N. forces. They could only be released by the UNSC as part of an authorized plan to deter an outlaw state that had acquired nuclear weapons (or in case one of the nuclear states repossessed their stockpiles). Such a system would remove the incentive to cheat, since no political or military advantage would likely be gained, and it would induce a united world reaction against the cheater.

It should be made clear that this “sequestering” would just be a transition phase that would give everyone the time to work out all the myriad of details necessary to have the confidence to go to zero nuclear weapons. It could be that the transition would be relatively short for some nuclear countries. Since the nuclear states would have to pay to maintain their forces, some of them may at some point come to believe the task is too onerous (since possession would be all pain and no gain) and choose to abolish their weapons. On the other hand, the transition might last a very long time because of the many difficulties that would have to be dealt with, both technical and political. But even if it did, we would be in a much more secure world, one in which nuclear weapons no longer played a role in international affairs, other than the residual role of hedging against cheaters.

In summary, these two papers raise and expound the classical issues associated with achieving the goal of removing the threat of nuclear arsenals from world politics. In my view, overcoming the impasse that has prevented progress toward abolition will require a fundamental shift in the foreign policies of the nuclear powers and the creation of a new international control system. Of course, even under the current system much can and should be done to stabilize deterrence. But if something more dramatic is not done, at the end of that road we will still be left with the same basic system with all the existential and moral problems that system involves.

NUCLEAR DISARMAMENT VERIFICATION: ISSUES AND POSSIBILITIES

Paul C. White¹

Introduction

One objective of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) is spelled out in Article VI and obligates the parties “to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.” Few would question that nuclear disarmament and even more so “general and complete disarmament” remain elusive. However, notable progress has been made in reducing nuclear arms from the levels seen at the height of the Cold War. These reductions have been codified formally in such agreements as the Intermediate-Range Nuclear Forces Treaty (INF), the Strategic Arms Reductions Treaty (START) and, most recently, the Strategic Offensive Reductions Treaty (SORT, or the Moscow Treaty). More informally, presidential nuclear initiatives (PNIs) announced in September–October 1991 established the respective commitments of the United States and Russia to cease deployment of and, for most nonstrategic nuclear warheads (NSNW), eliminate them. By 2012, such reductions will bring the numbers of weapons in the U.S. nuclear stockpile to their lowest level since their peak during the Eisenhower administration in the 1950s.

In spite of these and other arguably impressive achievements in reducing nuclear arms, some voices are pressing for further measures, or at least for a better understanding of what might be the next steps beyond the Moscow Treaty and the conditions under which such steps might be feasible. Among other issues that will be important in setting the stage for such movement are the following.

- A better understanding of the international security environment in the early decades of the 21st century, sources of tension within that world, and the roles of nuclear weapons in providing security and stability.
- Clarification of the degree to which advanced conventional weapons can replace some of the military and political purposes for nuclear weapons.
- Understanding of when and how the nuclear arsenals of states other than the United States and Russia must enter the calculus of stockpile reductions.
- Consideration of the levels of confidence—or verification—that states will want concerning whether any further agreed—or declared—reductions have actually been carried out.

It is beyond the scope of this paper to address the first three of these questions. The following will explore some of the verification issues that may arise as nations consider possibilities for additional nuclear arms reductions.

1. In the preparation of this paper, the author has benefited in many ways from discussions with Dr. Joseph Pilat of Los Alamos National Laboratory.

Verification and Arms Control

Verification is generally considered to be a process of collecting, compiling, interpreting, and making judgments about information on a party's fulfillment of obligations under a formal agreement. The process of data collection is often referred to as "monitoring," with the analysis and drawing of conclusions denoted as "verification." In this paper, the term verification will be used to mean both monitoring and verification. Verification acts as a deterrent against violations, serves as one means to detect noncompliance, and contributes to confidence that parties are abiding by their obligations. Specific verification measures may be cooperative and formalized through agreement, or unilateral—often identified as "national technical means" (NTM). Formal agreements usually contain provisions forbidding any interference with NTM. The 1972 Interim Agreement that developed from the Strategic Arms Limitation Talks (SALT I) relied solely on NTM together with noninterference commitments. This agreement also limited its attention to intercontinental ballistic missiles (ICBMs) and submarine-launched ballistic missiles (SLBMs). There was no limitation—nor even any mention—of warheads.

In the wake of the October 1986 Reagan-Gorbachev meetings in Reykjavik, the United States and Russia agreed to eliminate an entire class of nuclear delivery vehicles.² The accord, known as the Intermediate- and Shorter-Range Nuclear Forces (INF) Treaty, established a model for detailed and intrusive on-site inspections (OSI). Declarations, notifications, and data exchanges frequently provide information that sets the context for verification measures, including both NTM and OSI. Provision of such data was the first step in the implementation of INF. Similarly, information from cooperative verification measures such as OSI works together with that from NTM to provide more comprehensive understanding of the activities or items about which compliance judgments are made.

The historic 1991 Strategic Arms Reduction Treaty (START) wove together three important threads. It was the first such accord to discuss warheads rather than only classes of delivery vehicles, an idea first broached by President Reagan in his May 1982 commencement address at Eureka College. START also reflected the substantial reductions in strategic nuclear delivery vehicles (SNDVs) agreed by Reagan and Gorbachev at the Reykjavik Summit. It built on the precedent-setting OSI principles codified in the INF treaty. For START, NTM and cooperative measures provided the means for verification of ICBM silo and SLBM launcher elimination, but these measures were supplemented by OSI for the elimination of mobile ICBMs and related launch equipment. OSI could also be requested for heavy bomber elimination or conversion. The warhead limits, however, including sub-limits on different classes of delivery vehicles, were captured in counting rules that "attributed" an agreed number of warheads to each type of SNDV based on the maximum number of warheads that had been flown on that type in tests. The START goal was for an upper limit of 1,600 SNDVs and 6,000 accountable strategic warheads.

Fresh from the successful conclusion of the START agreement, the United States and Russia began discussions about further reductions. In 1992, presidents Bush and Yeltsin

2. For the purposes of this discussion the term "delivery vehicle" is used loosely to refer to missiles and/or their associated launchers and aircraft. Individual treaties establish specific and more precise definitions appropriate to that context. The broader term will generally suffice unless otherwise noted.

agreed in principle to a START II goal for elimination of all MIRVed ICBMs and an aggregate ceiling of 3,500 strategic warheads (attributed) by 2003. The START II negotiations concluded in a signed agreement by January 1993. A range of practical and political issues delayed ratification even as the sides pursued a START III agreement setting even lower aggregate warhead limits in the 2,000–2,500 range. Having determined that START I verification measures and procedures would apply to START II and III, the sides also agreed in principle to develop transparency measures for strategic nuclear warhead inventories and for the agreed destruction of such warheads. However, a number of difficulties too complex to review here, but including issues with verification of warhead elimination, kept the follow-on START treaties from entering into force.

The United States and the Soviet Union—and now Russia—have maintained shifting positions about the role and importance of verification in arms reduction and other arms control agreements. NTM were sufficient for the broad SNDV limitations addressed in SALT I. However, the more specific reductions called for in START, together with corresponding limits on “attributed” warheads under agreed counting rules, required OSI that the Soviets initially resisted as too intrusive before ultimately agreeing. Raising concerns over verifiability in another arena, the United States delayed ratification of the Threshold Test Ban Treaty (TTBT) and its companion Peaceful Nuclear Explosions Treaty (PNET) originally negotiated in the mid-1970s. These agreements eventually entered into force in 1990 after agreement on highly technical, on-site verification protocols.

The most recent in this long history of differences over verification came in the Moscow Treaty, which calls for reductions to 1,700–2,200 strategic nuclear warheads by 2012 but contains no verification provisions. The United States had desired to move ahead with unilateral, reciprocal reductions rather than a formal treaty and argued against verification for a number of reasons, including improved U.S.-Russian relations. Russia, in a bit of a role reversal, both demanded a formal agreement and sought more explicit verification of reductions. These concerns are acknowledged by the United States in pointing to “START’s comprehensive verification regime [to] provide the foundation for confidence, transparency and predictability in further strategic offensive reductions.”³ Russia remains concerned that START’s prospective expiration at the end of 2009 may undercut even this limited opportunity for tracking reductions.

Overarching Issues

In looking toward the possibility of further reductions in the future, there are several interconnected and fundamental issues that deserve serious attention.

Warheads and Treaty-Limited Items

As described above, delivery vehicles were the “treaty-limited items” in early nuclear arms control agreements, e.g., SALT I and INF. Later treaties, such as START and SORT, address warheads, but only within a framework of counting rules that attribute certain numbers of warheads to each type of delivery vehicle. In some cases, for instance, the

3. “SORT Letter of Submittal,” The White House, June 20, 2002, <http://www.state.gov/t/ac/trt/18016.htmj3>.

number of gravity bombs (1) attributed under START counting rules to each bomber bears no relation to the real or potential number of weapons that could be carried by these aircraft.

Another warhead-related issue involves the treaty-limited items under the Moscow Treaty. The treaty language itself addresses reductions in the aggregate numbers of strategic nuclear warheads. However, in the Letter of Submittal to the President, the secretary of state indicates that only “operationally deployed strategic nuclear warheads” are subject to the SORT limitations.⁴

Such rules and interpretations acknowledge the difficulties of verifying actual numbers of warheads directly—an issue that may become problematic as one considers further reductions in the future. Is it enough to eliminate delivery vehicles without addressing the question of what happens to the warheads themselves?

Strategic and Nonstrategic Nuclear Warheads

Implementation of the INF agreement eliminated a whole class of nuclear delivery vehicles but did not deal at all with the warheads removed from them. START and the Moscow Treaty deal with strategic nuclear delivery vehicles and their associated warheads (operationally deployed in the latter case) and again do not address the fate of these nuclear weapons. Presidential nuclear initiatives express the intentions of the United States and Russia to limit deployment of certain nonstrategic warheads, but there are no formal agreements that directly constrain numbers of NSNW. Yet there are no innate differences between tactical weapons (NSNW) and strategic weapons (SNW). Their destructive power can be comparable, any distinction between their tactical and strategic character depends solely on how they are employed, and in the emerging security environment even this distinction is increasingly irrelevant.

Disarmament, Dismantlement, and Disposition

The language in Article VI of the NPT speaks to “nuclear disarmament” without addressing what constitutes “disarmament.” In other words, what is the appropriate end point? The agreements reached between the United States and the Soviet Union and its successor states have generally addressed limits on, or reductions in, the deployment of delivery vehicles. Reducing deployed delivery vehicles could be subscribed because such items could be tracked well through a combination of NTM, OSI, and agreed counting rules. In the INF agreement treaty-limited delivery vehicles were disposed of according to an elimination protocol that included OSI. Similarly, NTM combined with cooperative measures and some OSI served for verification of SNDV elimination under START; no such elimination requirement was for the associated warheads.

It remains a question when and how warheads will be addressed in any future move toward deeper reductions in nuclear arms. Admitting the difficulties of verifying actual numbers of actual warheads, it is tempting to sidestep this issue by looking at possible end points for “nuclear disarmament,” such as the disposition of the nuclear materials from warheads. (See below for further discussion of this point, but note that such a focus on end points may have to deal with questions of the degree of necessary confidence in the weapons origin of such materials and what constitutes their satisfactory disposition.)

4. Ibid.

Baseline Numbers

A further complication in pursuing such end points or even deep reductions is the matter of establishing baselines. In other words, if one is monitoring the disposition of warheads or the materials used in them, what should be the measure of progress? Tracking the total number of warheads dismantled or the total amount of nuclear material disposed—or placed in appropriately monitored storage—begs the question of how many or how much is left. There are various published estimates of the total amounts of weapons-usable nuclear material that have been produced by the United States and Russia, but those numbers remain largely unvalidated and the number of warheads into which that material could have fabricated is a matter of conjecture. In other words, no matter how accurately one may verify dismantlement of warheads or disposition of materials, it will be difficult to know how close one might be to one's objective if one doesn't know what was the starting point.

Sensitive Information

The difficulty with starting point, or baselines, is that countries like the United States and Russia consider the total amount of nuclear material they have produced, or the number of warheads produced with that material, to be sensitive. Similar sensitivities, of course, lie behind the problems that countries have with OSI and with any verification of actual warheads. These concerns reflect worries that inspection activities, whether measurements or even the mere presence of foreign personnel at sites like weapons storage or handling areas, risk the compromise of operational practices or other sensitive information. It is to limit the concession of such knowledge that reentry vehicle (RV) inspections under START allow shrouding that reveals only the maximum number of warheads mounted on the subject launch vehicle. Agreement on the types of permitted intrusive presence or inspection have been hard won and usually involve some compromise between the degree of desired certainty and the importance of achieving treaty objectives, on the one hand, and the risks of disclosing sensitive information, on the other.

The United States and Russia found ways to achieve such compromises in bilateral agreements such as INF and START. However, there may be different issues involved as numbers go ever lower, as well as in possible multiparty agreements or if some monitoring responsibilities are assigned to a third party, e.g., to the International Atomic Energy Agency (IAEA). While the United States, for example, may be willing under appropriate circumstances for a peer nuclear power like Russia to have access to some sensitive information, it might not be willing for personnel from a non-nuclear state or even other nuclear weapons states to have similar access. Russia has historically been even more sensitive to the possibility of international inspections.

It will take technical and procedural creativity, determined willingness by nuclear weapons states, positive steps to ensure confidentiality of information and the confidence of non-nuclear states in any process developed, and a more secure and confident international security environment to overcome such overarching obstacles to further nuclear disarmament.

Verification Options and Issues

The verification measures agreed and implemented for bilateral arms reductions by the United States and Russia reflect the intersection of two important considerations. On the one hand, the reductions address the common interests of the two countries and reflect the state of their bilateral relations. At the same time, the verification measures themselves are a reflection of what verification is technically and politically possible. The countries determine what can be verified—and what needs to be, given the political relations between the two states. However, other states will have an interest in these determinations, especially if the other nuclear powers become involved.

Against this backdrop, it is useful to examine briefly some possible approaches to verifying further nuclear disarmament. The approaches considered here are broadly grouped into three classes focusing respectively on measures to verify launchers or delivery vehicles, warheads, or weapons-usable nuclear material.

Delivery Vehicles

In SALT and START, delivery vehicles—and their associated launchers—have been the treaty-limited items. NTM were deemed adequate for verification of both overall numbers and sub-limits on different classes of launchers, provided in some cases that supplementary information was available from OSI. Launch vehicles or their functional bases, including fixed, land-based missile silos for ICBMs and aircraft for bombs and cruise missiles, have such size and distinguishing characteristics that they could be counted using NTM. SLBMs are somewhat different; while their submarine platforms were mobile and hidden from view when at sea, their need to return to port for crew rotation, provisioning, and fueling provided opportunity for monitoring. Road or rail mobile launchers of ICBMs are more challenging for NTM; although the United States initially wanted to ban this entire class under START, agreement was eventually reached to set a mobile launcher ceiling.

Eliminating an entire class of launchers, as under the INF treaty, presents special challenges when the differences between the treaty-limited class and others are not readily distinguishable by NTM. The issue for INF was to distinguish between the treaty-limited, three-warhead SS-20 and the similar, but still-permitted SS-25 carrying just one warhead. Benchmark fast-neutron measurements taken of the two types in their launch canisters and authenticated by visual inspection established templates for distinguishing the two types at subsequent OSI locations. The INF agreement also allowed for continuous OSI at declared missile production facilities to ensure that replacements for eliminated items were not being manufactured and deployed. While rights for OSI under INF expired in 2001, the experience of negotiation and implantation may offer useful lessons for any future efforts to eliminate classes of delivery vehicles.

- NTM may be adequate to assure needed levels of confidence in compliance but may in some cases need to be supplemented by appropriate OSI.
- Elimination of treaty-limited items will require measures to assure such items are not replaced through new production.
- Elimination of a class of items simplifies some verification issues in that detection of any of a proscribed type constitutes noncompliance.

- Treaty-limited items need to be distinguishable from items not so constrained, and if NTM are insufficient, OSI may be necessary.
- Appropriate procedures may need to be established to ensure that OSI activities, e.g., radiation measurements, do not reveal sensitive information.

Warheads

Especially in the context of debate over the Moscow Treaty, warheads are seen by many as a necessary unit of count in achieving the objectives of Article VI. They are also one of the most challenging to verify. While START II and III negotiations pointed toward transparency measures to provide some level of confidence about warhead numbers and warhead elimination, these hopes never bore fruit. Testimony to such difficulties can be found in the continuing absence of any agreement that provides verification measures for warheads other than for “attributed” warheads under START. Of course, actual warheads are not the same as “attributed” warheads. For example, under START only one warhead is attributed to each heavy bomber not equipped for long-range nuclear air-launched cruise missiles (ALCMs). The Moscow Treaty limits “operationally deployed strategic nuclear warheads” but offers no verification measures beyond the treaty’s linkages to START, which expires on December 5, 2009.

The difficulties of verifying actual numbers of warheads are manifold. They cannot be directly detected or counted via NTM, partly because of their relatively small size and partly because their deployment is usually on or in launch vehicles that mask their presence. Warheads in storage would also be masked from NTM, even if they were in principle detectable. OSI measures sufficient to offer reasonable levels of confidence would likely involve unprecedented levels of access to facilities, such as launchers and launch sites, storage sites, etc., only rarely if ever open to representatives of foreign governments. The possibility of clandestine sites would create a need for unprecedented levels of challenge inspections.

An alternative approach might be not to look for and count warheads directly but rather to track their disposition, i.e., their dismantlement into nonusable parts or materials or their placement in monitored storage. Such a path would necessitate having to address two other issues. As implied in earlier discussion, there would have to be a satisfactory resolution of the baseline question: What is the total number of warheads being drawn down through monitored disposition? Because of the inherent indistinguishability of SNW and NSNW, both would have to be covered. Also, measures would have to be agreed for assuring there would be no new warhead production.

Whether counting warheads or monitoring their disposition, there is the question of what inspectors would be looking for, of what constitutes a treaty-limited item, of what exactly is a warhead. Is it even possible to characterize what constitutes a nuclear warhead without resort to sensitive—or classified—information? U.S. and Russian negotiators have approached this issue indirectly in seeking to provide confidence that weapons-usable materials destined for monitored storage were of weapons origin. To this end, experts sought to identify inherent attributes of nuclear warheads that would be amenable to measurement in

ways that would not compromise sensitive information.⁵ For example, high-resolution γ -spectroscopy can detect the isotopic signature of weapons-grade plutonium (Pu). However, the precise spectral composition of weapons plutonium is considered classified by Russia. So, scientists devised information barriers that would enable “yes” or “no” confirmation of the presence of the Pu-239 without revealing details of the spectrum. Other potential attributes were also studied and a demonstration experiment was conducted at Los Alamos National Laboratory in August 2000.⁶ However, because of differences between the United States and Russia, and such difficulties as the intrusiveness of attribute measurement schemes, their authentication, and what happens in the case of uncertainty, such so-called transparency measures have never been implemented. Neither has any practical path to a direct warhead monitoring or elimination regime yet been identified.

Nuclear Materials

If counting actual warheads is so problematic, is it possible to address instead the material that is, has been, or might be used in them? Would it be a satisfactory approach to the intent of Article VI to implement monitored programs for the elimination of weapons-usable materials such as highly enriched uranium (HEU) or plutonium? Of course, it would not be enough to draw down existing stocks of such material. Constraints would have to be implemented on the production of any new material. By itself, this approach may not be sufficient, but there have been several cooperative bilateral and multilateral initiatives in this direction.

In 1993, the United States and Russia concluded an HEU Purchase Agreement under which the United States is purchasing 500 metric tons of HEU from dismantled Russian nuclear weapons for resale as fuel for nuclear reactors. The United States Enrichment Corporation (USEC) acts as the executive agent for the U.S. Government in the implementation of this agreement, and by April 2007 some 300 metric tons of HEU had been converted (blended down) to low-enriched uranium (LEU) for use in nuclear fuel for U.S. civilian reactors.⁷ For purposes of this agreement, the U.S. need for confidence in the weapons origin of the HEU being purchased was deemed to be satisfied upon determination that the HEU had a 90 percent or greater concentration of U235. The transparency process used to make this determination involves special monitoring visits to observe various steps in the conversion process and a blend-down monitoring system to provide a continuous data record confirming the concentration of U235 in the input and output streams of the process. USEC ultimately takes delivery of the resulting reactor grade

5. See, for example, “U.S. Commitment to the Treaty on the Non-Proliferation of Nuclear Weapons,” ACDA Fact Sheet, April 22, 1998, <http://dosfan.lib.uic.edu/acda/factshee/wmd/nuclear/npt/commnpt.htm>.

6. For an indirect reference to this Fissile Material Transparency Technology Demonstration, see the Los Alamos Newsletter, Vol. 2, No. 20, p. 10, October 4, 2001, <http://www.lanl.gov/news/newsletter/100401.pdf>.

7. “Cold War Weapons Fuel Clean Energy for America,” USEC News Release, April 16, 2007,

LEU. In the United States, Russian monitors confirm that the material is actually used in fuel fabrication for U.S. civilian reactors.⁸

The other principal nuclear weapons material is plutonium, and in September 2000 the United States and Russia entered into a Plutonium Management and Disposition Agreement, "... affirming the intention of each country to remove by stages approximately 50 metric tons of plutonium from their nuclear weapons programs and to convert this plutonium into forms unusable for nuclear weapons."⁹ After some initial uncertainty over just how much Pu could be declared excess to defense needs and made available for disposition, the governments agreed on a target of 34 metric tons. More recently, the United States has pledged an additional 9 metric tons to be removed from use in nuclear weapons.¹⁰ The governments continue working together toward ultimate disposition of such excess weapons-usable material, planning now to convert it to mixed oxide (MOX) fuel for burning in nuclear reactors.

The two governments began working with the IAEA, independently of the bilateral Pu disposition program, in pursuit of suitable arrangements for putting excess Pu under IAEA monitoring. This trilateral initiative sought procedures whereby IAEA inspectors could certify that the material was not being diverted for defense purposes while, at the same time, providing adequate protection for sensitive information about the form of the Pu, e.g., its isotopic composition.¹¹ While some technical progress was made on such issues, the methods developed under the trilateral initiative have never been implemented.

This sort of experience with HEU and Pu suggests that weapons-usable material disposition may be a path to follow. However, there remain several issues that need to be addressed in following this course further.

- How to provide confidence in the relationship between the quantities of materials designated for disposition or placement in monitored storage and the total stockpiles of these materials;
- How to extend the U.S.-Russian disposition experience to the defense nuclear materials of other nuclear weapons states;
- How to manage tracking and disposition of defense nuclear materials as states pursue closed nuclear fuel cycle options for civilian nuclear power (closed fuel cycle processes may generate significant quantities of weapons-usable Pu in forms that may or may not be accessible and should be kept separated from potential defense applications); and

8. See, for example, "Highly Enriched Uranium Transparency Program" fact sheet, UCRL-TR-220398, April 2006,

9. "Agreement Between the Government of the United States of America and the Government of the Russian Federation Concerning the Management and Disposition of Plutonium Designated as No Longer Required for Defense Purposes and Related Cooperation," September 2000, <http://www.nnsa.doe.gov/na-20/docs/2000oAgreement.pdf>.

10. "U.S. Removes Nine Metric Tons of Plutonium from Nuclear Weapons Stockpile," NNSA Press Release, September 7, 2007, <http://www.energy.gov/nationalsecurity/5500.htm>.

11. Nikolai Sokov, "Recent Developments in Nuclear Weapons Verification," in *Verification Yearbook 2002*, eds. F. Findlay and O. Meier (VERTIC, London, 2002).

- How to assure that new material is not produced that could be used for nuclear weapons purposes.

Efforts at least partially to deal with the last question have taken the form of international pursuit of a Fissile Material Cutoff Treaty (FMCT). During 2006, the United States presented to the Conference on Disarmament a draft treaty that contained no verification provisions, arguing that effective verification is not possible. Russia and other critics argue that an FMCT can and should address verification, but one can question the seriousness of Russia's position given its previously noted ambivalence over specific verification measures. Transparency measures may be somewhat helpful but will not deal with all of the concerns cited above, and there will remain questions about how any verification provisions would deal with NNSA [National Nuclear Security Administration] and other facilities still legitimately involved with fissile materials for defense applications.

Conclusions

The route toward the nuclear disarmament envisioned in Article VI of the NPT is not at all clear, and parts of that pathway have been and will continue to be marked by uncertainties and stumbling blocks. Nevertheless, some remarkable milestones have been passed during the last two decades. These include the conclusion of historic agreements between the nuclear superpowers for the elimination of intermediate-range nuclear forces, and the important reductions in strategic forces under START. Another significant milestone will be achieved with the drawdown to Treaty of Moscow levels by 2012, albeit without the formal verification measures of previous agreements. At the same time, post-Cold War thawing in the U.S.-Russian relationship enabled important presidential nuclear initiatives and the implementation of mutual agreements for reductions in fissile materials identified as excess to defense needs.

Yet the willingness of governments in Washington and Moscow to continue such cooperation may eventually become hostage to the recent chilling of relations. And there remain some of the fundamental verification issues and potential roadblocks noted earlier, such as when and how to deal with warheads, how to generate confidence in warhead and material inventory baselines, how to handle sensitive information and material disposition that satisfies the quest for disarmament as weapons stockpile numbers diminish.

These and other difficulties remain, and one of the fundamental questions is about the role of verification in future disarmament steps. In spite of the absence of strong verification measures in Treaty of Moscow, it is possible that transparency measures, perhaps based on those from START, may be able to supplement NTM in ways that enhance confidence that the parties are making progress toward agreed warhead reductions. There may even be more mileage to be squeezed out of further delivery vehicle reductions. But the use of START-like verification for such reductions would depend on parties' willingness to tolerate the costs and the levels of intrusiveness involved. Delivery vehicle reductions much beyond the Treaty of Moscow levels will soon encounter the issues of NSNW and of the other nuclear weapons states.

Verification of warhead reductions is a less promising path. Milestones have been set both in the Treaty of Moscow and in PNIs. The latter are unilateral and, as such, lack any

monitoring arrangements. The lack of verification in the Moscow Treaty has been a source of criticism, and the relationship to the START verification regime as a source of “confidence, transparency, and predictability” indicated in the U.S. letter of submittal has yet to be formalized. These factors, together with the inherent difficulties of conducting any type of warhead monitoring and of validating any declarations of baseline data, make a warhead disarmament regime unlikely, at least in the foreseeable future.

On the other hand, an approach that broadens and extends the achievements to date in sequestration and disposition of weapons-usable nuclear materials may offer a path forward. Efforts over the past decade or so have demonstrated procedural and technical approaches for monitoring fissile material disposition work. If some means can be developed and agreed upon that provide confidence that new materials are not being generated for defense purposes, for example through some form of Fissile Material Cut-Off Treaty (FMCT), then materials may be a more promising path to achieving important disarmament objectives at an acceptable level of confidence. Such a pathway may look even more promising if it is pursued in conjunction with additional and transparent delivery vehicle reductions.

As also noted earlier, how much verification is necessary is a function both of technical feasibility, i.e., what verification can be done, and of perceptions of necessity that reflect what is politically possible. The latter will, in turn, be dependent on the character of the international security environment, on the state of relations among the nuclear weapons states, and on the status of other objectives of the NPT.

THOUGHTS ON VERIFICATION OF NUCLEAR DISARMAMENT

William H. Dunlop

It is my pleasure to be here today to participate in this conference. My thanks to the organizers for preparing such an interesting agenda on a very difficult topic. My effort in preparing my presentation was performed under the auspices of the U.S. Department of Energy by University of California, Lawrence Livermore National Laboratory under Contract W-7405-Eng-48. And as many of you know Lawrence Livermore National Laboratory is now, as of October 1, 2007, under contract to the Lawrence Livermore National Security, LLC.¹

There has been a long history of how to view verification of arms control agreements. The basis for verification during the days of the Strategic Arms Limitation Talks (SALT) was that verification would be based on each country's National Technical Means. For treaties dealing with strategic missiles this worked well, as the individual items subject to verification were of such a size that they were visible by the National Technical Means available at the time. And it was felt that the counting of missiles and launchers could be verified by our National Technical Means.

For nuclear testing treaties the use of seismic measurements developed into a capability that was reasonably robust for all but the smallest of nuclear tests. However, once we had the Threshold Test Ban Treaty (TTBT), there was a significant problem in that the fidelity of the measurements was not sufficient to determine if a test was slightly above the 150-kiloton limit or slightly below the 150-kt limit. This led some in the United States to believe that the Soviet Union was not living up to the TTBT agreement. An on-site verification protocol was negotiated in 1988 and 1989 that allowed the United States to make hydrodynamic yield measurements on Soviet tests above 50-kt yield and regional seismic measurements on all tests above 35-kt yield and the Soviets to make the same type of measurements on U.S. tests to ensure that they were not over 150 kt. These on-site measurements were considered reasonably intrusive. Again the measurement capability was not perfect, and it was expected that occasionally there might be a verification measurement that was slightly above 150 kt. But the accuracy was much improved over the earlier seismic measurements. In fact, some of this improvement was because as part of this verification protocol the United States and Soviet Union provided the yields of several past tests to

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improve seismic calibrations. This actually helped provide a much-needed calibration for the seismic measurements. It was also accepted that since nuclear tests were to a large part research and development (R&D) related, it was expected that occasionally there might be a test that was slightly above 150 kt, as you could not always predict the yield with high accuracy in advance of the test.

While one could hypothesize that the Soviets could do a test at some other location than their test sites, if it were even a small fraction of 150 kt, it would clearly be observed and would be a violation of the treaty. So the issue of clandestine tests of significance was easily covered for this particular treaty.

When one considers verification of warhead dismantlement or nuclear disarmament, you must remember that the size of the objects that we are looking for could be placed in almost any railcar, any truck, or, if one is willing to give up the usual shipping container, in the trunk of a car. The use of the standard National Technical Means is not viable for counting warheads if they are separate from the missiles that may carry them. And unlike the Intermediate-Range Nuclear Forces (INF) treaty, where inspection of missiles leaving a plant was allowed to ensure that they were not one of the banned intermediate-range missiles, the number of vehicles that would be subject to inspection in looking for nuclear warheads or parts of nuclear warheads would be a significant burden to inspectors and a hindrance to operations at a nuclear weapon manufacturing site.

A key item that one must remember about an on-site inspection regime dealing with nuclear warheads is that you are looking at sites that either we or they have identified as the places where warheads are located or where their manufacture or destruction takes place. But that does not rule out the existence of other places where this work could take place. And it raises the question of whether there is an obvious signal that cannot be easily concealed, as in the case of nuclear testing under the TTBT, and that clearly alerts you to the potential of a violation. If there is a lack of confidence that the possibility of clandestine operations cannot be observed, confidence in the treaty verification regime can easily be eroded.

The Department of Energy labs, principally Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory, and Sandia National Laboratories, actually did extensive work on the issue of warhead dismantlement transparency in the 1990s. It is noteworthy that we called it transparency and not verification. And a substantial part of what was done was shared with the Russians. And a great deal of Russian work was shared with the United States.

We did one exercise where a real U.S. pit was measured (gamma spectrum and neutrons) in a system with an information barrier in the presence of Russian visitors to demonstrate the fact that warhead dismantlement transparency was possible. The system made gamma spectral measurements and neutron measurements such that it could determine that a container held weapons-grade plutonium of approximately the right mass for the pit of a weapon. The information barrier provided only a yes/no answer as to whether the item, in its container, met the criteria or did not meet the criteria for a weapon pit.

It took us more than a year to do the red-teaming for this exercise to demonstrate to the various agencies in Washington that no classified information would be revealed in the demonstration. But we finally got permission to proceed. We were then delayed by the wildfire that swept through the LANL site and parts of the town. However, we did

successfully complete this demonstration. We were hoping that the Russians would do a similar demonstration of methods for warhead dismantlement transparency, but they never did.

This first system could not be considered verification of nuclear disarmament, because even after this measurement we would not have been able to tell if this was a pit from a stockpile weapon or a pit from a stock of reserve pits, or a pit produced just to satisfy the objective of measuring the existence of a pit before it was destroyed, or that whatever we measured was simply returned to the stockpile.

A system to monitor the true reduction of nuclear weapons would need to encompass the entire nuclear weapons manufacture capability and deployments of the nuclear weapons of a country. One would need to monitor the number of weapons and/or pits being produced, and the number being destroyed, and have at least a declaration of how many existed at some point in time in the process of disarmament. The declaration would need to cover not only the active stockpile of nuclear weapons but also any and all inactive reserves or stocks of warhead components (namely pits). It would need to ensure that there was no method to produce and insert new weapons into this system through clandestine means. Such a system would entail far more intrusive processes than we have ever negotiated in any of the arms control agreements in the past. It may be possible, but it would be an unprecedented step in transparency or verification.

But would this really satisfy those who would apply the standard of “effective verification”? The answer is almost certainly not. In earlier treaties when we talked of effective verification, there were observations that could be made through National Technical Means that could independently verify the declarations that were made by a state (in the past this was the Soviet Union). A verification regime that relies on on-site monitoring will in general always be suspect. Such regimes are like the person who lost his keys on a dark street, walked up the street a few car lengths, and was hunting for them under the streetlight. Someone asked why he was looking there and he answered, “Because that is where there is light.” In the same way, on-site inspections are done where one has permission to look. But that will not answer the question of whether there are other locations or other activities that one should be observing that are at different locations.

The next issue in verifying nuclear disarmament involves the capacity to build weapons. As you know, currently the United States has limited capacity to build new weapons. There has been a lot of talk about developing a “responsive infrastructure” that will provide the United States the ability to maintain its stockpile in the future and to have the capability to respond to a buildup by an adversary if needed. But it does not yet exist. However, if an adversary has a large capability to build weapons and we have a limited capacity to build weapons, there will be a perceived vulnerability under the assumption that a breakout from the treaty might occur. If the adversary can build a robust force in one year and for the United States it takes five years, this will be viewed as a problem. So would or should a treaty dealing with nuclear disarmament take into account the breakout potential of the facilities and materials available to each party.

And finally there is what I call the virtual nuclear weapon states—states that have never built a nuclear weapon. If the United States, Russia, France, the United Kingdom, and China were all at very low numbers of weapons, could a state prepare to go nuclear by

developing the infrastructure and technical expertise to become a nuclear weapons state? Then, if it felt it was important to national security objectives (defensive or offensive), could it quickly divert or use that infrastructure and expertise, originally built for other purposes, to produce nuclear weapons and become a nuclear power in a short time? One might say that is impossible today—and it might be. But will it be impossible in 25 years or 50 years? With the improvement in the understanding in the fields of physics, chemistry, and material science, I believe that it will be possible in something like 25 years.

So if we are to put the genie back into the bottle, we had better make sure that the bottle is still capable of containing the genie.

Compliments of Dave Brown: People can develop more than one genie, and we have to expect that when they put that genie back, they might hide some bottles.

P-5 Nuclear Doctrines and Article VI

October 16-17, 2007

Center for International Security and Cooperation (CISAC)
Stanford University

Tuesday, October 16, 2007

TIME	TOPIC	SPEAKER
8:30 a.m.	Breakfast	
9:00 a.m.	Welcome	Scott Sagan
9:30 a.m.	Purpose and Plan of Workshop	Michael May Kåre Aas
	Chair: Kåre Aas	
10:00 a.m.	History and Status of Article VI	Thomas Graham
10:30 a.m.	Comment	George Bunn
10:45 a.m.	Discussion	
11:15 a.m.	Break	
11:30 a.m.	US Nuclear Posture and Article VI	Linton Brooks
12:30 p.m.	Discussion	
1:00 p.m.	Lunch	Ashton Carter
	Chair: William Potter	
1:45 p.m.	Russia Nuclear Posture and Article VI	Alexei Arbatov
2:15 p.m.	Discussant	Pavel Podvig
2:30 p.m.	Discussion	
3:00 p.m.	An NNWS View: Norway	
3:30 p.m.	Discussion	
3:45 p.m.	Break	
4:00 p.m.	French Nuclear Posture and Article VI	Bruno Tertrais
4:30 p.m.	UK Nuclear Posture and Article VI	Michael Quinlan
5:00 p.m.	An NNWS View: South Africa	Jean Du Preez
5:30 p.m.	Discussion	
6:00 p.m.	Summary	Michael May
6:30 p.m.	Drinks and Dinner	
7:30 p.m.	Dinner	

Wednesday, October 17, 2007

TIME	TOPIC	SPEAKER
8:30 a.m.	Breakfast	
9:00 a.m.	Announcements	
	Chair: Susan Shirk	
9:15 a.m.	China Nuclear Posture and Article VI	Gu Guoliang
9:45 a.m.	Discussant	Jeffrey Lewis
10:00 a.m.	Discussion	
10:30 a.m.	Break	
10:45 a.m.	A View from South Asia	Roddam Narasimha
11:15 a.m.	Discussion	
	Chair: William Perry	
11:45 a.m.	General Discussion: The P-5 and Strengthening the NPT	
12:30 p.m.	Lunch	
	Chair: Steve Stedman	
1:45 p.m.	Steps Toward Nuclear Disarmament	Hans Blix
2:30 p.m.	Small Numbers: Rethinking the Problem	Charles Glaser
3:00 p.m.	Discussant	Roger Speed
3:30 p.m.	Discussion	
4:00 p.m.	Break	
	Chair: Scott Sagan	
4:15 p.m.	Panel: Verifying Disarmament	Hans Blix, Paul White, Patricia Falcone, William Dunlop
5:15 p.m.	Summary	Michael May
7:30 p.m.	William Perry Celebration and Dinner	

P-5 Nuclear Doctrines and Article VI

October 16-17, 2007

**Center for International Security and Cooperation
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THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS (NPT)

The States concluding this Treaty, hereinafter referred to as the Parties to the Treaty,

Considering the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert the danger of such a war and to take measures to safeguard the security of peoples,

Believing that the proliferation of nuclear weapons would seriously enhance the danger of nuclear war,

In conformity with resolutions of the United Nations General Assembly calling for the conclusion of an agreement on the prevention of wider dissemination of nuclear weapons,

Undertaking to co-operate in facilitating the application of International Atomic Energy Agency safeguards on peaceful nuclear activities,

Expressing their support for research, development and other efforts to further the application, within the framework of the International Atomic Energy Agency safeguards system, of the principle of safeguarding effectively the flow of source and special fissionable materials by use of instruments and other techniques at certain strategic points,

Affirming the principle that the benefits of peaceful applications of nuclear technology, including any technological by-products which may be derived by nuclear-weapon States from the development of nuclear explosive devices, should be available for peaceful purposes to all Parties to the Treaty, whether nuclear-weapon or non-nuclear-weapon States,

Convinced that, in furtherance of this principle, all Parties to the Treaty are entitled to participate in the fullest possible exchange of scientific information for, and to contribute alone or in co-operation with other States to, the further development of the applications of atomic energy for peaceful purposes,

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to undertake effective measures in the direction of nuclear disarmament,

Urging the co-operation of all States in the attainment of this objective,

Recalling the determination expressed by the Parties to the 1963 Treaty banning nuclear weapons tests in the atmosphere, in outer space and under water in its Preamble to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time and to continue negotiations to this end,

Desiring to further the easing of international tension and the strengthening of trust between States in order to facilitate the cessation of the manufacture of nuclear weapons,

the liquidation of all their existing stockpiles, and the elimination from national arsenals of nuclear weapons and the means of their delivery pursuant to a Treaty on general and complete disarmament under strict and effective international control,

Recalling that, in accordance with the Charter of the United Nations, States must refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the Purposes of the United Nations, and that the establishment and maintenance of international peace and security are to be promoted with the least diversion for armaments of the world's human and economic resources,

Have agreed as follows:

Article I

Each nuclear-weapon State Party to the Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices.

Article II

Each non-nuclear-weapon State Party to the Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices.

Article III

1. Each non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system, for the exclusive purpose of verification of the fulfilment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices. Procedures for the safeguards required by this Article shall be followed with respect to source or special fissionable material whether it is being produced, processed or used in any principal nuclear facility or is outside any such facility. The safeguards required by this Article shall be applied on all source or special fissionable material in all peaceful nuclear activities within the territory of such State, under its jurisdiction, or carried out under its control anywhere.

2. Each State Party to the Treaty undertakes not to provide: (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the

processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this Article.

3. The safeguards required by this Article shall be implemented in a manner designed to comply with Article IV of this Treaty, and to avoid hampering the economic or technological development of the Parties or international co-operation in the field of peaceful nuclear activities, including the international exchange of nuclear material and equipment for the processing, use or production of nuclear material for peaceful purposes in accordance with the provisions of this Article and the principle of safeguarding set forth in the Preamble of the Treaty.

4. Non-nuclear-weapon States Party to the Treaty shall conclude agreements with the International Atomic Energy Agency to meet the requirements of this Article either individually or together with other States in accordance with the Statute of the International Atomic Energy Agency. Negotiation of such agreements shall commence within 180 days from the original entry into force of this Treaty. For States depositing their instruments of ratification or accession after the 180-day period, negotiation of such agreements shall commence not later than the date of such deposit. Such agreements shall enter into force not later than eighteen months after the date of initiation of negotiations.

Article IV

1. Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I and II of this Treaty.

2. All the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy. Parties to the Treaty in a position to do so shall also co-operate in contributing alone or together with other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty, with due consideration for the needs of the developing areas of the world.

Article V

Each Party to the Treaty undertakes to take appropriate measures to ensure that, in accordance with this Treaty, under appropriate international observation and through appropriate international procedures, potential benefits from any peaceful applications of nuclear explosions will be made available to non-nuclear-weapon States Party to the Treaty on a non-discriminatory basis and that the charge to such Parties for the explosive devices used will be as low as possible and exclude any charge for research and development. Non-nuclear-weapon States Party to the Treaty shall be able to obtain such benefits, pursuant to a special international agreement or agreements, through an

appropriate international body with adequate representation of non-nuclear-weapon States. Negotiations on this subject shall commence as soon as possible after the Treaty enters into force. Non-nuclear-weapon States Party to the Treaty so desiring may also obtain such benefits pursuant to bilateral agreements.

Article VI

Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.

Article VII

Nothing in this Treaty affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories.

Article VIII

1. Any Party to the Treaty may propose amendments to this Treaty. The text of any proposed amendment shall be submitted to the Depositary Governments which shall circulate it to all Parties to the Treaty. Thereupon, if requested to do so by one-third or more of the Parties to the Treaty, the Depositary Governments shall convene a conference, to which they shall invite all the Parties to the Treaty, to consider such an amendment.
2. Any amendment to this Treaty must be approved by a majority of the votes of all the Parties to the Treaty, including the votes of all nuclear-weapon States Party to the Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. The amendment shall enter into force for each Party that deposits its instrument of ratification of the amendment upon the deposit of such instruments of ratification by a majority of all the Parties, including the instruments of ratification of all nuclear-weapon States Party to the Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. Thereafter, it shall enter into force for any other Party upon the deposit of its instrument of ratification of the amendment.
3. Five years after the entry into force of this Treaty, a conference of Parties to the Treaty shall be held in Geneva, Switzerland, in order to review the operation of this Treaty with a view to assuring that the purposes of the Preamble and the provisions of the Treaty are being realised. At intervals of five years thereafter, a majority of the Parties to the Treaty may obtain, by submitting a proposal to this effect to the Depositary Governments, the convening of further conferences with the same objective of reviewing the operation of the Treaty.

Article IX

1. This Treaty shall be open to all States for signature. Any State which does not sign the Treaty before its entry into force in accordance with paragraph 3 of this Article may accede to it at any time.
2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of the United Kingdom of Great Britain and Northern Ireland, the Union of Soviet Socialist Republics and the United States of America, which are hereby designated the Depositary Governments.
3. This Treaty shall enter into force after its ratification by the States, the Governments of which are designated Depositories of the Treaty, and forty other States signatory to this Treaty and the deposit of their instruments of ratification. For the purposes of this Treaty, a nuclear-weapon State is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967.
4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.
5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or of accession, the date of the entry into force of this Treaty, and the date of receipt of any requests for convening a conference or other notices.
6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

Article X

1. Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.
2. Twenty-five years after the entry into force of the Treaty, a conference shall be convened to decide whether the Treaty shall continue in force indefinitely, or shall be extended for an additional fixed period or periods. This decision shall be taken by a majority of the Parties to the Treaty.

Article XI

This Treaty, the English, Russian, French, Spanish and Chinese texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly

certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Treaty.

DONE in triplicate, at the cities of London, Moscow and Washington, the first day of July, one thousand nine hundred and sixty-eight.

