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Uncovered Nukes

Arms Control and the Challenge of Tactical Nuclear Weapons

by
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UNCOVERED NUKES
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Preface

This report addresses currently deployed and stored arsenals of tactical nuclear weapons on the one hand, and problems related to the potential for future development of low-yield, bunker buster, earth penetration tactical nuclear weapons on the other. Each category of tactical nuclear weapons, whether old, new, or on the drawing board, presents risks to global security that have been exacerbated by the marked increase of the threat of terrorist attacks. Before the attacks of September 11, 2001, the Hart-Rudman report on the U.S. Commission on National Security/21st Century, which has been recognized by the U.S. government for its recommendations for responding to terrorism, made it clear that "verifiable arms control and nonproliferation efforts must remain a top priority. These policies can help persuade states and terrorists to abjure weapons of mass destruction and to prevent the export of fissile materials and dangerous dual-use technologies."[1]

An adequate regime for the control of all nuclear weapons, including those hitherto uncovered by formal security arrangements, is an essential element in preventing terrorists from acquiring nuclear weapons and diminish the possibility of their use. Honoring the commitments and furthering the effectiveness of an international nonproliferation regime also requires careful examination of the political and military value of possessing and deploying these weapons.

Measures taken to address Russian and U.S. tactical nuclear weapons could positively impact the security considerations of other nations and actors, and lessons learned from increased efforts to deal with these weapons could be applied at the multilateral level.

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Executive Summary

Thousands of substrategic, or tactical, nuclear weapons (TNWs) are not monitored or controlled by any existing treaties or formal agreements, even though these weapons pose risks that are equal to or greater than those of strategic nuclear weapons.

In Russia and the United States—the nations with the largest existing stocks of these tactical nuclear weapons—uncurbed stockpiles could increase in size while lab directors and security advisors are calling for the development, deployment, and even the use of newer classes of TNWs.

The rise of international terrorism presents a particularly grave and compelling reason to develop an international regime to monitor, control, and ultimately eliminate the presence of current and possible future deployment of TNWs.

Incentives can be used to foster and strengthen policy options to control existing tactical nuclear weapons and to prevent the development of new (or redesigned) low-yield or "bunker buster" tactical nuclear weapons.

Recommending that procedures established and measures taken to safeguard Russian and U.S. tactical nuclear weapons could eventually be applied multilaterally, this study evaluates the following options for reducing the risks associated with current and possible future deployment of tactical nuclear weapons.

1. **Build upon the START (Strategic Arms Reductions Treaty) process.** The START framework can serve as a basis to ensure control with adequate verification and monitoring. As it appears cooperation between the United States and Russia is improving, particularly in the wake of the terrorist attacks of September 11, 2001, it would make sense in the context of START III and current discussions to address TNWs.

2. **Go beyond unilateral and bilateral approaches** to ensure stability and third-party participation of other nations. There is a need for mechanisms, such as the Cooperative Threat Reduction (Nunn-Lugar) initiative, that would enable the United States, Russia, and partner nations to implement common decisions. Adding the effective involvement of an official representative from one or more international organizations to relevant fora, such as NATO's Permanent Joint Council, would help to assure more stability and accountability, and provide a sustainable element that could better withstand difficulties in bilateral relations.

3. **Withdraw tactical nuclear weapons from Europe** to address longstanding Russian security concerns, particularly as NATO continues to expand eastward, in exchange for a pledge from Moscow that it will share data on the status and location of its TNW arsenal, and download and significantly reduce its forward deployed tactical nuclear weapons.

4. **Proceed with TNW disarmament by category in a step-by-step approach.** It would be worth pursuing a global limit on specific types of weapons, especially if done in conjunction with a prohibition on the development and deployment of all redesigned or new models of tactical nuclear weapons. A simple step for both the United States and Russia to take would be the prohibition of deployment or development of new, or redesigned, low-yield or bunker-buster nuclear weapons.

Introduction

For three decades, arms control treaties have provided a legal basis for the limitation and reduction of long-range nuclear weapons. However, safeguards on entire classes of nuclear weapons have not been included in this process. Thousands of substrategic, or tactical, nuclear weapons (TNWs) are not monitored or controlled by any existing treaties or formal agreements, even though these weapons pose dangers that can be equal to or greater than those of strategic nuclear weapons.

The only substantive effort to address these weapons has been a regimen of unilateral, parallel reductions undertaken by Presidents Bush and Gorbachev in late 1991 and capitalized upon by President Yeltsin in 1992 in the wake of the dissolution of the Soviet Union. Initiatives such as these, while bold at the time, possess intrinsic weaknesses in ensuring tactical nuclear weapons control today. Ultimately, this entire class of nuclear weapons still remains largely unmonitored and uncontrolled.[2]

Reducing the risks associated with this neglect in safeguarding tactical nuclear weapons is particularly urgent in light of recent events. Current efforts to develop a National Missile Defense system and decisions to put aside traditional international arms control mechanisms emphasize the need for a multilateral system of safeguarding TNWs. Further, the terrorist attacks of September 11, 2001 dramatically illustrate the need for intensified efforts to prevent nuclear weapons and other weapons of mass destruction from proliferating, whether to terrorist groups, nonstate actors, or nuclear aspiring states.[3]

This study will evaluate options for reducing the risks associated with current and possible future deployment of tactical nuclear weapons. We focus this study on Russia and the United States, who have the largest stockpiles of tactical nuclear weapons, and which have indicated interest in developing new TNWs. Procedures established and measures taken to safeguard Russian and U.S. tactical nuclear weapons could eventually be applied multilaterally.

In this study we challenge the policy recommendations of several key figures in defense-oriented think tanks that are currently influencing some U.S. policymakers. These advisors believe that the effectiveness of U.S. defense depends in part on reliance on current tactical nuclear weapons in battlefield plans and as deterrents, and that the development of new weapons is crucial to maintaining U.S. military strength.[4]

Careful consideration will be given to the application of incentives to foster and strengthen policy options. Historically, inducements have played positive roles in international statecraft by encouraging states to find common ground, build confidence, and develop negotiations on contentious nonproliferation and security issues. Cases in North Korea and the Ukraine may provide relevant examples of instances when incentives have helped generate a positive outcome which could be applied to progress on controlling tactical nuclear weapons.

PART ONE: Tactical Nuclear Weapons—The Problem at Hand

I. TNWs: An Overview

a. Characteristics Unique to TNWs

Tactical nuclear weapons can possess unique qualities that make their neglect in international nuclear arms control exceptionally pernicious. This category of nuclear weapons includes a broad array of atomic explosive devices. These range from so-called nuclear landmines and nuclear artillery shells to air-dropped or missile launched nuclear warheads. The yield of such weapons ranges from relatively low—0.1 kiloton (KT)—to yields higher than those of the bombs dropped on Hiroshima and Nagasaki—10 to 15 KT, and upwards to 1 megaton.[5]

Although TNWs often possess smaller blast yields than strategic nuclear weapons, some higher-yield TNWs (in the 10 to 25 KT range, or greater) actually are more powerful than some classes of strategic nuclear weapons, with requisite destructive potential. Even a very low-yield atomic blast would create highly damaging effects, above and beyond what a conventional explosion of the same size could produce.[6]

b. Issues of Definition

Defining what constitutes a tactical nuclear weapon is difficult at best. A definition could encompass such criteria as: range, yield, target, national ownership, delivery vehicle, and capability. Each of these criteria, however, is subject to conceptual challenges and shortcomings, making it difficult to achieve a definition that is both precise but also broad enough to apply to various conditions where control of these weapons is needed.

Another consideration, which would be to circumvent such complications, is a definition of exclusion. That is, any nuclear weapon not covered by existing treaties would be a *de facto* tactical nuclear weapon.[7] However, there are many types of TNWs, many of which pose challenges and dangers that are distinct from those posed by others. Atomic demolition units (ADUs), for example, pose dangers and challenges that are in significant respects different from air-delivered TNWs. Therefore, in addressing TNWs, the definition by exclusion option is limited in that it lumps all weapons together and thereby may lead to failures to recognize problems unique to individual types of TNWs.

Historical evidence suggests that when seeking solutions to problems caused by TNWs, attempting a universal definition of this weapon type is unprecedented, and perhaps unnecessary. Formal arms control initiatives stemming from the cold war, and involving mainly the United States and the USSR, later Russia, defined the subject of their scope on essentially an *ad hoc* basis. That is, particular warheads and delivery systems were chosen not just for the need to control them but also the feasibility of subjecting them to such control. This approach may also apply to TNWs. For example, counting strategic nuclear weapons by warhead rather than by delivery vehicle under START III or a new round of presidential initiatives may help define TNWs.

Measures to define TNWs need to eventually be viewed multilaterally in the post–cold war era. Depending on what criteria are selected in determining what a tactical nuclear weapon is—in essence, which specific weapons or delivery systems would be subject to control—some weapons may be strategic in one context, but tactical in another. For example, the limited range of China's nuclear forces may make them "tactical" by U.S. standards, but proximity to Russia could classify them as strategic

according to Russian perceptions.[8] Similar problems arise in other contexts, such as India, Pakistan, and other current or aspiring nuclear states. Any attempt to address the contemporary challenges posed by tactical nuclear weapons must account for such nuances.

c. Usability Paradox

Because TNWs are smaller nuclear weapons, some in policy and military circles view them as "usable nukes." Recent and ongoing calls for further development and greater incorporation of these weapons into war-fighting plans by military analysts in the United States and Russia signal that there are misconceptions about the "usability" of TNWs, based on the notion that these are "cleaner" nuclear weapons. Such battlefield reliance on TNWs could escalate a conventional war into a broader nuclear conflict, posing risks to people and the environment. Greg Mello, director of the Los Alamos Study Group, a nuclear weapons policy research and education group based in Santa Fe, maintains that the blast from the lowest yielding nuclear weapon against deeply buried targets would "knock down nearly all homes and apartments—and kill nearly all the people in them—out to distances of greater than half a mile from the blast." Those within this area who survived the blast would suffer a lethal dose of radiation, he predicts. "To take a specific example," says Mello, "if the target in question were the Iraqi presidential bunker located in south-central Baghdad, there would be very roughly 20,000 people located within one-half mile of this target."[9]

The deleterious effects of a low-yield nuclear explosion are also explored in an April 2001 report produced for the Federation of Atomic Scientists by Robert Nelson. Nelson has responded to proposals from U.S. National Laboratories at Sandia and Los Alamos for new mini-nukes. He faults the claim that these weapons might actually be useful, stating: "proponents of building a new generation of small nuclear weapons have seldom been specific about situations where nuclear devices would be able to perform a unique mission," except as "a substitute for conventional weapons to attack deeply buried facilities."[10] However, he analyzes the effects of using "mini-nukes" for such a purpose, and concludes that the massive radioactive contamination these weapons would produce, and the decision-making that would precede actual use of TNWs, makes it unlikely an American or Russian president would choose to employ them. Notwithstanding, the argument for newer weapons continues, as many advocates are asserting that the mere existence of these weapons, their reduced yield, and improved accuracy should be an inducement for their use.

d. Impediments to Strategic Reductions

Intent or willingness to use TNWs may lower the overall nuclear threshold, not only for tactical nuclear weapons, but also for strategic nuclear weapons. Developing new roles for TNWs will also undermine efforts toward nonproliferation by inhibiting the development of treaties and multilateral agreements covering both weapons classes. Plans to use TNWs as "battlefield" nuclear weapons would also encourage the development of newer, more powerful forms of such weapons. In Russia any efforts to research, develop, or produce new weapons would put a strain on dwindling resources at a time when large amounts of money are being diverted to fund efforts to extend the life of existing TNWs and retire those that are classified as obsolete.

In addition to these threats intrinsic to TNWs, these weapons may also impede efforts at reducing strategic nuclear weapons. In the United States, former senior-level officials have suggested that the Russian TNW arsenal would have to be better safeguarded and reduced, or the United States would not be able to reduce its strategic arsenal beyond START II levels.[11] The sheer size of the Russian TNW stockpile and the deficiencies in command and control, storage, and accountability for TNWs hold the possibility of impeding cooperation and reduction by the United States on strategic nuclear weapons.

e. TNWs and Unauthorized or Accidental Use, and Accidental Nuclear Contamination

Because of their often small size and portability, tactical nuclear weapons are more vulnerable than strategic nuclear weapons to accidental or illicit use. Characteristics of command unique to some TNWs—such as predelegated launch authorization, and often inadequate safeguards (i.e., effective permissive action links, or PALs) add to their potential unauthorized, accidental, or illicit use.

This is particularly a problem with older Russian models of TNWs, which are troubled not only by a crumbling system of safeguards, but also by inadequate storage, where leakage of nuclear materials can pose severe security risks and environmental hazards. Also, fundamental uncertainties stemming from insufficient transparency of the Russian nuclear arsenal make it harder to account for potentially missing TNWs. If terrorists were able to steal a complete nuclear warhead, it would be more likely that it would be a tactical weapon, due to storage/security conditions and the less-stringent PALs on such weapons.[12] The possibility of theft of a weapon is exacerbated by Russia's lax customs controls along its borders.

II. TNWs and Terrorism

a. Use by Terrorists

The rise of international terrorism presents a particularly grave and compelling reason to develop an international regime to monitor, control, and ultimately eliminate the presence of TNWs. Because they may be relatively small and portable—particularly but not exclusively as in the case of so-called "suitcase" bombs or atomic demolition munitions—TNWs are easier to transport and more vulnerable to theft than other nuclear weapons.[13] In the hands of terrorists, TNWs would wreak a havoc far-surpassing the devastating outcomes of the September 11 attacks on New York and Washington. According to the Department of Defense, use of a nuclear weapon by terrorists would most likely be against

> either a military installation or a political target (*e.g.*, the seat of government, large population center, or commercial port city). In such a scenario, citizens outside the immediate lethal area would be exposed to the prompt radiation of the initial explosion as well as to chronic exposures resulting from the residual radioactive fallout.[14]

Terrorist use of a nuclear weapon would have an immense psychological impact as well, extending beyond the immediate physical damage.

Although the U.S. tactical arsenal is comparatively secure from theft attempts, the existing Russian TNW arsenal is beset with problems of storage and accounting. Concerns about theft of nuclear material or the contracting out of nuclear expertise are exacerbated by unemployed or underpaid nuclear technicians who, as the fallout of a crumbling Russian economy, may be tempted to illegally sell nuclear matter to terrorist groups and renegade states. Terrorist organizations have attempted to acquire these weapons, and the possibility exists that one day they could be successful. Indeed, former FBI investigator Oliver Revell said in an October 2001 interview with ABC news, "Usama bin Laden has been in contact with various sources, including Russian Mafia groups, in an attempt to obtain radiological materials, perhaps tactical nuclear weapons."[15] President Bush, on November 6, 2001, in reference to Al Qaeda, stated "They are seeking chemical, biological and nuclear weapons," and implied a willingness by them and other terrorist groups to use nuclear weapons. While as yet there is no evidence that terrorists have acquired such weapons, this very real possibility underscores the importance of international efforts to control and reduce this class of weapon through a successful initiative on TNWs.

Even before the attacks of September 11, the April 2000 Hart-Rudman commission report, *Seeking a National Strategy: A Concept for Preserving Security and Promoting Freedom,* which has been recognized by the U.S. government for its recommendations for responding to terrorism, made it clear that "verifiable arms control and nonproliferation efforts must remain a top priority. These policies can help persuade states and terrorists to abjure weapons of mass destruction and to prevent the export of fissile materials and dangerous dual-use technologies."[16]

b. Use against Terrorists

The U.S. response to the terror attacks on New York and Washington has raised questions about the use of tactical nuclear weapons against terrorist bases, or the countries that may harbor them.[17] Indeed, prior to September 11, Paul Robinson, director of Sandia National Laboratories, argued that "nuclear weapons do have a place and a purpose today." He suggested development of what he called a "To Whom It May Concern" force, for use against nations or subnational entities.[18]

Use of TNWs in the battle against terrorist groups would set a precedent for their use and weaken any efforts to regulate these weapons. Such use could also possibly incite nuclear, chemical, or biological retaliation by state and nonstate actors. Additionally, any use of such weapons would immediately challenge the maintenance of a successful international coalition against terrorists, and threaten contamination of civilians within the target state and neighboring states.

III. Efforts to Address Current Arsenals

a. Brief Overview of Historical/Current Levels of TNWs

At the pinnacle of their existence, numbers of tactical nuclear weapons ranged in the tens of thousands, and spanned many types of such weapons.[19] A set of parallel, unilateral presidential nuclear initiatives (PNIs) undertaken in 1991 and 1992 by Presidents George H. W. Bush, Mikhail Gorbachev, and later, Boris Yeltsin, resulted in the reduction of many of these weapons. However, thousands of TNWs still exist—mainly in the Russian arsenal—with no specific regime in place to guarantee adherence to or advance progress of these accords. The current U.S. arsenal remains at approximately 1,670 tactical nuclear weapons, according to recent estimates.[20] The Russian arsenal, according to some recent estimates may be as high as 20,000 weapons, while more conservative estimates are in the 4,000 to 5,000 range.[21]

b. 91/92 Plan

As stated, the PNIs undertaken by Presidents Bush, Gorbachev, and Yeltsin are the most substantive diplomatic efforts taken as yet toward the reduction and control of tactical nuclear weapons. In September 1991, the nuclear arsenal of a crumbling Soviet Union posed an urgent risk to global security. To prevent these weapons from falling into the hands of renegade states and individuals in the Soviet republics, President Bush announced the unilateral reduction of U.S. TNWs—estimated to have been 7,165 weapons[22]—and proposed that the Russians respond in-kind with their own reductions. The Soviet Union under Mikhail Gorbachev, and then Russia under Boris Yeltsin, reciprocated President Bush's initiative by agreeing to reduce the Soviet/Russian TNW arsenal. The reductions following the PNIs are significant. An estimated 3,050 U.S. TNWs were to be eliminated under the 91/92 PNIs.[23] Although exact figures aren't available, it is believed that the Russian TNW arsenal has been reduced by more than 11,000 warheads since 1992.[24]

Reductions in Russian TNW forces continue not only because of the 91/92 PNIs, but also because of the aging of the force itself. Indeed, the operational readiness of the Russian TNW arsenal has been questioned. Dr. Alexei G. Arbatov, deputy chairman of the Defence Committee of the Russian Duma, has suggested that existing Russian TNWs are bound for technical obsolescence. Many Russian TNWs slated for elimination under the 91/92 PNIs "were to be eliminated anyway by 2003 because their design lives will have expired."[25] Doubt remains whether Russia's stymied economy could allow for these retired warheads to be replaced, and Arbatov argues that "[I]t is unlikely that after 2003 there will be more than a few hundred or at most 1,000 tactical nuclear weapons in the Russian armed forces."[26]

The diminishment of the Russian TNW arsenal would not remove the danger of the future development of Russian TNWs, and should not be taken as indication that residual problems posed by the decaying current arsenal (for example, adequate safeguarding and disposal of weapons materiel) will be taken care of effectively. Such concerns point to the need for the implementation of an international regime to control TNWs. Indeed, Arbatov suggests that one measure to address the dangers brought on by newly developed weapons could be to delineate an "obligation to limit production of . . . [these] weapons to replace physically obsolete ones."[27]

IV. Unilateral Initiatives and the Need for an Effective TNW Regime

The problems mentioned above with tactical arsenals, and the continued reliance on these weapons by the U.S. and Russia, are indications that that the 91/92 PNIs, as with unilateral initiatives toward arms control in general, have serious shortcomings. Although they do circumvent the lengthy and complicated process of treaty negotiations (and expediency was one of the goals of the 91/92 initiatives) unilateral initiatives:

- are not legally binding, allowing either side to modify or withdraw from the arrangement;
- do not provide consistent means for data sharing and verification; this lack of transparency increases uncertainty regarding stockpile levels, implementation of the agreement, and the manner and timing as to when information is shared;
- do not limit research and development into other similar, newer, or related weapons systems;
- provide no way of assuring the Russian or American public that any reduction is taking place;
- are vulnerable to changes in other international agreements; and
- are vulnerable to shifts in international affairs or attitudes, undercutting long-term commitment to the terms of the agreement.[28]

The need for greater U.S.-Russian initiatives to address the safeguarding of TNW arsenals goes well beyond the U.S.-Russian context, and could possibly serve as a productive starting point for addressing the multilateral nature of the problem. The security architecture of Europe in the twenty-first century will have to address the Russian military balance, including the Russian tactical nuclear arsenal, and the role of the nearly 150 to 200 U.S. tactical nuclear weapons currently based across eight European countries. The degree of U.S.-Russian cooperation on arms control issues will deeply affect the global strategic outlook in the post–cold war security environment by influencing the weapons policies of other nuclear states. To reduce risks within these states, and to prevent other nations (and nonstate actors) from attaining these weapons, the U.S. and Russia must actively address the need to reduce the political status they attach to their nuclear weaponry.

At the March 1997 Helsinki Summit, the possibility was raised of addressing TNWs in the context of START III negotiations on strategic nuclear weapons.[29] In recent communiqués following NATO ministerial meetings, placing TNWs on the agenda of future arms control discussions has been repeatedly suggested.[30] Thus far, however, nothing substantive has come from these suggestions. One notable development in the international arena is the Cooperative Threat Reduction Initiative of U.S. senators

Sam Nunn (D-GA) and Richard Lugar (R-IN), an effort to address the problems posed by Russia's decaying nuclear system and other lingering dangers of the Soviet Union.

V. New Plans for TNWs in the U.S. and Russia

Given the declining trend in the numbers of current U.S. and Russian tactical nuclear weapons and the prevailing desire to mutually safeguard remaining weapons, there now exists an opportunity to develop an international regime to address all TNWs before newer classes of TNWs can be developed. However, in the United States, Russia, and elsewhere, there are those who are calling for the development, deployment, and even the use of newer classes of TNWs.

a. New Plans: The United States

Calls for the development of new classes of TNWs in the United States have emerged largely from analysts at U.S. nuclear weapons laboratories. Stephen Younger at Los Alamos National Laboratory, for example, has argued in support of the usefulness of so-called mini-nukes or bunker-busters, and recommends steps toward their development:

> Some targets require the energy of a nuclear weapon for their destruction. However, precision targeting can greatly reduce the nuclear yield required to destroy such targets. Only a relatively few targets require high nuclear yields. Advantages of lower yields include reduced collateral damage, arms control advantages to the United States, and the possibility that such weapons could be maintained with higher confidence and at lower cost than our current nuclear arsenal.[31]

These low-yield nuclear warheads would be deployed on specially configured earth penetrating bombs or missiles to target deeply buried or hardened underground targets, such as bunkers and bomb shelters.

The U.S. Congress is exploring the development of these weapons for deployment in U.S. armed services. Senators John Warner (R-VA) and Wayne Allard (R-CO) have added a provision to the 2001 Defense Authorization Bill that requires the Departments of Energy and Defense to conduct a new study on the use of nuclear weapons for the purpose of destroying "hard and deeply buried targets."[32] A report on the results of the study, which was initially due by July 1, 2001, but is yet unreleased, may lead to the undoing of a current congressional prohibition initiated by Representatives Elizabeth Furse (D-OR) and John Spratt Jr. (D-SC). The Furse-Spratt provision to the fiscal year 1994 Defense Authorization Bill prohibits nuclear laboratories from research and development that could lead to the creation of low-yield nuclear weapons.[33]

The Furse-Spratt amendment, as well as other statements from Congress, serve as recognition of the dangers of plans to develop or use such weapons, and acknowledge the possibility of a nuclear backlash against the United States following the use of such weapons. It has also been raised before Congress that these plans would give incentive to other countries to develop their own nuclear weapons, adding to the problem of increased proliferation. These sentiments are summarized in a statement by Rep. Mike Thompson (D-CA) who notes that the problem with developing such a weapon is that it is likely to encourage military and political leaders to "think more readily about using nuclear weapons." Thompson goes on to add that:

> In my view, we should not lower this threshold or make nuclear weapons a more acceptable choice in war. In addition, development of such a weapon is contrary to our nation's goals of reducing and eventually eliminating nuclear weapons. To begin development and stockpiling of a

new nuclear weapon would reverse the difficult achievements the United States has made to slow the proliferation of nuclear material and weapons.[34]

In spite of these sentiments, Senator Warner and other policymakers still garnered support for overturning Furse-Spratt and resuming testing and development of "low-yield" nuclear weapons. The desire to develop these weapons among some Republican lawmakers also stems from a general partisan opposition to the Comprehensive Test Ban Treaty.

The forthcoming U.S. Nuclear Posture Review, as well as the results of the mini-nuke study, will likely advise on the current U.S. tactical nuclear arsenal. Each of these studies could advocate that the U.S. develop new classes of tactical nuclear weapons. The outcome of these studies and their effect on the decisions of policymakers is yet unknown.

b. New Plans: Russia

There have been numerous suggestions among Russian analysts and policymakers for the development of new classes of tactical nuclear weapons. As the cost of maintaining conventional military hardware and supporting personnel has become unmanageable, Russia has sought to make up for these qualitative and quantitative deficiencies, particularly in the context of an expanding NATO. It has done so by officially abandoning its pledge not to use nuclear weapons first in a conflict and by increasing its reliance on tactical nuclear weapons, viewed as "war-fighting weapons," that could be used in combat operations.[35]

Russia's new "Concept of National Security" took effect on January 10, 2000 and a formal document was published in the weekly military supplement *Nezavisimoe Voennoe Obozrenie* on January 14, 2000. The Concept document warns that nuclear attack by Russia might be "forthcoming to repel armed aggression if all other means of resolving a crisis have failed."[36]

Three months later on April 21, the Russian Security Council approved, and President Vladimir Putin signed, a new military doctrine. This updated doctrine replaces the doctrine of no first strike adopted in 1993 and fleshes out the military policy elaborated in Russia's Concept of National Security document. The new doctrine appears to lower Russia's threshold for using nuclear weapons when attacked with conventional weapons. It also explicitly states that Russia's nuclear deterrent can be used to respond to all attacks with weapons of mass destruction and reaffirms Russia's negative security assurances to nonnuclear weapons states.

U.S. analysts have made suggestions that Russia could already be embarking on a new TNW program. Fritz Ermarth, for example, has stated: "The Russians are talking about making truly usable tactical and strategic nuclear weapons. No concept has been more anathema to the arms control thinking of the past. Yet little attention has been paid to this. Nor have the Russians, to my knowledge, ever agreed to consult with anybody about this."[37]

Russian analysts appear to have picked up on NATO's cold war arguments for using a TNW arsenal as a counterbalance to conventionally superior opposing forces. That is, the U.S. based TNWs in NATO countries because of superior Soviet conventional forces. Now Russia may want to keep TNWs forward deployed because of superior NATO conventional forces. However, it is not clear the extent to which such proposals have been implemented, and doubts exist whether doctrine calling for increased reliance on TNWs has resulted in actual planning. Furthermore, given an economically crippled Russian Federation faced with internecine bureaucratic turf wrangling, the notion of increasing reliance on TNWs is risky, or at the very least, questionable. Whether these plans are brought to fruition

depends on Russian self-perception and aspirations regarding its role in the international environment, the strength of the Russian economy, and weaknesses in Russian conventional military capabilities.

In sum, there are advocates in both Russia and the United States for new TNWs. At the same time, development programs do not appear to have been implemented. However, it remains a distinct possibility that such programs could be undertaken in either country.

VI. TNWs in International Security: Addressing the Issues

Tactical nuclear weapons have been assigned several general purposes in post–cold war policy planning and analytic discourse. Generally speaking, arguments in favor of the development, deployment, or use of TNWs have included that such weapons enable their possessor to:

- deter the use of TNWs by opponents;
- allow "flexible response" to a broad range of military threats;
- provide nuclear military options below the strategic level;
- help to defeat large or overwhelming conventional or chemical/biological attacks;
- have a placeholder of status, commitment, or prestige.

a. TNWs and Deterrence

The deterrence role that TNWs were assigned during the cold war was questionable and in the current context is even less convincing. NATO doctrine on TNWs in Europe during the cold war was also in part wrested to fit the controversial notion that these weapons served as a wrung on the escalation ladder—lending them, in effect, this deterrent role—and that TNWs were a security guarantee of the U.S. commitment to Europe.

In the post–cold war context of NATO relations with Russia, NATO and the U.S. do not hold the same need for a similar assurance. Whereas before, TNWs were to compensate for a European conventional inferiority, NATO is now in a position of conventional superiority—because of the decline in Russian capabilities and the advances in Western, particularly U.S., technological capability. Further, economic and political ties have supplanted arguments for keeping U.S. TNWs in Europe as a "vital transatlantic link."

Meanwhile, Russia's military posture vis-à-vis Europe is based on homeland defense, not alliance commitments, and therefore TNWs in the Russian arsenal do not have the added reassurance role that they did in the cold war U.S.-NATO relationship. Also, because use of TNWs between opponents with strategic nuclear capabilities could yield a broader strategic exchange, the deterrent value that TNWs would purportedly add to the NATO-Russian military balance may already exist via the presence of the threat of strategic nuclear weapons. Therefore, Russian TNWs serve a diminished deterrent role, given Russian strategic nuclear capabilities.

Deterrence based upon a threat against nonnuclear states with a TNW arsenal is problematic as well. First, use or threat of use of any class of nuclear weapons by nuclear-armed states against non-nuclear-armed states (assuming deterrence implies a threat) runs counter to the commitments of nuclear states under the Nuclear Nonproliferation Treaty (NPT) and international law—commitments which include negative security assurances and pledges to reduce TNWs. Moreover, aside from the international legal component, to threaten nonnuclear states with nuclear weapons increases incentives for these nonnuclear states to acquire a nuclear weapons capability, encouraging proliferation and thus, risking a reduction in overall security.[38]

b. Flexible Response to Broad Military Threats

Challenges exist to relying on TNWs as "usable" nuclear weapons.

First, decision makers would likely be hesitant to actually call on their use. The above statement by Representative Thompson adequately summarizes the potential international diplomatic fallout from the use of TNWs, and the notion of "letting the nuclear genie out of the bottle" would provide strong disincentive to any decision maker to use TNWs in a battlefield situation.

Historic evidence too suggests that TNWs have not been employed even in situations where their use was considered. Most notably, during the Korean War the United States was faced with several conditions that could have potentially called for the use of TNWs, but policymakers opted against using them. Meanwhile, in other military conflicts such as Vietnam and, perhaps to a lesser extent, Chechnya, decision makers have not turned to TNWs when they could have been options.[39] Particularly from the U.S. point of view, the relative utility of tactical nuclear weapons has declined as other technologically advanced conventional combat options have emerged.

Recent calls from U.S. weapons labs for a leaner, more usable U.S. nuclear weapons arsenal do not consider that the domestic and international political consequences of a U.S. decision to use TNWs would be so extreme as to make the costs of such a decision too high. In addition to being a dramatic rejection of international norms, U.S. global moral leadership would be thoroughly undermined and would, according to Greg Mello, "provide a potent focus for simmering anti-U.S. resentments around the world," undermining U.S. national security over the long run.[40]

Furthermore, even the development of "mini-nukes" could potentially yield instability and trigger proliferation. Although the United States may intend such weapons as "bunker busters" against hardened underground targets, intentions have provided poor assurance in international security, while capabilities have driven military planning. The case of tactical nuclear weapons would not appear to provide exception to this rule, and simply stating the intended use of a weapon would provide a weak foundation upon which to build a sense of security among other international players, much less to build arms control efforts or international cooperation on this issue.[41] Other states, instead of simply trusting the intentions of the United States, would face a security dilemma based on stepped-up nuclear capabilities of a potential adversary and be compelled to respond to this threat capability in kind. This could include, perhaps, efforts at developing their own nuclear arsenals to serve, if for no other purpose, as a possible deterrent against a U.S. force.

Another significant problem with "battlefield" nuclear weapons is that the specific conditions under which these weapons would be deployed or used would require specially trained combat units. However, these personnel would be in grave danger if deployed in tandem with such weapons. An analysis by Ivan Safranchuk suggests that the battlefield environment created by deployment or use of TNWs would pose significant challenges for those using them, and that it would be very difficult to actually deploy or use TNWs in the very situations in which they are supposed to be useful.[42] According to Safranchuk, the conditions necessary in land combat for TNWs to be effective are "difficult to achieve in tactical nuclear combat . . . tactical nuclear operations should be performed by combat units with certain characteristics, which are hard to achieve if TNWs are used."[43] In naval operations, Safranchuk notes, there may be fewer such problems due to the potential for separation of the theater of war from nonmilitary targets, although deleterious short- and long-term environmental effects of nuclear contamination would remain a necessary consideration.

A document published by the U.S. military also points to operational pitfalls of the use of TNWs. In the 1996 "Doctrine for Joint Theater Nuclear Operations," caution, relegated on premises of international law, is advocated before the use of any nuclear weapon:[44]

> . . . measures must be taken to avoid collateral damage and unnecessary suffering. Since nuclear weapons have greater potential, in many instances they may be inappropriate."[45]

In a later discussion on gravity bombs delivered by dual-capable aircraft (DCA) and long-range bombers (i.e. air-delivered tactical nuclear weapons), the report cites the following disadvantages:

> crew at risk in high-threat environment; lead time required for planning and transit; significant combat support and ground support infrastructure may be required, depending on scenario; equipment may have to be released from other operation plan (OPLAN) tasking."[46]

c. TNWs as Substrategic Nuclear Options

Because of the usually lower blast yields of TNWs, it could be argued that they are of military benefit in an international security environment already dominated by strategic nuclear weapons. It is suggested, for example, that low-yield TNWs could serve to deter an adversary against attack. Or, a TNW could assume a strategic role if it is used toward "counter-value" rather than battlefield or "counter-force" purposes. The argument is then made that the weapons would be lower yielding and less devastating, with more diverse uses, but would still adequately fulfill the deterrent and strategic role of the vastly more destructive strategic weapons.

Following this logic, it appears possible that TNWs could serve as substitutes for strategic nuclear arsenals, and enable the reduction of strategic nuclear forces. Great Britain has already moved toward such a strategy, eliminating land- and air-based nuclear weapons capability and moving its remaining 350 tactical warheads onto Trident submarine-launched ballistic missiles (SLBMs). In moving toward a single leg nuclear force, the UK is implementing a program to assign a tactical nuclear mission to the Trident missile and submarine. According to a Ministry of Defence official: "A sub-strategic strike would be the limited and highly selective use of nuclear weapons in a manner that fell demonstrably short of a strategic strike, but with a sufficient level of violence to convince an aggressor who had already miscalculated our resolve and attacked us that he should halt his aggression and withdraw or face the prospect of a devastating strategic strike."[47]

Following this model, other countries could embark upon smaller strategic nuclear programs, while enhancing their tactical nuclear arsenals. Indeed, calls in the current Bush administration for a unilateral reduction in strategic nuclear weapons, along with exploration of mini-nukes, essentially echo this argument. The alleged flexibility of a TNW arsenal would enable the use of nuclear weapons in a greater range of scenarios than strategic weapons.

The notion that TNWs are a viable alternative to strategic nuclear weapons is flawed on several counts. The deployment and sheer numbers of these smaller sized nuclear weapons could leave many more subject to illicit use or theft than strategic nuclear weapons.[48] Moreover, encouraging the incorporation of TNWs into nuclear arsenals is a rejection of the logic that led to the Nonproliferation Treaty. That is, rather than moving toward zero nuclear weapons, incorporating plans which would increase reliance on them undermines efforts to encourage other states not to develop their own nuclear arsenals.

Perhaps more importantly, the development and deployment of tactical nuclear weapons would sidestep one of the primary concerns outlined by this report: tactical nuclear weapons are uncovered nukes. There are no specific international legal mechanisms to regulate the possession, development, or deployment of tactical nuclear weapons. As such, increasing reliance upon them is to encourage the use of nuclear weapons without providing legal and ethical guidelines. Unless greater efforts to regulate TNWs are undertaken, any move that increases reliance upon them encourages international nuclear anarchy and fundamentally undermines international security.

d. The Use of TNWs against Conventional, Chemical, and Biological Attacks

It has been suggested that TNWs may be useful against chemical or biological weapons. One such use may be in response to a biological or chemical weapons attack—in effect, countering an opponent's escalation of conflict to the level of weapons of mass destruction (WMD) with an in-kind response of another WMD. Another possible use of TNWs would be for the preemptive destruction of chemical or biological weapons storage sites. However, use of TNWs in such circumstances would require a willingness of military commanders to accept the effects of nuclear contamination of the targeted area. In the case of destroying storage sites, this requires additional willingness to accept the possibility of dispersion of chemical and biological agents as a result of the blast.

Another role that has been assigned to TNWs in the past is as a deterrent for chemical or biological weapons. The challenges addressed above regarding TNWs in deterrence situations, and the improbability that a decision maker would call upon their use, would apply to this case as well. The use of TNWs in theater missile defense would present similar problems.

e. The Symbolic Value of TNWs

The military value of the U.S. European-based TNW arsenal is negligible, but it possesses a strong symbolic value for the European defense establishment, that should not be underestimated.[49] The arsenal consists of approximately 150 to 200 warheads spread over eight locations. The immediate dangers posed by these particular TNWs are potentially different from those of the Russian Federation TNWs, given that there are fewer of them and the domestic economic, political, and military contexts in which they exist in Europe is different from that of Russia.

The political landscape surrounding these weapons is volatile, and not subject to easy remedies. Politicians in Europe are said to prefer to keep the issue of allowing the arsenal to remain in Europe off the table altogether to quell public awareness and concern. Eventually, however, the perceived value these weapons impart to present day Europe will have to be addressed in conjunction with TNWs at the U.S.-Russian level.

Indeed, the arguments for maintaining these weapons as a symbolic show of force in Europe have become less convincing since the end of the cold war. According to Ivo Daalder, "the removal of 150 or so bombs that remain might have a positive effect on efforts to deal with Russia's Soviet nuclear legacy and nonproliferation efforts."[50] For example, Daalder, who is past director of European Affairs at the National Security Council, has noted that this would not necessarily have a negative impact on deterrence or alliance cohesion (the primary reasons most often cited by proponents for keeping nuclear weapons in Europe) because withdrawal would provide a distinct nonproliferation benefit and would provide Russia with an incentive to disarm at least a portion of its own tactical nuclear weapons stockpile.

As a first, less radical, step in reducing the significance of NATO TNWs in Europe, some analysts suggest that NATO might revisit its operational plans.[51] Conventional superiority has rendered this aspect less essential. This, too, would ameliorate Russian concerns of an increasing security imbalance created by NATO expansion and would also serve to emphasize NATO's claims that the alliance is not of an offensive military nature. In NATO's strategic doctrine, nuclear weapons could also be more clearly delineated as deterrents only, and purported statements and capabilities regarding their counterforce capabilities removed. As a next step, dropping NATO's continued policy of possible first-use of nuclear weapons should be considered. Ultimately, once the role of these weapons is realigned to be one of deterrence only, why not bring the force down to a level where it could be perceived as little other than a deterrent?

Russia's conventional inferiority is an issue of increasing importance and is particularly germane as NATO continues to expand eastward. The very likely prospect that NATO will offer an invitation to at least one Baltic nation at the Prague Summit in June of 2002 is going to inevitably raise concerns about the forward deployment of NATO (U.S.) and Russian TNWs. James Schlesinger, for example, sparked a heated debate in 1997 during the last tranche of enlargement when he made a point that the Baltics would certainly be "indefensible without nuclear weapons."[52] It is conceivable that these kinds of arguments will increase and make TNWs politically urgent, if, say, Lithuania or Latvia is actually put on the short list for membership. Questions will also surface about what role might be played by former Soviet states which border mainland Russia as new NATO members in the Nuclear Planning Group (NPG) or as nuclear-capable members (first-class members).

To gain acquiescence, NATO offered Russia the "Founding Act" and the Permanent Joint Council (PJC) in the last round of expansion. Given Russian concerns regarding further enlargement, NATO's expanders will probably have to augment that offer with additional palliatives in a more contentious second round. Recent statements by President Putin in the wake of the September 11 terrorist attacks suggest a greater willingness to accept NATO expansion. This provides an opportunity for greater cooperation. Some adjustment to the symbolic reliance on and status quo of NATO nukes and/or a more enhanced role for the PJC on nuclear issues could be such an incentive.

Dangers Associated with the Existence of TNWs*

Tactical nuclear weapons pose unique and significant dangers to international peace and security:

- TNWs are not monitored or controlled by any specific arms control treaties.
- The difficulty of determining an acceptable description of a TNW raises challenges when addressing them as a separate class of nuclear weapon.
- Thousands of TNWs exist, mainly in the Russian arsenal. The U.S. is estimated to possess over 1600 tactical nuclear weapons. Estimates of the Russian arsenal, in the 4,000 to 5,000 range, are uncertain and conflicting.
- Unique characteristics of many tactical nuclear weapons make them more susceptible to theft and unauthorized or accidental use. These characteristics include: their often smaller sizes and portability; their distribution and preauthorized use authority among field commanders; their sometimes less secure safeguards (e.g. permissive action links) against unpermitted use.
- The risk that international terrorist organizations may acquire TNWs points to the need for stepped-up counterproliferation and reduction efforts for not only TNWs, but for all nuclear weapons.
- Because TNWs often possess smaller blast yields, they may contribute to a dangerous and false notion that they do not cause substantial collateral damage. This lowers the perceived threshold for use of nuclear weapons, and undermines efforts toward nonproliferation.
- According to experts in the United States, the Russian tactical nuclear arsenal may create an impediment to further reductions in strategic nuclear weapons.
- As strategic nuclear arsenals decline, defense planners may place greater emphasis on tactical nuclear weapons to maintain operational flexibility.
- U.S./Russian development of new TNWs, or signaling of an intention to do so, could compel other countries to develop their own arsenals.
- Battlefield and operational complications relating to the use of tactical nuclear weapons cast doubt upon the practical value of TNWs. This, combined with international and domestic political pitfalls relating to their use and deployment, undermines their role as deterrents.
- It would be difficult for the U.S. to raise legitimate concerns about Russian efforts to deploy and develop new roles for tactical nuclear weapons, if the U.S. also embarks upon policies in favor of building, testing, or considering the use of these weapons.

* Diplomatic and military challenges of tactical nuclear weapons are interwoven with other issues impacting international relations among the United States, Russia, and others. For example, efforts to control tactical nuclear weapons will be impacted by U.S. plans to press forward on missile defense, while contemplating the abandonment of the ABM treaty, and other measures of international arms control. NATO enlargement, if undertaken without successfully addressing Russia's concerns, will undermine other efforts at international cooperation—not the least on tactical nuclear weapons. Further, the future status and development of Chinese, Indian, and other nuclear arsenals will be impacted by the composition and quantity of U.S. and Russian nuclear forces.

PART TWO: A Risk Reduction Agenda

Over the past decade, incentives have been employed to reduce the risk of nuclear proliferation. The Agreed Framework of 1994 between North Korea and the United States and its partners enabled both parties to avert a potential crisis by exchanging nonmilitary technologies to North Korea for a continued commitment to nonproliferation. At the end of the cold war, newly independent states such as the Ukraine agreed to allow the removal of nuclear weapons from their territory in exchange for improved diplomatic relations and economic assistance. A growing body of research on the use of incentives in international relations indicates that positive inducements can lower tension and improve security for all parties involved. Empirical studies have found that incentives are particularly useful between noninterdependent states, as is the case with Russia and most Western states.[53]

Collaborating to increase the role of nonproliferation policies as a central component of security policies can intensify nations' motivation to work together toward common aims. Incentives can, therefore, be used as part of an integral effort to foster cooperation between states with conflicting perceptions of security. Such is the case between Russia—with a desire for security guarantees—and the United States and its NATO allies—who are more interested in transparency and safety reassurances from Moscow. The role for incentives has increased in the aftermath of the September 11 terrorist attacks as the U.S. government is placing a premium on the need for stronger international cooperation with its allies and with former enemies such as Russia.

Although incentives and confidence-building measures have been proven to be important tools in the effort to build a sustainable security policy, encouraging states to work together when responding to transnational and nonstate threats, some key figures are currently advising policymakers not to enter into multilateral agreements limiting U.S. development of its nuclear agenda. The National Institute for Public Policy, for example, argues that codification of deep nuclear reductions is unwise because the international security environment is far from static and the U.S. may need to increase or change its nuclear force or take other actions that could be inconsistent with its legal obligations in the future. However this argument does not recognize three key points:

1. Other nations are also party to these agreements, along with the United States. All signatories are bound by the same legal obligations to negotiate amendments to arms control agreements before increasing their force capabilities. This is advantageous to U.S. security, because it allows the U.S. to monitor and more effectively react to rearmament programs.
2. Codified agreements help to provide a measure of stability and normalcy in a time of crisis. Nations could rely upon a framework for cooperation that would become routine in solving problems of world security—a feature that becomes more attractive as long as terrorism is prevalent.
3. Not only is it in the United States' national interest to encourage a system of international laws to prevent the proliferation of weapons of mass destruction and the spread of terrorism, it is a fundamental element of global democracy to support the rule of law. A unilateral approach to security and nuclear arms control undermines such efforts.

I. Policy Recommendations

In light of the above arguments, outlined below are several recommendations for the application of incentives as part of a process to increase partnership, collaboration, and trust, necessary to effectively address the problem of tactical nuclear weapons in a broader strategic framework.

a. Build upon the START Process

The U.S. should build upon the START process in an effort to instill confidence and offer assurances for reductions in a legally binding framework. The START framework can serve as a basis to ensure control with adequate verification and monitoring. As it appears cooperation between the United States and Russia is improving, particularly in the wake of events of September 11, it would make sense in the context of START III and current discussions to address TNWs.

The new administration in Washington has conducted, but not released the conclusions of, the Nuclear Posture Review.[54] The administration is also currently in the process of outlining "a new strategic vision" that intends to move away from traditional arms controls and embarks on a post–cold war strategic framework, to include a strategic ballistic missile defense system, for addressing proliferation and controlling nuclear weapons. The unilateral process by which these reductions will be executed is unlikely to build confidence with Russia or any other nuclear weapons states over the long run. Unilateral announcements of the kind that have been outlined by George Bush in discussions with Vladimir Putin in Washington, D.C. and Crawford, Texas from November 13 through 15, 2001, are likely to be nonbinding and could be ignored or reversed at the instigator's discretion. With the Bush administration's desire to keep a large reserve force of nuclear weapons, and U.S. policymakers' belief in the notion that treaties with detailed verification regimes hinder U.S. freedom to draw from such a reserve, it is questionable how sustainable the Bush reductions will be.

To reduce risks, this paradigm shift should include the development of a regime for the control of tactical nuclear weapons and would provide more assurances if it used START mechanisms for verification, discussion, and monitoring.

For the past decade, thousands of U.S. and Russian strategic nuclear weapons have been verifiably controlled (and later reduced) by using remote and *in situ* inspection mechanisms under the aegis of the Strategic Arms Reduction Treaty (START) protocols. Framework discussions for a third START treaty took place at the U.S.-Russian Summit in Helsinki, Finland, from March 20 through 21, 1997. At that meeting Presidents Clinton and Yeltsin agreed to discuss controls on sea-launched cruise missiles and tactical nuclear weapons.[55]

As part of current efforts to significantly reduce U.S. and Russian nuclear arsenals, a transparency regime, proposed by the United States as part of the strategic framework in 2001, would build on these agreements. One suggestion worth exploring would be to merge strategic and tactical nuclear weapons together in a single overall limit on nuclear weapons or conclude parallel agreements on constraining tactical nuclear weapons to avoid blockage of progress on strategic weapons reductions.[56] The1991/92 unilateral initiatives on tactical nuclear weapons have been plagued with uncertainties that have done little to foster a cooperative environment for further reductions of these weapons. It would be useful, therefore, to codify and build upon a combination of a legally binding version of the 1991/92 initiatives and the suggested framework for START III for securing, monitoring, and dismantling tactical warheads and their delivery systems.[57]

Instead of embarking on unilateral initiatives that may not be reciprocated, the United States and Russia could work together to establish a legally binding set of agreements aimed at controlling, reducing, and eventually eliminating tactical nuclear weapons in a verifiable and transparent manner. This approach would offer both parties (and possibly other nuclear weapons states) assurances and build confidence in the attainment of deeper reductions and safeguards on nuclear weapons. In this way, viable incentives could be woven into legal obligations, emphasizing rules that are implemented with treaties. Confidence-building measures (CBMs) for example could include basic sharing of information. In parallel with CBMs, other transparency measures could be considered, for example: declarations of aggregate stocks, information and reduction of the operational status of the TNWs, and information

exchanges about any security mechanisms in place (PALs, storage protection, etc.). Unilateral initiatives could be useful, but as means of expediting this process and not as ends in themselves.

b. Go beyond Unilateral and Bilateral Approaches

The U.S. and Russia should go beyond unilateral and bilateral approaches to ensure stability and third-party participation of other nations. There is a need for mechanisms that would enable the United States, Russia, and partner nations to implement common decisions. Failures to create these mechanisms over the last decade have "resulted in extreme fragmentation of U.S.-Russian relations" and have inadequately addressed the impact this situation has had on wider issues of strategic importance.[58]

However, mechanisms for improving relations with Russia could build on the successful model used by Norway, the United States, and Russia on Arctic Military Environmental Cooperation (AMEC). AMEC has addressed the environmental effects of scuttled Russian nuclear submarines and has produced at least six joint projects addressing nuclear issues. While it is understood that this is an environmental collaborative effort, trilateral initiatives can serve as a basis for which to begin wider discussions on all classes of weapons.

Another model that could be used is the Nunn-Lugar Cooperative Threat Reduction initiative (CTR). This program has withstood the periodic setbacks in U.S.-Russian relations mentioned above and has been very successful in facilitating the reduction of treaty-limited strategic nuclear warheads, delivery vehicles, and component parts. The CTR has enabled the United States and Russia to set aside past and current differences to accomplish cooperation on nuclear risk reduction. This program has been impressive. A decade ago Ukraine, Kazakhstan, and Belarus together had 3,300 strategic and roughly 2,600 tactical nuclear warheads on their soil. Now they have none. As stated by Edward L. Warner III, assistant secretary of Defense for Strategy and Threat Reduction, all three nations " would have been respectively—by far—the third, fourth, and seventh largest nuclear powers in the world. Today, in what is probably the greatest nonproliferation achievement the world has seen, these three states are completely free of nuclear warheads."[59]

This type of cooperation and confidence building is needed today in a parallel track that focuses on tactical nuclear weapons.

Other efforts toward cooperation between Russia, the U.S., and its allies have been far less successful. In May 1997, NATO and Russia signed the Founding Act, which established a consultative body on cooperation between the alliance and Russia. As part of the act a Permanent Joint Council (PJC) between Russia and NATO was established. The PJC has produced few results over the last four years and suffered serious setbacks when NATO invited three former Soviet Bloc nations to join a growing alliance, and when NATO waged a bombing campaign over Serbia.

The NATO-Russia Nuclear Weapons Working Group established at the Defense Ministers meeting in December 1997 would be a logical place to begin framework discussions, allowing it to become a permanent forum for discussion of nuclear weapons issues.[60] The Working Group was designed to include discussions about issues of forward deployment and accounting problems relating to TNWs, and air concerns among U.S., Russia, the United Kingdom, and France. This forum should be sustained and strengthened by adding custodial representatives for the EU and the UN to facilitate NATO-Russian relations and maintain a track toward progress. One urgent agenda item for serious discussion should be an assessment of post–cold war conventional imbalances. Accordingly, efforts to enhance cooperation between Russia and the U.S., with assistance from international organizations such as the UN, the EU, and the NATO-Russia Permanent Joint Council**,** could be of great benefit. Adding the effective involvement of an official representative from one or more of these international organizations

would help to ensure more stability and accountability, and provide a sustainable element that could better withstand difficulties in bilateral relations.

c. Withdraw Tactical Nuclear Weapons from Europe

The U.S. should withdraw tactical nuclear weapons from Europe to address longstanding Russian security concerns, particularly as NATO continues to expand eastward, in exchange for a pledge from Moscow that it will share data on the status and location of its TNW arsenal, and download and significantly reduce its forward deployed tactical nuclear weapons in the area between Russia's western border and the Ural Mountains. It is sometimes argued that a withdrawal of U.S. TNWs from Europe would leave the United States with few bargaining chips. This quarrel does not take into account that other incentives, particularly economic stimulus and debt relief packages, are carrots that can continue to be offered to Russia. Furthermore, important benefits could result from U.S. withdrawal, providing an opportunity for progress. For example, if an accounting process for Russian weapons could be developed—along with other acceptable transparency measures—as a condition for withdrawal of U.S. weapons, a framework could begin for future reductions of Russian TNWS. The gain for both sides would offer a pathway for ending the current stalemate on this issue.

Support for Russian reliance on TNWs varies from sector to sector of the Russian nonstrategic weapons infrastructure. It is therefore important in the initial phases of the incentive-based framework to posit attractive inducements that are likely to appeal to wider, collective Russian interests. Specified proposals could then be sought with individual agencies such as MINATOM (the Russian Ministry for Atomic Energy, roughly the equivalent of the U.S. Department of Energy) or the Twelfth Directorate of the Ministry of Defense.

One example of this appeal to collective interests could revolve around the notion of a withdrawal of 150 U.S. TNWs in Europe. This would ameliorate Russian concerns about military inferiority, particularly conventional inferiority. The United States has expressed willingness to remove these weapons from Europe in the past. Despite resistance from German, Dutch, and other NATO allies, it is increasingly difficult to justify the need for these weapons on European soil. As previously addressed, the removal of U.S. TNWs in Europe could have a positive effect on Russia's efforts to deal with its nuclear legacy and nonproliferation initiatives.[61] It will not affect NATO deterrence capability. Although the case is still made by some European policy analysts that TNWs remain an integral part of the U.S. nuclear deterrent and NATO's commitment to Euorpe, economic and political ties have supplanted any reasonable argument for keeping an arsenal of European nuclear weapons as a "vital transatlantic link." Ivo Daalder notes that "[B]y removing American nuclear weapons from Europe and pledging to include them as part of a Russian-U.S. negotiation regarding tactical nuclear weapons, NATO would enhance the prospect of a possible agreement that would increase effective control over and secure the dismantlement of the large Russian tactical nuclear stockpile."[62] Russian security advisors are concerned that NATO "tactical" nuclear weapons could play a strategic role.

Removing all tactical weapons from NATO member-state territories in Europe could be implemented in a reciprocal agreement, where Moscow calls for corresponding measures for its own weapons west the Ural Mountains.[63] The establishment of a Central and Eastern European nuclear weapons free zone has been suggested for over fifty years. Although it is true that because of the reluctance of NATO to limit the capabilities of its member states by making a distinction between first- and second-class citizens, the alliance has been forced to reformulate that notion as it expands eastward.

Beyond the exceptions that were already made to allow Norway and Iceland not to be nuclear weapons host nations as members of the alliance, the formulation of the three no's by the United States and NATO (no plan, no intention, no reason to deploy nuclear weapons in the Czech Republic, Hungary,

and Poland) are likely to require further clarification in an effort to allay Russian fears as NATO expansion continues in June of 2002.[64] Cold war reliance on nuclear weapons is less necessary in an age of modern peacekeeping missions that have been NATO's primary focus since the fall of the Berlin Wall. A nuclear free zone may not be as difficult to achieve, therefore, if NATO's core missions change.

d. Call for TNW Disarmament by Category in a Step-by-Step Approach

In an effort to control and reduce the overall number of tactical nuclear weapons, previous suggestions for a global limit on specific types of weapons would be worth pursuing. This should be done in conjunction with a prohibition on the development and deployment of all redesigned or new models of tactical nuclear weapons.[65]

In 1997 an Air Force Academy occasional paper advocated an international control regime that focused specifically on air-delivered weapons, not on their delivery vehicles (Dual-Capable Aircraft and bombers).[66] The United Kingdom has since retired its air-delivered nuclear force and could serve as an example to other states, such as France, the United States, and Russia, that maintain air-delivered TNWs.

In a more recent development, it has been reported that the Russian Navy has called for the option to redeploy some of the tactical nuclear weapons on submarines and surface ships (which had been removed under the auspices of the 1991/92 Presidential Declarations). Agreement to prohibit the deployment of TNWs on surface ships would help to codify and prevent the 1991/92 initiative from unraveling in an attempt to forestall Russian naval intentions. Limits on submarine deployment of TNWs may also be timely as the UK moves toward an exclusively submarine-based nuclear force that could have strategic and tactical missions.

Finally, and most important, it would be worthwhile to consider prohibiting the deployment of any new nuclear weapons. A simple and easy step for both the United States and Russia to take would be the prohibition of deployment or development of new, or redesigned, low-yield or bunker-buster nuclear weapons. This could be pursued in parallel with the other classes of nuclear weapons mentioned above.

II. Conclusion

For the past thirty-four years nuclear nonproliferation policies have established a framework of norms that have helped to prevent the use of nuclear weapons. The focus of these arrangements to date has been to constrain strategic nuclear weapons that are less vulnerable than tactical nuclear weapons to theft and acquisition by nuclear aspiring states and nonstate actors. An opportunity now exists to effectively address uncovered nuclear weapons. The multilateral spirit of resolve and cooperation expressed in the international community should be seized to expand upon nations' similarly mutual interests of nonproliferation. This should include all classes of nuclear weapons to ensure that current models are sufficiently and verifiably controlled.

Efforts to design and deploy new or redesigned nuclear weapons could also be stopped, since they undermine global nonproliferation goals at a time when the need for redoubled efforts to prevent the spread of nuclear weapons is most urgent. A policy of reliance on and development of new or redesigned nuclear weapons, including tactical nuclear weapons, will seriously undermine the need for cooperation with a world community that shares our concerns and vulnerabilities in the face of terrorism. It will also hinder progress on controlling and reducing currently deployed and stored nuclear weapons throughout the world.

Notes

1. The United States Commission on National Security/21st Century, "Roadmap for National Security: Imperative for Change." Available online at <http://www.nssg.gov/PhaseIIIFR.pdf> (February 15, 2001).

2. TNWs do receive periodic mention in international nonproliferation discourse. For example, the 2000 Nonproliferation Treaty RevCon calls for "the further reduction of non-strategic nuclear weapons, based on unilateral initiatives and as an integral part of the arms-control process." For more information on this, see Tariq Rauf, "Towards NPT 2005: An Action Plan for the '13-steps' towards Nuclear Disarmament Agreed at NPT 2000," Monterey Institute for International Studies, 2001. Available online at <http://www.cns.miis.edu/pubs/reports/pdfs/npt2005.pdf> (November 12, 2001). However, concrete steps or actual implementation of measures to reduce or control TNWs have not occurred, other than the 1991/92 presidential initiatives.

3. Note that illicit acquisition of tactical or other nuclear warheads or bombs is distinct from illicit acquisition of nuclear materials for use in either development of warheads or bombs and use of nuclear material in so-called "dirty bombs." In "dirty bombs," nuclear material is dispersed by a conventional explosion, with the intent of contaminating territory and exposing humans.

4. Admiral Richard W. Meis, commander in chief, United States Strategic Command (testimony before the Strategic Subcommittee, Senate Armed Services Committee, U.S. Senate, 107th Cong., 1st sess., Washington, D.C., July 11, 2001). The admiral noted that he believes "the approach outlined by the National Institute for Public Policy study*, Rationale and Requirements for U.S. Nuclear Forces and Arms Control,* is a good blueprint to adopt." The National Institute for Public Policy Study is available at *National Institute for Public Policy* < http://nipp.org/Adobe/volume%201%20complete.pdf> (October 19, 2001).

5. For an overview of world TNW munitions and delivery systems, see "Appendix: Types, Delivery Systems and Locations of TNWs," in William Potter, Nikolai Sokov, Harald Müller, and Annette Schaper, *Tactical Nuclear Weapons: Options for Control* (Geneva: The United Nations Institute for Disarmament Research, 2000).

6. For a review of effects of low-yield and other nuclear weapons, see, for example, Robert Nelson, "Low-Yield Earth-Penetrating Nuclear Weapons," *FAS Public Interest Report, Journal of the Federation of American Scientists* 54, no. 1 (January/February 2001); available online at *Federation of American Scientists* <http://www.fas.org/faspir/2001/v54n1/v54n1.pdf> (March 15, 2001). Also Ira Helfan, M.D., "Effects of a Nuclear Explosion," *Physicians for Social Responsibility (PSR)* <http://www.psr.org/Helfand1.htm> (August 6, 2001).

7. An overview of issues complicating the definition of TNW is provided by George Lewis and Andrea Gabbitas in "What Should Be Done About Tactical Nuclear Weapons?" (occasional paper, The Atlantic Council, March 1999, 1–4). The authors conclude that, "it appears that this default definition of TNWs is the most practical," 3. Available online at <http://www.acus.org/Publications/occasionalpapers/internationalsecurity/tacnukes41.pdf> (October 24, 2001).

8. George Lewis and Andrea Gabbitas, "What Should Be Done about Tactical Nuclear Weapons?" 8.

9. Mello, Greg, "Beware the Nuclear Warrior," *Albuquerque Tribune,* April 12, 2001. Available online at <http://www.lasg.org/whatsnew/whatsnewfrm_b.html> (June 4, 2001).

10. Robert W. Nelson, "Low-Yield Earth-Penetrating Nuclear Weapons," in *FAS Public Interest Report, Journal of the Federation of American Scientists*, 5.

11. Walter Slocombe, "The Future of Nuclear Deterrence" (testimony to the Subcommittee on International Security, Proliferation and Federal Services of the Senate Committee on Governmental Affairs, U.S. Senate, 105th Cong., 1st sess., S. Hrng. 105–159, Washington, D.C., February 12, 1997), 10. Slocombe testified, "Russia continues to possess substantial strategic forces and an even larger stockpile of tactical nuclear weapons. And because of deterioration in its conventional military capabilities, Russia may be placing even more importance and reliance on

its nuclear forces. We cannot be so certain of future Russian politics as to ignore the possibility that we would need again to deter the Russian nuclear force."

12. Morton Bremer Maerli, letter to authors, November 6, 2001.

13. For greater discussion of the risks of illicit or accidental use see Harald Müller and Annette Schaper, "Definitions, Types, Missions, Risks and Options for Control: A European Perspective," in Potter, Sokov, Müller, and Schaper, *Tactical Nuclear Weapons: Options for Control*, 38–39.

14. U.S. Department of Defense, "Threats, Countermeasures, Technical Barriers, and Accomplishments," in *Chemical and Biological Defense Program: Annual Report to Congress,* March 2000. Available online at <http://www.defenselink.mil/pubs/chembio02012000.pdf> (October 11, 2001).

15. Peter Barnes, "Tiny Nukes Pose Big Threat: Could Terrorists Have Cold-War-Era Portable Nuclear Weapons?" (commentary, ABC News, New York, October 9, 2001).

16. U.S. Commission on National Security/21st Century, "Road Map for National Security: Imperative for Change" (phase III report, Washington, D.C., February 15, 2001). Available online at <http://www.nssg.gov/PhaseIIIFR.pdf> (October 19, 2001).

17. To date, U.S. officials have not publicly advocated the use of TNWs. However, media reports have included numerous references to those speculating on the use (or usefulness) of TNWs. See, for example Paul de la Garza, "U.S. Ramps Up the Rhetoric, Weighs Options," *St. Petersburg Times*, September 13, 2001 (late Tampa edition), 27A; William Neikirk and Steve Hedges, "Talk of Retaliation Includes War; bin Laden Is Suspected as Perpetrator," *Sun-Sentinel* (Fort Lauderdale, Fla., national edition), September 12, 2001, 20A; Tim Luckhurst, "Fear Turns to Fury as War Cries Grow," *The Herald* (Glasgow), 11; "Zhirinovsky Thinks U.S. May Use Nuclear Weapons to Take Vengeance," *Interfax News Agency*, New Bulletin, September 12, 2001, Wednesday; Dana Milbank, "U.S. Pressed on Nuclear Response," *Washington Post*, October 4, 2001. Available online at *Washington Post* <http://www.washingtonpost.com/wp-dyn/articles/A8353-2001Oct4.html> (October 19, 2001).

18. C. Paul Robinson, "A White Paper: Pursuing a New Nuclear Weapons Policy for the 21st Century," March 2001, Sandia National Laboratories; reproduced by Los Alamos Study Group, March 2001. Available online at <http://www.lasg.org/whatsnew/whatsnew1_b.html> (July 26, 2001).

19. For a perspective on cold war tactical nuclear weapons deployment, see: "Appendix 1: Nuclear Weapon Delivery Systems Distribution in NATO," in *Tactical Nuclear Weapons: European Perspectives* (London: Taylor & Francis, Ltd., for Stockholm International Peace Research Institute, 1978), 109–129; and, "Appendix 2: General Tables—U.S.A. and USSR," in *Tactical Nuclear Weapons: European Perspectives* (London: Taylor & Francis, Ltd., for Stockholm International Peace Research Institute, 1978), 130–36.

20. An NRDC estimate from the year 2000, published in *The Bulletin of the Atomic Scientists,* places U.S. nonstrategic forces at 1,350 warheads. See: <http://www.bullatomsci.org/issues/nukenotes/mj00nukenote.html> (19 October 2001). The 1,670 estimate is from Hans Kristensen and Joshua Handler, "Appendix 6A: Tables of Nuclear Forces," *SIPRI Yearbook 2001* (London: SIPRI, 2001).

21. Estimates of the Russian TNW arsenal are a point of controversy, and one reason often stated for the need of greater transparency and accountability. Josh Handler and Hans Kristensen estimate in 2001 there are 3,590 Russian TNWs. See Kristensen and Handler, "Appendix 6A: Tables of Nuclear Forces." Year 2000, *SIPRI Yearbook 2001*. NRDC estimates for the year 2000 are approximately 4,000. See *The Bulletin of the Atomic Scientists* online at <http://www.bullatomsci.org/issues/2000/ja00/images/chart1.gif> (October 19, 2001). This calculation is complicated further by competing estimates on deployed TNWs versus those stored or slated for dismantlement. Most recent estimates of deployed Russian TNWs are in the 3,500 to 5,000 range, but when nondeployed Russian TNWs are included, this number increases to over 8,000 (for example, see tables 1–3 in William Potter, "Practical Steps for Addressing Non-strategic Nuclear Weapons," in *Controlling Non-Strategic Nuclear Weapons: Obstacles and Opportunities*, Jeffrey Larsen and Kurt J. Klingenberger, eds.(Colorado Springs, Colo.: INSS, U.S. Air Force Academy, 2001), 223–26.

22. Harald Müller and Annette Schaper, “Definitions, Types, Missions, Risks and Options for Control: A European Perspective.”

23. Josh Handler, “The September 1991 PNIs and the Elimination, Storing and Security Aspects of TNWs,” (presentation for “Time to Control Tactical Nuclear Weapons,” hosted by UNIDIR, et al., United Nations, September 24, 2001). Available online at <http://www.princeton.edu/~jhandler/CV/JH_UN_24_Sept_01_TNW_talk.pdf> (October 23, 2001).

24. Handler, “The September 1991 PNIs and the Elimination, Storing and Security Aspects of TNWs,” Conclusions, n. 6. Actual text of the article cited is U.S. Department of Defense, *Proliferation* (Washington, D.C.: Government Printing Office, January 2001).

25. Alexei Arbatov, “Appendix A: Deep Cuts and De-alerting: A Russian Perspective,” in Harold A. Feiveson, ed., *The Nuclear Turning Point: A Blueprint for Deep Cuts and De-Alerting of Nuclear Weapons* (Washington, D.C.: Brookings Institution Press, 1999), 320.

26. Arbatov, “Appendix A: Deep Cuts and De-alerting,” 320.

27. Arbatov, “Appendix A: Deep Cuts and De-alerting,” 319.

28. See: William Potter and Nikolai Sokov, “Tactical Nuclear Weapons: The Nature of the Problem,” CNS Reports, Center for Nonproliferation Studies, Monterey Institute of International Studies, 4 January 2001, 6, 11. http://cns.miis.edu/pubs/reports/tnw_nat.htm. (January 12, 2001).

29. Walter Lippman, “Clinton, Yeltsin Agree on Arms Cuts and NATO,” *Washington Post*, March 22, 1997, A1. Available online at *Washington Post* <http://www.washingtonpost.com/wp-srv/inatl/longterm/summit/summit.htm> (10 October 2001). The 1997 Helsinki statement said: the United States and Russia “will explore, as separate issues, possible measures relating to nuclear long-range sea-launched cruise missiles and tactical nuclear systems, to include appropriate confidence-building and transparency measures.” See “Joint Statement on Parameters on Future Reductions in Nuclear Forces,” reprinted in *Arms Control Today* 27 (March 1997): 19–20; cited in Feiveson, *The Nuclear Turning Point,* 162.

30. See, for example, Ministerial Meeting, the North Atlantic Council, “Final Communiqué,” (press release, M-NAC-1(2001)77, Budapest, May 29, 2001), para. 80.

31. Stephen M. Younger, “Nuclear Weapons in the Twenty-First Century,” Los Alamos National Laboratory, LAUR-00-2850, Los Alamos, New Mexico, June 27, 2000, 1.

32. The Hon. John Warner and the Hon. Wayne Allard, Warner-Allard Provision: National Defense Authorization Act for Fiscal Year 2001, S. 2549, as adopted by the Senate Armed Services Committee, U.S. Senate, 106th Cong., 2d sess., Washington, D.C., 2000.

33. The Hon. Elizabeth Furse and the Hon. John Spratt, Jr., “Prohibition on Research and Development of Low-Yield Nuclear Weapons,” National Defense Authorization Act for Fiscal Year 1994, PL 103-160, U.S. Congress, 103rd Cong., 1st sess., Washington, D.C., 1993, §3136; available online at *Friends Committee on National Legislation* <http://fcnl.org/issues/arm/sup/tesban_nukfurse_2.htm> (October 24, 2001).

34. The Hon. Mike Thompson, statement on mini-nukes, in support of HR 4205: “the Defense Authorization Bill for FY 2000 (May 22, 2000),” U.S. House of Representatives, 106th Cong., 2d sess., October 11, 2000. Available online at *Friends Committee on National Legislation* <http://www.fcnl.org/issues/arm/sup/min_stmthompsn_101100.htm> (October 19, 2001).

35. For an assessment of Russia’s nuclear dependency in the face of conventional contingencies, see Stephen P. Lampert and David A. Miller, “Russia’s Crumbling Tactical Nuclear Weapons Complex: An Opportunity for Arms Control” (occasional paper, Institute for National Security Studies, U.S. Air Force Academy, Colorado, 12 April 1997, 10).

36. Mark Kramer, “What is Driving Russia’s New Strategic Concept?” (brief, Program on New Approaches to Russian Security (PONARS), Davis Center for Russian Studies, Harvard University, January 2000). Available online at *Center for Defense Information* <http://www.cdi.org/russia/jan2100.html#7/ > (19 October 2001).

37. Fritz W. Ermarth, “Alternatives to Genocide: Missile Defense and the Future of Nuclear Weapons,” (remarks offered at the Hanns Seidel Stiftung Conference on Ballistic Missile Defence in Munich, Germany, May 2001). Available online at *Global Security News* <http://www.globalsecuritynews.com/special/ermarth1.htm> (10 October 2001).

38. See Federation of American Scientists, “U.S. Pursuit Of Small Nuclear Weapons For Theatre Wars Would, Moreover, Grant Legitimacy To Similar Pursuits By Other Nations And Undermine Worldwide Nonproliferation Efforts” (letter from Frank von Hippel et al., from the Federation of American Scientists to members of Committee on Armed Services, U.S. Senate, and Committee on Armed Services, U.S. House of Representatives, 106th Cong., 2d sess., Washington, D.C., September 11, 2000). Available online at *Federation of American Scientists* <http://www.fas.org/nwp/000911-levin.htm> (October 19, 2001).

39. For an interesting analysis of this question from the cold war era, which concludes that TNWs “have no conceivable role in future ground warfare” and examines numerous strategic and battlefield scenarios, including the Korean War, see Philip W. Dyer, “Will Tactical Nuclear Weapons Ever Be Used?” *Political Science Quarterly* 88, issue 2 (June 1973): 214–29.

40. Mello, Greg, “Beware the Nuclear Warrior,” *Albuquerque Tribune,* April 12, 2001. Available online at *Los Alamos Study Group* <http://www.lasg.org/whatsnew/whatsnew2_b.html> (July 15, 2001).

41. For discussion of the “intentions” versus “capabilities” issue, framed in the context of offense-defense balance, see Robert Jervis, “Cooperation Under the Security Dilemma,” *World Politics* 30, no. 2 (January 1978): 167–214.

42. Ivan Safranchuk, “Tactical Nuclear Weapons in the Modern World and Russia’s Sub-Strategic Nuclear Forces,” PIR Center for Policy Studies in Russia, report no. 16, March 2000.

43. Ivan Safranchuk, “Tactical Nuclear Weapons in the Modern World and Russia’s Sub-Strategic Nuclear Forces,” 13–14.

44. United States, Joint Chiefs of Staff, “Doctrine for Joint Theater Nuclear Operations,” 3–12.1.

45. United States, Joint Chiefs of Staff, “Doctrine for Joint Theater Nuclear Operations,” v.

46. United States, Joint Chiefs of Staff, “Doctrine for Joint Theater Nuclear Operations,” I.3–I.4.

47. See footnote 75 in William Arkin, Robert S. Norris, and Josh Handler, “Taking Stock: Worldwide Nuclear Deployments 1998,” Washington, D.C., National Resources Defense Council, Inc., March 1998, 41.

48. There is an indirect correlation between reliance on TNWs and the risk of theft. Whether TNWs are more susceptible to theft than strategic nuclear weapons depends on the nature of security systems and the particulars of their storage. Ivan Safranchuk, letter to authors, October 31, 2001. However, according to Bruce Blair “Of all the types of weapons, tactical nuclear weapons unfortunately have the poorest safeguards. Those built before the early 1980s lack the safety locks known as permissive action links. Further dispersal of Russia’s 22,000 tactical nuclear weapons beyond the many dozens of depots already in use would represent a serious setback for operational safety as well as safeguards against theft.” Bruce Blair (testimony before the House National Security Subcommittee, U.S. House of Representatives, 105th Cong., 1st sess., March 13, 1997).

49. See Kanti Bajpai, “The Military Utility of Nuclear Weapons and the Case for Disarmament” (paper presented at Pugwash Conference, School of International Studies Jawaharlal Nehru University, New Delhi, India, March 25–27, 2001). Available online at <http://www.pugwash.org/reports/nw/nw13c.htm> (October 19, 2001).

50. Ivo H. Daalder, “NATO and Nuclear Weapons: Toward a Reexamination,” in Susan Eisenhower ed., *NATO at Fifty: Perspectives on the Future of the Atlantic Alliance* (Washington D.C.: Center for Political and Strategic Studies, 1999), 166.

51. Karel Koster, "An Uneasy Alliance: NATO Nuclear Doctrine & The NPT," the Acronym Institute, *Disarmament Diplomacy* 49 (August 2000). Available online at the *Acronym Institute* <http://www.nautilus.org/pub/ftp/npp/0800koster.txt> (October 19, 2001).

52. James Schlesinger (testimony before the subcommittee on international Security, Proliferation, and Federal Services, Senate Committee Governmental Affairs, U.S. Senate, 105th Cong., 1st sess., Washington, D.C., October 27, 1997. Available online at <http://www.csis.org/hill/ts102797.html> (October 19, 2001): "If, for example, NATO is expanded to include the Baltic states, no conventional defense would be possible. Under such circumstances, if we were to fulfill a commitment to provide protection, we would be driven back to threatening a nuclear response to a conventional attack—a commitment from which we have only escaped recently. Given the nature of our foreign policy agenda and given the unique geopolitical role of the United States, a decline in the confidence in U.S. nuclear weapons cannot therefore be viewed with equanimity."

53. See John C. Baker, "Nonproliferation Incentives for Russia and Ukraine," *Adelphi Paper* 309 (Oxford: Oxford University Press for Institute for International Strategic Studies); Virginia I. Foran and Leonard S. Spector, *The Application of Incentives for Nuclear Non-Proliferation* (Washington, D.C.: Carnegie Endowment for International Peace, 1997); Thomas Bernauer and Dieter Ruloff, eds., *The Politics of Positive Incentives in Arms Control* (Columbia, S.C.: The University of South Carolina Press, 1999). See also David Cortright, ed., *The Price of Peace* (Lanham, Md.: Rowman and Littlefield, for Carnegie Commission on Preventing Deadly Conflict, 1997).

54. According to the provisions of H.R. 5408, the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 conference report, "In order to clarify United States nuclear deterrence policy and strategy for the near term, the Secretary of Defense shall conduct a comprehensive review of the nuclear posture of the United States for the next 5 to 10 years. The Secretary shall conduct the review in consultation with the Secretary of Energy." "Section 1044: Report on the Defeat of Hardened and Deeply Buried Targets." For the text of this report see *Coalition to Reduce Nuclear Dangers* <http://www.clw.org/pub/clw/coalition/defense$100600.htm> (23 October 2001).

55. For example, John Holum, then acting undersecretary of State, Arms Control, and International Security Affairs and director, Arms Control and Disarmament Agency, stated in his remarks to the Carnegie Moscow Center on April 23, 1998 that "under the START III standard, U.S. and Russian experts will explore possible confidence-building and transparency measures for tactical nuclear systems and long-range sea-launched nuclear cruise missiles. This is an ambitious agenda, but one that Russian and American leaders are committed to." Available online at John D. Holum, "Remarks to the Carnegie Moscow Center," Moscow, April 23, 1998. Available online at *United States Department of State* <http://www.state.gov/www/global/arms/speeches/holum/moscow.html> (October 22, 2001).

56. Harold A. Fieveson et al., *The Nuclear Turning Point: A Blueprint for Deep Cuts and De-alerting of Nuclear Weapons* (Washington, D.C: Brookings Institution, 1999), 164.

57. Presidents Yelstin and Clinton agreed that START III would "include the actual destruction not only of means of delivery, but of nuclear warheads themselves. It will also embrace transparency measures to ensure that nuclear material from destroyed warheads will never again be used in weapons." See the statement by John D. Holum, director, U.S. Arms Control and Disarmament Agency, "Statement to the United Nations General Assembly in the First Committee General Debate," New York, October 14, 1997. Available online at *United States Department of State* <http://www.state.gov/www/global/arms/speeches/holum/unga1.html> (October 22, 2001).

58. Sergey Rogov, U.S. Institute of Peace, "Seeking Partnership with Russia," *PeaceWatch* 7, no. 2 (February 2001): 4.

59. Edward L. Warner, "Nuclear Deterrence Force Still Essential" (testimony before the Strategic Forces Subcommittee, Senate Armed Services Committee, U.S. Senate, 105th Cong., 2d sess., Washington, D.C., March 31, 1998. Available online at *U.S. Pentagon* <http://www.defenselink.mil/speeches/1998/di1334.html> (October 22, 2001).

60. Martin Butcher, "NATO-Russia Establish Nuclear Weapons Working Group" (briefing for the Centre for European Security and Disarmament, Brussels, December 4, 1997). Available online at *British American Security Information Council* <http:basicint.org/pjcworkinggroup.htm> (October 22, 2001).

61. Ivo H. Daalder, “NATO and Nuclear Weapons,” 166.

62. Ivo H. Daalder, “NATO and Nuclear Weapons,” 168.

63. It has also been recommended that the Russian arsenal should be kept “in due-distance from the Chinese border.” See William Potter, Nikolai Sokov, Harald Müller, and Annette Schaper, “ What can be done to address the problem?” in William Potter, Nikolai Sokov, Harald Müller, and Annette Schaper, *Tactical Nuclear Weapons: Options for Control,* 45.

64. In December 1996, to calm fears about the potential implications of NATO enlargement on the nuclear balance in Europe, allied foreign and defense ministers took the step of declaring that the alliance has “no intention, no plan, and no reason to deploy nuclear weapons on the territory of new member countries, nor any need to change any aspect of NATO’s nuclear posture or nuclear policy, and that it does not foresee any future need to do so.” See NATO Fact Sheet on “NATO’s Nuclear Stance,” *North Atlantic Treaty Association* <http://www.nato.int/docu/facts/2000/nato-nusta.htm> (October 22, 2001).

65. Sokov and Potter call for a prohibition on development and testing of new types of TNWs to prevent the evolution of “sophisticated warfighting schemes” as part of nuclear doctrine. William Potter and Nikolai Sokov, “Tactical Nuclear Weapons: The Nature of the Problem,” n. 46.

66. Stephen P. Lambert and David A. Miller, “Russia’s Crumbling Tactical Nuclear Weapons Complex: An Opportunity for Control” (occasional paper 12, Institute for National Security Studies, U.S. Air Force Academy, Colorado, USAF, April 1997).

APPENDIX A: The 1991/92 Presidential Nuclear Initiatives (PNIs)

U.S. President George Bush
September 27, 1991

Soviet President Mikhail Gorbachev
October 5, 1991

Russian President Boris Yeltsin
January 29, 1992

U.S. President George Bush:
Address to the Nation on Reducing United States and Soviet Nuclear Weapons
September 27, 1991

Good evening.

Tonight I'd like to speak with you about our future and the future of the generations to come.

The world has changed at a fantastic pace, with each day writing a fresh page of history before yesterday's ink has even dried. And most recently, we've seen the peoples of the Soviet Union turn to democracy and freedom, and discard a system of government based on oppression and fear.

Like the East Europeans before them, they face the daunting challenge of building fresh political structures, based on human rights, democratic principles, and market economies. Their task is far from easy and far from over. They will need our help, and they will get it.

But these dramatic changes challenge our Nation as well. Our country has always stood for freedom and democracy. And when the newly elected leaders of Eastern Europe grappled with forming their new governments, they looked to the United States. They looked to American democratic principles in building their own free societies. Even the leaders of the U.S.S.R. Republics are reading The Federalist Papers, written by America's founders, to find new ideas and inspiration.

Today, America must lead again, as it always has, as only it can. And we will. We must also provide the inspiration for lasting peace. And we will do that, too. We can now take steps in response to these dramatic developments, steps that can help the Soviet peoples in their quest for peace and prosperity. More importantly, we can now take steps to make the world a less dangerous place than ever before in the nuclear age.

A year ago, I described a new strategy for American defenses, reflecting the world's changing security environment. That strategy shifted our focus away from the fear that preoccupied us for 40 years, the prospect of a global confrontation. Instead, it concentrated more on regional conflicts, such as the one we just faced in the Persian Gulf.

I spelled out a strategic concept, guided by the need to maintain the forces required to exercise forward presence in key areas, to respond effectively in crises, to maintain a credible nuclear deterrent, and to retain the national capacity to rebuild our forces should that be needed.

We are now moving to reshape the U.S. military to reflect that concept. The new base force will be smaller by half a million than today's military, with fewer Army divisions, Air Force wings, Navy ships, and strategic nuclear forces. This new force will be versatile, able to respond around the world to challenges, old and new.

As I just mentioned, the changes that allowed us to adjust our security strategy a year ago have greatly accelerated. The prospect of a Soviet invasion into Western Europe, launched with little or no warning, is no longer a realistic threat. The Warsaw Pact has crumbled. In the Soviet Union, the advocates of democracy triumphed over a coup that would have restored the old system of repression. The reformers are now starting to fashion their own futures, moving even faster toward democracy's horizon.

New leaders in the Kremlin and the Republics are now questioning the need for their huge nuclear arsenal. The Soviet nuclear stockpile now seems less an instrument of national security, and more of a burden. As a result, we now have an unparalleled opportunity to change the nuclear posture of both the United States and the Soviet Union.

If we and the Soviet leaders take the right steps—some on our own, some on their own, some together—we can dramatically shrink the arsenal of the world's nuclear weapons. We can more effectively discourage the spread of nuclear weapons. We can rely more on defensive measures in our strategic relationship. We can enhance stability and actually reduce the risk of nuclear war. Now is the time to seize this opportunity.

After careful study and consultations with my senior advisers and after considering valuable counsel from Prime Minister Major, President Mitterrand, Chancellor Kohl, and other allied leaders, I am announcing today a series of sweeping initiatives affecting every aspect of our nuclear forces on land, on ships, and on aircraft. I met again today with our Joint Chiefs of Staff, and I can tell you they wholeheartedly endorse each of these steps.

I will begin with the category in which we will make the most fundamental change in nuclear forces in over 40 years, nonstrategic or theater weapons.

Last year, I cancelled U.S. plans to modernize our ground-launched theater nuclear weapons. Later, our NATO allies joined us in announcing that the alliance would propose the mutual elimination of all nuclear artillery shells from Europe, as soon as short-range nuclear force negotiations began with the Soviets. But starting these talks now would only perpetuate these systems, while we engage in lengthy negotiations. Last month's events not only permit, but indeed demand swifter, bolder action.

I am therefore directing that the United States eliminate its entire worldwide inventory of ground-launched short-range, that is, theater nuclear weapons. We will bring home and destroy all of our nuclear artillery shells and short-range ballistic missile warheads. We will, of course, ensure that we preserve an effective air-delivered nuclear capability in Europe. That is essential to NATO's security.

In turn, I have asked the Soviets to go down this road with us, to destroy their entire inventory of ground-launched theater nuclear weapons: not only their nuclear artillery, and nuclear warheads for short-range ballistic missiles, but also the theater systems the U.S. no longer has, systems like nuclear warheads for air-defense missiles, and nuclear land mines.

Recognizing further the major changes in the international military landscape, the United States will withdraw all tactical nuclear weapons from its surface ships and attack submarines, as well as those nuclear weapons associated with our land-based naval aircraft. This means removing all nuclear Tomahawk cruise missiles from U.S. ships and submarines, as well as nuclear bombs aboard aircraft carriers. The bottom line is that under normal circumstances, our ships will not carry tactical nuclear weapons.

Many of these land and sea-based warheads will be dismantled and destroyed. Those remaining will be secured in central areas where they would be available if necessary in a future crisis.

Again, there is every reason for the Soviet Union to match our actions: by removing all tactical nuclear weapons from its ships and attack submarines; by withdrawing nuclear weapons for land-based naval aircraft; and by destroying many of them and consolidating what remains at central locations. I urge them to do so.

No category of nuclear weapons has received more attention than those in our strategic arsenals. The Strategic Arms Reduction Treaty, START, which President Gorbachev and I signed last July was the culmination of almost a decade's work. It calls for substantial stabilizing reductions and effective verification. Prompt ratification by both parties is essential.

But I also believe the time is right to use START as a springboard to achieve additional stabilizing changes.

First, to further reduce tensions, I am directing that all United States strategic bombers immediately standdown from their alert posture. As a comparable gesture, I call upon the Soviet Union to confine its mobile missiles to their garrisons, where they will be safer and more secure.

Second, the United States will immediately standdown from alert all intercontinental ballistic missiles scheduled for deactivation under START. Rather than waiting for the treaty's reduction plan to run its full 7 year course, we will accelerate elimination of these systems, once START is ratified. I call upon the Soviet Union to do the same.

Third, I am terminating the development of the mobile Peacekeeper ICBM as well as the mobile portions of the small ICBM program. The small single-warhead ICBM will be our only remaining ICBM modernization program. And I call upon the Soviets to terminate any and all programs for future ICBM's with more than one warhead, and to limit ICBM modernization to one type of single warhead missile, just as we have done.

Fourth, I am cancelling the current program to build a replacement for the nuclear short-range attack missile for our strategic bombers.

Fifth, as a result of the strategic nuclear weapons adjustments that I've just outlined, the United States will streamline its command and control procedures, allowing us to more effectively manage our strategic nuclear forces.

As the system works now, the Navy commands the submarine part of our strategic deterrent, while the Air Force commands the bomber and land-based elements. But as we reduce our strategic forces, the operational command structure must be as direct as possible. And I have therefore approved the recommendation of Secretary Cheney and the Joint Chiefs to consolidate operational command of these forces into a U.S. strategic command under one commander with participation from both services.

Since the 1970's, the most vulnerable and unstable part of the U.S. and Soviet nuclear forces has been intercontinental missiles with more than one warhead. Both sides have these ICBM's in fixed silos in the ground where they are more vulnerable than missiles on submarines.

I propose that the U.S. and the Soviet Union seek early agreement to eliminate from their inventories all ICBM's with multiple warheads. After developing a timetable acceptable to both sides, we could rapidly move to modify or eliminate these systems under procedures already established in the START agreement. In short, such an action would take away the single most unstable part of our nuclear arsenals.

But there is more to do. The United States and the Soviet Union are not the only nations with ballistic missiles. Some 15 nations have them now, and in less than a decade that number could grow to 20. The recent conflict in the Persian Gulf demonstrates in no uncertain terms that the time has come for strong action on this growing threat to world peace.

Accordingly, I am calling on the Soviet leadership to join us in taking immediate concrete steps to permit the limited deployment of nonnuclear defenses to protect against limited ballistic missile strikes, whatever their source, without undermining the credibility of existing deterrent forces. And we will intensify our effort to curb nuclear and missile proliferation. These two efforts will be mutually reinforcing. To foster cooperation, the United States soon will propose additional initiatives in the area of ballistic missile early warning.

Finally, let me discuss yet another opportunity for cooperation that can make our world safer.

During last month's attempted coup in Moscow, many Americans asked me if I thought Soviet nuclear weapons were under adequate control. I do not believe that America was at increased risk of nuclear attack during those tense days. But I do believe more can be done to ensure the safe handling and dismantling of Soviet nuclear weapons. Therefore, I propose that we begin discussions with the Soviet Union to explore cooperation in three areas: First, we should explore joint technical cooperation on the safe and environmentally responsible storage, transportation, dismantling, and destruction of nuclear warheads. Second, we should discuss existing arrangements for the physical security and safety of nuclear weapons and how these might be enhanced. And third, we should discuss nuclear command and control arrangements, and how these might be improved to provide more protection against the unauthorized or accidental use of nuclear weapons.

My friend, French President Mitterrand, offered a similar idea a short while ago. After further consultations with the alliance and when the leadership in the U.S.S.R. is ready, we will begin this effort.

The initiatives that I'm announcing build on the new defense strategy that I set out a year ago, one that shifted our focus away from the prospect of global confrontation. We're consulting with our allies on the implementation of many of these steps which fit well with the new post cold war strategy and force posture that we've developed in NATO.

As we implement these initiatives we will closely watch how the new Soviet leadership responds. We expect our bold initiatives to meet with equally bold steps on the Soviet side. If this happens, further cooperation is inevitable. If it does not, then an historic opportunity will have been lost. Regardless, let no one doubt we will still retain the necessary strength to protect our security and that of our allies and to respond as necessary.

In addition, regional instabilities, the spread of weapons of mass destruction, and as we saw during the conflict in the Gulf, territorial ambitions of power-hungry tyrants, still require us to maintain a strong military to protect our national interests and to honor commitments to our allies.

Therefore, we must implement a coherent plan for a significantly smaller but fully capable military, one that enhances stability but is still sufficient to convince any potential adversary that the cost of aggression would exceed any possible gain.

We can safely afford to take the steps I've announced today, steps that are designed to reduce the dangers of miscalculation in a crisis. But to do so, we must also pursue vigorously those elements of our strategic modernization program that serve the same purpose. We must fully fund the B - 2 and SDI program. We can make radical changes in the nuclear postures of both sides to make them smaller, safer, and more stable. But the United States must maintain modern nuclear forces including the strategic triad and thus ensure the credibility of our deterrent.

Some will say that these initiatives call for a budget windfall for domestic programs. But the peace dividend I seek is not measured in dollars but in greater security. In the near term, some of these steps may even cost money. Given the ambitious plan I have already proposed to reduce U.S. defense spending by 25 percent, we cannot afforded to make any unwise or unwarranted cuts in the defense budget that I have submitted to Congress. I am counting on congressional support to ensure we have the funds necessary to restructure our forces prudently and implement the decisions that I have outlined tonight.

Twenty years ago when I had the opportunity to serve this country as Ambassador to the United Nations. I once talked about the vision that was in the minds of the U.N.'s founders, how they dreamed of a new age when the great powers of the world would cooperate in peace as they had as allies in war.

Today I consulted with President Gorbachev. And while he hasn't had time to absorb the details, I believe the Soviet response will clearly be positive. I also spoke with President Yeltsin, and he had a similar reaction, positive, hopeful.

Now, the Soviet people and their leaders can shed the heavy burden of a dangerous and costly nuclear arsenal which has threatened world peace for the past five decades. They can join us in these dramatic moves toward a new world of peace and security.

Tonight, as I see the drama of democracy unfolding around the globe, perhaps we are closer to that new world then every before. The future is ours to influence, to shape, to mold. While we must not gamble that future, neither can we forfeit the historic opportunity now before us.

It has been said, "Destiny is not a matter of chance. It is a matter of choice. It is not a thing to be waited for. It's a thing to be achieved.'' The United States has always stood where duty required us to stand. Now let them say that we led where destiny required us to lead, to a more peaceful, hopeful future. We cannot give a more precious gift to the children of the world.

Thank you, good night, and God bless the United States of America.

Note: The President spoke at 8:02 p.m. in the Oval Office at the White House. In his remarks, he referred to Prime Minister John Major of the United Kingdom; President Francois Mitterrand of France; Chancellor Helmut Kohl of Germany; Secretary of Defense Dick Cheney; President Mikhail Gorbachev of the Soviet Union; and President Boris Yeltsin of the Republic of Russia.

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Soviet President Mikhail Gorbachev:
Address to the Nation on Reducing and Eliminating Soviet and United States Nuclear Weapons
October 5, 1991

Dear Compatriots,

A week ago, the President of the United States, George Bush, put forward an important initiative on nuclear weapons.

We see in this initiative the confirmation that new thinking has received wide support in the international community. George Bush's proposals are a fitting continuation of the work begun at Rekjavik. That is my basic assessment. I know that Boris Yeltsin and the leaders of the other republics share this opinion.

In this statement I shall announce the steps we are taking and the proposals we are making in response.

First. The following actions will be taken with regard to tactical nuclear weapons:

- All nuclear artillery ammunition and nuclear warheads for tactical missiles will be destroyed;
- Nuclear warheads of anti-aircraft missiles will be removed from the army and stored in central bases. Part of them will be destroyed. All nuclear mines will be destroyed;
- All tactical nuclear weapons will be removed from surface ships and multi-purpose submarines. These weapons, as well as weapons from ground-based naval aviation will be placed in central storage areas. Part of them will be destroyed.

Thus, the Soviet Union and the United States are taking radical measures on a reciprocal basis leading to the elimination of tactical nuclear weapons.

Moreover, we propose that the United States should on a reciprocal basis completely eliminate all tactical nuclear weapons from its naval forces. Also on a reciprocal basis, we could remove from active duty units of forward-based (tactical) aviation all nuclear ammunition (bombs and aircraft missiles) and store them in centralised bases.

The USSR calls on the other nuclear Powers to join in these far-reaching Soviet-United States measures with regard to tactical nuclear weapons.

Second. Like the United States President, I am in favour of the earliest possible ratification of the Treaty on Strategic Offensive Weapons. This issue will be discussed at the first session of the reconstituted Supreme Soviet of the USSR.

Taking into account the unilateral steps on strategic offensive weapons announced by George Bush, we shall take the following measures:

- Our heavy bombers, like those of the United States, will be taken off alert and their nuclear weapons will be stored;
- Work will be halted on the new modified short-range missile for Soviet heavy bombers;
- The Soviet Union will halt work on a mobile small international ballistic missile;
- Plans to build new launchers for intercontinental ballistic missiles on railway cars and to modern ize those missiles will be abandoned. Thus, the number of our mobile intercontinental ballistic missiles with multiple individually targeted warheads will not increase;
- All out intercontinental ballistic missiles on railway cars will be returned to their permament storage sites;
- As a step in response, we shall remove from day-to-day alert status 503 intercontinental ballistic missiles, including 134 ballistic missiles with multiple individually targeted warheads;
- We have already removed from active service three nuclear missile submarines with 44 launch ers for submarine-based ballistic missiles and three more submarines with 48 launchers are now being removed.

Third. We have decided to make deeper cuts in our strategic offensive weapons than are envisaged in the Treaty on Strategic Offensive Weapons. As a result, at the end of the seven-year period, the remaining number of nuclear warheads in our possession will be 5,000 instead of the 6,000 envisaged under the Treaty. We would of course welcome reciprocal steps by the United States.

We propose to the United States that immediately after the ratification of the Treaty, intensive negotiations should be begun on further radical reductions in strategic offensive weapons by approximately half.

We are ready to discuss United States proposals on non-nuclear anti-aircraft systems.

We propose that we examine with the United States the possibility of creating joint systems with ground- and space-based elements to avert nuclear missiles attacks.

Fourth. We declare an immediate one-year unilateral moratorium on nuclear weapons tests. We hope other nuclear Powers will follow our example. This will open the way to the earliest possible and complete cessation of nuclear testing.

We are in favour of reaching an agreement with the Unted States on a controlled cessation of the production of all fissionable materials for weapons.

Fifth. We are ready to begin a detailed dialogue with the Untied States on the development of safe and ecologically clean technologies to store and transport nuclear warheads and methods of utilizing nuclear explosive devices and increasing nuclear safety.

To increase the reliability of nuclear-arms control we are placing all strategic nuclear weapons under single control and including all strategic defence systems in a single arm of the armed services.

Sixth. We hope that eventually the other nuclear Powers will actively join in the efforts of the USSR and the United States.

I believe the time has come for a joint statement by all nuclear Powers renouncing a first nuclear strike. The USSR has long firmly adhered to this principle.

I am convinced that a similar step by the American side would have an enourmous impact.

Seventh. We welcome the plans by the United States Administration to reduce its armed forced by 500,000 in the immediate future. On our side we intend to reduce our armed forces by 700,000.

In conclusion, I wish to stress the following : by acting in this way - unilaterally, bilaterally and through negotiations, we are decisively advancing the disarmament process and approaching the goal proclaimed at the beginning of 1986 - a nuclear-free, safer and more stable world.

The Governments, experts and departments will have much to do. The question is one of a new stage in one of the main trends of international development.

The question of a new Soviet-US summit meeting naturally arisen. I have just had a conversation with the United States President, George Bush, and told him about the steps we are taking in response to his initiative. We had a good discussion. The President of the United States made a positive assessment of our principles and expressed satisfaction with our approach to solving key problems of world politics.

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Russian President Boris Yeltsin
Address to the Nation on Russia's Policy in the Field of Arms Limitation and Reduction
January 29, 1992

Citizens of Russia,

My address today is devoted to a problem of vital importance. It is about Russia's practical steps in the field of arms limitation and reduction.

Our position of principle consists in the following: nuclear weapons and other means of mass annihilation in the world must be liquidated.

Of course, this must be done gradually on a parity basis.

In this vitally important matter we are open for cooperation with all states and international organisations, including within the framework of the United Nations.

The steps I am going to speak about today have been prepared on the basis of constant interaction with the commonwealth member states and are consistent with agreements reached at the meetings of their leaders in Minsk, Alma-Ata and Moscow.

Russia regards itself as the legal successor to the USSR in the field of responsibility for fulfilling international obligations.

We confirm all obligations under bilateral and multilateral agreements in the field of arms limitations and disarmament which were signed by the Soviet Union and are in effect at present.

The leadership of Russia confirms its commitment to the policy of radical cuts in nuclear arms, ensuring maximum safety of nuclear arms and all installations related to their development, production and exploitation.

Russia is coming up with the initiative to create an international agency for ensuring nuclear arms reduction.

On the following stages the agency could gradually cover by its control the whole nuclear cycle, from the production of uranium, deuterium and tritium to the dumping of nuclear waste.

Measures which we are taking in the sphere of disarmament are not undermining in any way the defence potential of Russia and member states of the Commonwealth. We are seeking to achieve the reasonable minimum sufficiency of the nuclear and conventional weapons.

This is our main principle in the creation of the armed forces.

The sticking to this principle will make it possible to save considerable resources. They will be channeled to meeting civilian needs and implementing the reform.

Conditions are now ripe which permit to take new major steps aimed at arms reduction. We are taking some of them unilaterally, and others—on the terms of reciprocity.

These are the steps we have taken and intend to take on a priority basis:

First. In the sphere of strategic offensive armaments. The Treaty on Strategic Offensive Armaments has been submitted for ratification to the Parliament of the Russian Federation. The process of the ratification of the Treaty has been started in the United States as well. In my opinion, this key document should be put into effect as soon as possible, including its approval by Belarus, Kazakhstan and Ukraine.

Before the coming into force of the Treaty on Strategic Offensive Armaments, Russia has taken a number of major steps, aimed at reducing the strategic arsenal:

- some 600 ground-based and sea-based strategic ballistic missiles, or nearly 1,250 nuclear charges, have been removed from stand-by alert, 130 silo launchers for intercontinental ballistic

missiles have been liquidated or are being prepared for liquidation.
- six nuclear submarines have been prepared for dismantling missile launchers.
- several strategic weapons development and modernisation programmes have been canceled.

Strategic nuclear weapons, stationed on Ukrainian territory, will be dismantled earlier than planned. Corresponding agreements about this have already been reached.

I want to emphasize that we are not pursuing unilateral disarmament. The United States is taking parallel steps in a gesture of good will.

It is now possible and necessary to move further along this road.

The following decisions have been reached recently:

- the production of heavy tu-160 and tu-95ms bombers will be stopped.
- the production of existing types of long-distance air-borne cruise missiles will be stopped. On a mutual basis with the United States, we are prepared to give up the development of new types of such missiles.
- the production of existing types of long-distance sea-based nuclear missiles will be stopped. New types of such missiles will not be developed. In addition, we are prepared - on a bilateral basis - to scrap all existing long-distance sea-based nuclear cruise missiles.
- we will not hold exercises involving large numbers of heavy bombers. This means that no more than 30 (such bombers) can take part in an exercise.
- the number of nuclear submarines on combat patrol, carrying ballistic missiles, has been halved and will be further reduced. We are prepared, on a bilateral basis, to stop using such subma rines for combat duty.
- within a three-year period, instead of the planned seven years, Russia will reduce the number of strategic offensive weapons on combat duty, to agreed levels.

We will reach the level that is envisaged in a corresponding treaty four years earlier.

If there is mutual understanding with the United States, we could achieve this even faster.

We believe that strategic offensive weapons that will be left in Russia and the United States after the reductions should not be aimed at American and Russian targets respectively.

Important talks with Western leaders will be held in the next few days. Proposals on new, deep reductions in strategic offensive weapons, to the level of 2, 000-2, 500 strategic nuclear warheads on each side, have been prepared.

We hope that other nuclear powers - China, Britain and France - will join the process of all-out nuclear disarmament.

Secondly, tactical nuclear arms. Major steps to reduce these weapons have already been taken, parallelly with the United States.

We stopped recently the production of nuclear warheads for ground-based tactical missiles, as well as the manufacturing of nuclear artillery shells and nuclear mines. The stockpiles of such nuclear charges will be eliminated.

Russia is eliminating one third of sea-based tactical nuclear weapons and half of nuclear warheads for anti-aircraft missiles. Measures in this direction have been taken already.

We also intend to reduce by half the stockpiles of tactical nuclear ammunition for the air force. The remaining tactical nuclear weapons for the air force could be removed from frontline (tactical) air force units, on the basis of reciprocity with the United States, and deployed on bases for centralised stockpiling.

Third. Anti-missile defence and space. Russia reiterated its allegiance to the Anti-ballistic Missile Treaty. It is an important factor of maintaining strategic stability in the world.

We are ready to continue impartial discussion of the US proposal on the limitation of non-nuclear anti-ballistic missile systems. Our principle is well-known. We shall support this approach, if this consolidates world strategic stability and Russia's security.

I am also voicing Russia's readiness to eliminate, on the basis of reciprocity with the United States, the existing anti-satellite systems and work out an agreement on fully banning the armaments, specially designed for destroying satellites.

We are ready to develop, then create and jointly operate a global defence system, instead of the SDI system.

Fourth. Nuclear weapons tests and the production of fissionable materials for military purposes. Russia emphatically favours the banning of all nuclear weapons tests.

We abide by the year-long moratorium on nuclear explosions, declared in October 1991, and hope that other nuclear powers will also refrain from conducting nuclear tests. The atmosphere of reciprocal restraint would help attain an agreement on renouncing such tests altogether. Reduction of the number of tests in stages is quite possible.

In the interests of eventually attaining that goal, we propose to the United States to resume bilateral talks on further cuts in nuclear weapons tests.

Russia plans to carry on the programme for the termination of production of weapons-grade plutonium. Industrial reactors to manufacture weapons-grade plutonium will be shut down by the year 2000, and some of them even as early as 1993. We confirm the proposal to the US to come to agreement on controlled termination of the production of fissionable materials for weapons.

Five. Non-proliferation of weapons of mass destruction and their delivery vehicles. Russia confirms its obligations under the Nuclear Non-proliferation Treaty, including as its depositary. We count on the earliest accession to the Treaty of Belarus, Kazakhstan and Ukraine, as well as other member countries of the Commonwealth of Independent States as non-nuclear states.

Russia declares its full support for the activity of the International Atomic Energy Agency (IAEA) and comes out in favour of enhancing the efficiency of its safeguards.

We are taking additional steps to prevent our exports from spreading weapons of mass destruction.

Work is currently underway to make Russia embrace the full-scale IAEA safeguards as a condition for our peaceful nuclear exports.

Russia intends in principle to accede to the international regime of non-proliferation of missiles and missile technology as its equal participant.

We support efforts of the so-called Australian Group on monitoring chemical exports.

The Russian Federation plans to adopt domestic legislation to regulate exports from Russia of materials, equipment and technologies with "dual applications" that can be used to create nuclear, chemical and biological weapons, as well as combat missiles.

A state system to monitor these exports is being created. We will work to establish the closest cooperation and coordination between all member countries of the Commonwealth of Independent States on these issues.

Russia supports the guiding principles of arms trade, approved in London in October 1991.

Six. Conventional weapons. The Treaty on Conventional Armed Forces in Europe was submitted for ratification by the Russian parliament. Other member states of the Commonwealth of Independent States, whose territory comes under this treaty, also attach significance to its ratification.

Russia confirms its intention to reduce along with other commonwealth countries the armed forces of the former USSR by 700,000 people in terms of actual strength.

Russia attaches great significance to the current talks in Vienna on reduction of personnel and confidence-building measures, as well as to new talks on security and cooperation in Europe.

The latter might become a permanent all-European forum for the quest for ways to creating a collective all-European security system.

Russia in cooperation with Kazakhstan, Kyrgyzstan and Tajikistan will work for reaching agreement at the talks with China on the reduction of armed forces and armaments in the border area.

It was decided not to hold in 1992 major military exercises with the participation of more than 13,000 people, and not only on the European, but also on the Asian part of the Commonwealth of Independent States.

We also hope that there is a possibility to sign a treaty on the "open sky" regime in the near future.
Seven. Chemical weapons.

We favour the early concluding (in 1992) of a global convention on a chemical weapons ban. It is needed for safely blocking the way to acquiring chemical weapons, without infringing upon the lawful economic interests of its signatories.

Russia sticks to the 1990 agreement, reached with the United States, on non-production and elimination of chemical weapons. However, the schedule of the elimination of such weapons, envisaged by the agreement, calls for some corrections.

All chemical weapons of the former USSR are deployed on the territory of Russia, and it is taking upon itself the responsibility for its elimination. We are preparing a corresponding state programme.

We are open to cooperation on this issue with the US and other parties concerned.

Eight. Biological weapons.

Russia is for strict implementation of the 1972 biological weapons convention, for the creation on a multilateral basis of a relevant verification mechanism, for the implementation of confidence-building and openness measures.

Considering that implementation of the convention lags behind, I declare that Russia abandons its reservations concerning the possibility of using biological weapons in response. They were made by the USSR to the 1925 Geneva Protocol on the Prohibition of the Use in War of Chemical and Bacteriological Weapons.

Nine. Defense budget.

Russia will continue to make drastic cuts in its defense budget, orienting it towards meeting social goals.

Between 1990-1991 defense spending in comparable prices was already reduced by 20 per cent, including purchases of weapons and technology by 30 per cent.

In 1992 we plan to reduce military spending by another 10 percent (in 1991 prices). The volume of arms purchases will be nearly halved this year as compared with 1991.

Ten. Conversion. Russia welcomes and favours extending international cooperation in the field of military conversion.

For our part, we will encourage such cooperation by giving priority to and providing tax breaks for relevant joint projects.

Esteemed citizens of Russia,

I have just set out the action plan of the Russian federation on matters of arms reduction and disarmament. I hope that it will receive your support and will be appreciated by all peoples of the Commonwealth of Independent States.

I am convinced that it fully meets the interests of our country and other countries of the world. If it is fulfilled, our life will become not only calm and safe but also more prosperous.

Several hours ago US President George Bush addressed the American people proposing radical cuts in the nuclear potentials and stronger stability measures in relations between our countries.

We held preliminary consultations on these matters with each other and are currently engaged in dialogue on the practical implementation of this policy, the proposed initiatives. Note is taken of the proximity of positions of both sides.

This is the guarantee of success on the road of reduction of offensive nuclear weapons.

Thank you for your attention.

APPENDIX B: Suggested Reading On Tactical Nuclear Weapons

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About the Participants

Ambassador Jonathan Dean works on issues related to national and European security, arms control, and international peacekeeping at the Union of Concerned Scientists (UCS). Before joining UCS in 1984, Dean served as the U.S. representative and deputy representative to the NATO-Warsaw Pact force reduction negotiations in Vienna between 1973 and 1981. Dean began his foreign service work in 1950 in Bonn as liaison officer between the U.S. High Commission and the Federal German government. Later he served as desk officer for East Germany in the Department of State and as first secretary at the American Embassy in Prague. In the early 1960s, he was principal officer in Elisabethville, Katanga, during the Tshombe secession and the subsequent UN peacekeeping intervention, and deputy director of the Office of United Nations Political Affairs, Department of State, where he worked on peacekeeping and economic sanctions. In 1968 he returned to the American embassy in Bonn as deputy U.S. negotiator for the 1971 quadripartite agreement on Berlin.

Ambassador James Goodby is a nonresident senior fellow at the Brookings Institution. He became a foreign service officer in 1952. He later served with the U.S. Atomic Energy Commission (AEC), representing the United States at several international negotiations, and served as advisor to AEC Commissioner John von Neumann. He served as principal deputy assistant secretary of state for Politico-Military Affairs, and as deputy assistant secretary of state for European Affairs. He also served as ambassador to Finland, vice chairman of the U.S. delegation to the strategic nuclear arms negotiations with the USSR, chief of the U.S. delegation to the Conference on Disarmament in Europe, and as chief U.S. negotiator for the safe and secure dismantlement of nuclear weapons. He was the Payne distinguished lecturer at Stanford University in 1996 and 1997 and distinguished fellow at the U.S. Institute of Peace from 1993 to 1994. Ambassador Goodby is the recipient of the Presidential Distinguished Service Award, the Department of State's Superior Honor Award and Distinguished Honor Award, and the Commander's Cross of the Order of Merit (Germany). He was the first winner of the Heinz Award in Public Policy for 1994.

Andrea Gabbitas is a Ph.D. candidate in the Security Studies Program at the Massachusetts Institute of Technology. She specializes in European Security, South Asian nuclear stability, and nuclear nonproliferation. She has also worked as a consultant to the RAND Corporation concerning South Asian nuclear issues and U.S. compellence strategies. She has taught courses on international relations, the causes of war, and American foreign policy.

Ivan Safranchuk is head of the Moscow branch of the Center for Defense Information (CDI). A well-known nuclear analyst in Russia, he spent four years at the PIR Center in Moscow before joining CDI—including as the director of the center's "Nuclear Weapons and Their Future" project. He has written extensively on nuclear weapons and arms control issues in both Russian and English, and is a frequent contributor to *Yaderny Kontrol* and *Arms Control Letters*.

Robert Sherman is the director of the Strategic Security Project of the Federation of American Scientists. From 1992 through 2000 he served in the Arms Control and Disarmament Agency and the Department of State as executive director of the Arms Control and Nonproliferation Advisory Board. He also served as the United States deputy chief negotiator on landmine policy. In 1999 he received the State Department's Superior Honor Award. From 1968 to 1992 he served on congressional staff as a national security specialist for various members of the House Armed Services Committee and the Defense Appropriations Subcommittee. He was the principal staffer on amendments establishing bilateral flight test bans on anti-satellite weapons and depressed trajectory ballistic missiles.

Nikolai Sokov is a senior research associate at the Center for Nonproliferation Studies, Monterey Institute of International Studies. He graduated from Moscow State University in 1981 and subsequently

worked at the Institute of USA and Canadian Studies and at the Institute of World Economy and International Relations in Moscow. From 1987 to 1992 he worked at the Ministry of Foreign Affairs of the Soviet Union and Russia, dealing with nuclear arms control. He participated in START I and START II negotiations as well as in a number of summit and ministerial meetings. Sokov has a Ph.D. from the University of Michigan (1996) and the Soviet equivalent of a Ph.D. (Candidate of Historical Sciences degree) from the Institute of World Economy and International Relations (1986). Sokov has published extensively on international security and arms control; his most recent book is *Russian Strategic Modernization: Past and Future,* (Rowman and Littlefield, 2000).

Alexander Yereskovsky is a postdoctoral research fellow at Georgetown University and has previously worked in a similar capacity with the International Security Program at the Belfer Center for Science and International Affairs at Harvard University. Yereskovsky is a former distinguished career officer in the Soviet and Russian Foreign Ministry, where he was responsible for decisions in the field of strategic defense.

Stephen Young is senior analyst and Washington representative for Global Security. Before joining the Union of Concerned Scientists (UCS), he served as deputy director of the Coalition to Reduce Nuclear Dangers, a national alliance of seventeen major nuclear disarmament organizations. He previously served as a senior analyst at the British-American Security Information Council, as legislative and field director for 20/20 Vision, and as senior information specialist at ACCESS, a security information clearinghouse. He was also a fellow in the Bureau of Human Rights at the Department of State.

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