NATIONAL INSTITUTE FOR PUBLIC POLICY

Section VIII. Minimum Deterrence, Nonproliferation and Arms Reductions

April 2015

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Prepared Under:
Contract No.: HQ0034-13-C-0130
CLIN 1001

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Introduction

Minimum Deterrence proponents claim that U.S. adoption of very low nuclear force levels would help to prevent nuclear proliferation and encourage further reductions by some or all of the other nuclear-weapon states. They assert that other nations will follow the U.S. example and place less value on their nuclear weapons, thus leading to greater international support for U.S. nonproliferation efforts and substantive arms control agreements.

Many Minimum Deterrence proponents also argue that the United States must reduce its nuclear arsenal first to Minimum Deterrence levels and eventually nuclear weapons elimination in order to fulfill the legal and political requirements for nuclear nonproliferation.

Some Minimum Deterrence proponents further contend that if the United States continues to support modernization programs for its nuclear forces, it risks losing support for its nonproliferation policies and could ultimately drive other nations to seek their own nuclear capabilities.

These arguments often are presented as demonstrated facts in the absence of much or any empirical evidence. As the discussion below makes clear, none of the arguments linking U.S. adoption of minimal nuclear forces to strengthened nuclear proliferation and arms reduction behavior stands up to scrutiny.

This section will examine these Minimum Deterrence claims in a systematic manner to determine what correlation, if any, exists between the number of U.S. nuclear weapons and the prospects for nonproliferation and arms reduction success. First, it will examine the Minimum Deterrence claim that the United States is legally obligated under the Treaty on the Nonproliferation of Nuclear Weapons (NPT) to reduce its nuclear weapons. Second, it will examine the motive for nuclear proliferation and rollback and whether the number of U.S. nuclear weapons play a role in those decisions. Third, this section will review the evidence for the claim that the United States must reduce the number of its nuclear weapons in order to

"restore credibility" to its nonproliferation agenda. Fourth, it will examine the history of nuclear arms reduction by the United States and consider whether a "lead by example" approach has been or is at all likely to be successful.

Minimum Deterrence Nonproliferation Narrative

Minimum Deterrence proponents' specific claims about nonproliferation vary to some degree; yet the uniting theme across their arguments is that there is a strong positive correlation between reducing the size of the U.S. nuclear arsenal and U.S. nonproliferation goals:

- "… it will be impossible to curtail nuclear-weapons proliferation without serious progress toward nuclear disarmament. …Ultimately, if it is to be sustainable and acceptable to the majority of states, any new nuclear order must be equitable and not perpetuate the disparity between the states that possess nuclear weapons and those that do not."[1]

- "[The United States, Britain, China, France, and Russia] must drastically reduce the role that nuclear weapons play in their security policies. If they do not do so, they will lack the legal and political legitimacy they need to induce other nations to refrain from acquiring or further developing their nuclear arsenals."[2]

- "…deep cuts and de-alerting would strongly validate the Non-Proliferation Treaty and help preserve it in the face of challenges by North Korea, Iran and other prospective proliferators."[3]

These claims are central to the Minimum Deterrence narrative. Minimum Deterrence proponents claim the United States can demonstrate leadership by championing cuts to nuclear arsenals around the world,[4] "stimulate reductions in other nuclear weapons states,"[5] and make Russia "look stuck in the past and singled out for critique in the international arms control community."[6]

Preventing Nuclear Proliferation

Two basic hypotheses underlie the assertion by Minimum Deterrence proponents of a benign – or even an essential – relationship between U.S. nuclear force levels and proliferation. The first is that Article VI of the Nuclear Nonproliferation Treaty (NPT) creates a legal obligation on the five nuclear weapons states to reduce and eventually eliminate their nuclear weapons. A related argument holds that the NPT prohibition on nuclear weapons acquisition is dependent on nuclear weapons states' compliance with Article VI. The second hypothesis is that the smaller the U.S. nuclear arsenal, the less likely potential proliferators are to pursue nuclear weapons and past

proliferators to retain them, while larger U.S. nuclear forces may encourage proliferation. Neither of those hypotheses has a foundation in available evidence.

Legal Arguments: An Obligation to Eliminate Nuclear Weapons?

Minimum Deterrence proponents typically assert that the United States should reduce the size of its nuclear arsenal either unilaterally or bilaterally with Russia in order to fulfil its obligation under the NPT:

- "the nature of the measures envisaged in the Article [VI] left no doubt that the NWS were implicated by the obligations. Both the U.S. and the Soviet Union admitted, in fact, their primary responsibility was looked on by the NNWS [non-nuclear weapon states] not only in the context of achieving a more secure world but as a *quid pro quo* for the latter's renunciation of weapons."[7]

- "Lawyers, diplomats and military commanders may debate the relevance and precise meaning of Article VI of the NPT. But it is clear that states would not have agreed to extend the treaty indefinitely, as they did in 1995, if the nuclear-weapons states had tried to claim that they were not obligated to pursue nuclear disarmament."[8]

- The nuclear Nonproliferation Treaty…establishes a balance of obligations undertaken respectively by nuclear-weapon states and non-nuclear-weapon states to ensure nonproliferation and move toward a nuclear weapons-free world. Often referred to as containing the Grand Bargain, the pact calls on the nuclear-weapon states to initiate negotiations to eliminate their arsenals.…any compliance failure by a prominent state-party to the NPT is a potentially serious blow to the long-term survival of the treaty…the most powerful nations must come to the table with clean hands if their leadership is to be viewed seriously."[9]

Article VI of the NPT provides: "Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control."[10] There is no obligation to eliminate nuclear weapons, but instead simply to seek to negotiate effective measures "relating to" that aim, as well as to an early end to the nuclear arms race. There is no evidence that the NPT negotiators held a stricter interpretation of Article VI. If anything, they did not even believe that follow-on reduction negotiations were required. For example, in January 1969, a senior National Security Council Staff member explained to new National Security Advisor Henry Kissinger that Article

VI was "an essentially hortatory statement and presents no problems."[11] That position is all the more striking, because the author, Spurgeon Keeny, was a staunch arms control advocate, who went on to become Deputy Director of the Arms Control and Disarmament Agency and later President of the Arms Control Association.

As for the obligation to negotiate on "effective measures" toward an end to the nuclear arms race, one could argue its purpose began to be achieved even before the NPT was signed, without any need for negotiations. The U.S. warhead stockpile peaked in 1967, and has fallen more than 80 percent since then. U.S. nuclear delivery vehicles of all ranges have also fallen dramatically, through both negotiated reductions and unilateral actions.

The contention that the Treaty rests on a fundamental nuclear disarmament-nonproliferation bargain is actually a fairly recent view, which received little support in at least the first twenty-five years of the NPT's history. The basic obligation of the Treaty for non-nuclear weapon states to forswear nuclear weapons is found in Article II, which provides that: "Each non-nuclear-weapon State Party to the Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices."[12] There is no suggestion in Article II or elsewhere in the Treaty that this obligation is contingent on nuclear weapons states' reductions.

Insofar as there is a nuclear reductions linkage in the Treaty text, it is with general and complete disarmament, not nonproliferation. The Preamble to the Treaty states that: "Desiring to further the easing of international tension and the strengthening of trust between States in order to facilitate the cessation of the manufacture of nuclear weapons, the liquidation of their existing stockpiles, and the elimination from national arsenals of nuclear weapons and the means of their delivery pursuant to a Treaty on general and complete disarmament under strict and effective international control."[13] The Preamble does not create any legal obligations, but does offer an insight into the intent of the negotiators. It does not present nuclear disarmament as a standalone

obligation, or as a condition for nonproliferation; instead, it characterizes nuclear disarmament as an element of ("pursuant to") general and complete disarmament.

Article VI is less clear about the relationship between nuclear and general and complete disarmament. At the very least, it presents the two as equal requirements. However, a more solid reading of Article VI is that it makes general and complete disarmament a firmer obligation than nuclear elimination. It calls for a formal general and complete disarmament treaty "under strict and effective international control." On the nuclear side, it calls only for "effective measures relating to cessation of the nuclear arms race and to nuclear disarmament" – not for a treaty, actual nuclear elimination or even an end to nuclear arms competition.

The landmark 1995 NPT Review Conference agreed to extend the Treaty indefinitely – an achievement that required substantial concessions by the nuclear weapons states to the other NPT parties. Thus the Review Conference took Article VI much more seriously than the NPT negotiators did. Still, it clearly placed priority on NPT compliance and universality, making those fundamental requirements for nuclear and general and complete disarmament. Moreover, it characterized the latter two as "ultimate goals," rather than near-term objectives, and implied a close link between the two. Specifically, the Review Conference decision on indefinite extension found "that there is a need for full compliance with the Treaty, its extension and its universal adherence, which are essential to international peace and security and the attainment of the ultimate goals of the complete elimination of nuclear weapons and a treaty on general and complete disarmament under strict and effective international control."[14]

In subsequent years, many NPT Parties and a number of American officials and observers completely flipped positions on the relationship between nonproliferation and nuclear arms reductions. In doing so, they came to argue that nonproliferation depends on nuclear reductions, rather than the reverse. The April 2009 Prague speech in which President Obama adopted the goal of nuclear weapons elimination, also included the first official U.S. Government endorsement of this interpretation of Treaty requirements: "The basic bargain [of the NPT] is sound: Countries with nuclear weapons will move toward disarmament, countries without nuclear weapons will not acquire them, and all countries can access peaceful nuclear energy."[15]

The 2000 and 2010 NPT Review Conference went even further. Their Final Documents omitted any reference to linkages between nonproliferation compliance and nuclear abolition or between nuclear and general and complete disarmament. Instead, they cited a supposed "*unequivocal* undertaking by the nuclear-weapon States to accomplish the total elimination of their nuclear arsenals" (emphasis added), and called for further reductions. The full 2010 statement is as follows: "In implementing the unequivocal undertaking by the nuclear-weapon states to accomplish the total elimination of their nuclear arsenals, the nuclear-weapon States commit to undertake further efforts to reduce and ultimately eliminate all types of nuclear weapons, deployed and non-deployed, including through unilateral, bilateral and multilateral measures."[16] Somewhat ironically, in claiming that the nuclear weapon states have an unconditional obligation to disarm, the 2000 and 2010 Review Conferences dropped the idea of a Treaty bargain, arguing in essence that there is no causal relationship between nuclear reductions and nonproliferation.

Still, President Obama's endorsement of nuclear elimination and of the supposed nuclear disarmament-nonproliferation bargain in the NPT undoubtedly had a major impact on the wording of the 2010 Final Document, which noted "the new proposals and initiatives from Governments and civil society related to achieving a world free of nuclear weapons." The 2010 Review Conference was also impervious to the U.S. submission of data on the size of the U.S. stockpile between 1964 and 2009 – data which showed that the number of U.S. nuclear weapons had fallen by 84 percent from their 1967 peak (from 22217 to 5113), and by 50 percent during the supposedly anti-arms reduction George W. Bush Administration (from 10526 in 2001 to 5273 in 2008).[17]

The NPT negotiators did agree on two fundamental bargains, but those did not include nuclear disarmament-nonproliferation. First, the non-nuclear weapons states wanted to ensure that forswearing nuclear weapons would not disadvantage them economically. Therefore, as President Obama mentioned, the Parties agreed on Article IV of the Treaty, which recognizes all states' "inalienable right" to civil nuclear energy, and commits the nuclear weapons states to share that technology. Article IV provides:

1) Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I and II of this Treaty.

2) All the Parties to the Treaty undertake to facilitate and have the right to participate in the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy. Parties to the Treaty in a position to do so shall also cooperate in contributing alone or together with other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty, with due consideration for the needs of the developing areas of the world.[18]

The second important bargain was to assure the non-nuclear weapons states that adherence to the Treaty would not harm their security. As George Bunn and former Soviet Foreign Ministry Official, Roland Timerbaev, have written: "In return for refraining from acquiring nuclear weapons, …[Germany, Italy and Japan] – each advanced in nuclear technology – relied upon a promise of assistance from a nuclear-weapon power, the United States, in the event of nuclear blackmail or attack by another nuclear-weapon power, the Soviet Union. Similar arrangements existed between the Soviet Union and its allies."[19]

To help assuage those states' fears that abandoning nuclear weapons might harm their security, the three nuclear-weapons states that were original Parties to the Treaty (the United States, United Kingdom and Soviet Union) issued separate, but similar, Positive Security Assurances (PSAs). With those they committed to provide or support immediate assistance, in accordance with the United Nations (UN) Charter, to any non-nuclear party to the NPT that was a victim of actual or threatened nuclear use. UN Security Council Resolution 255 in the same year welcomed those assurances, emphasizing the importance of *nuclear* security guarantees. The resolution recognized "that aggression with nuclear weapons or the threat of such aggression against a non – nuclear-weapon State would create a situation in which the Security Council, *and above all its nuclear-weapon State permanent members* [emphasis added], would have to act immediately in accordance with their obligations under the United Nations Charter." The resolution also reaffirmed "in particular the inherent right" of collective self-defense under the Charter.[20]

In his remarks on signing the NPT on July 1, 1968, President Lyndon Johnson emphasized both the PSA and the U.S. extended deterrence commitment to its allies:

> …we have made clear to the United Nations Security Council what I would like to repeat today: If a state has accepted this treaty, does not have weapons [sic – nuclear weapons] and is a victim of aggression, or is subject to a threat of aggression involving nuclear weapons, the United States shall be prepared to ask immediate Security Council action to provide assistance in accordance with the Charter. In welcoming the treaty that prevents the spread of nuclear weapons, I should like to repeat the United States commitment to honor all our obligations under existing treaties of mutual security. Such agreements have added greatly, we think, to the security of our nation and the nations with which such agreements exist. They have created a degree of stability in a sometimes unstable world.[21]

Ten years later, the United States issued its first Negative Security Assurance, under which it promised that it would not "use nuclear weapons against any non-nuclear-weapon State party to the non-proliferation Treaty or any comparable internationally binding commitment not to acquire nuclear explosive devices, except in the case of an attack on the United States, its territories or armed forces, or its allies, by such a State allied to a nuclear-weapon State or associated with a nuclear-weapon State in carrying out or sustaining the attack."[22] Russia and the United Kingdom issued similar NSAs. France was not yet an NPT party, but announced its own limited NSA in 1978, and another in 1982 that was much closer to the others. Although public attention surrounding the 1978 NSA focused on the assurance of non-use, it is important to note that the statement was clear in reiterating the U.S. extended nuclear deterrence commitment to its allies.

The Clinton Administration reaffirmed both the NSAs and PSAs as a condition of the indefinite extension of the NPT in 1995. All five nuclear-weapon states issued such assurances, France and China having joined the NPT in 1992. The U.S. PSA was substantively unchanged, but was explicit about the types of assistance the Security Council or Member States could offer. Those included technical, medical, scientific, humanitarian aid, as well as investigation and unspecified means to restore peace. The statement also reaffirmed the right to individual and collective self-defense against armed attack. The NSA had one significant difference from the 1978 version, broadening the extended deterrence commitment to states with which the United States had

security commitments, not just formal alliances: "The United States reaffirms that it will now [sic – not] use nuclear weapons against non-nuclear-weapon States Parties to the Treaty on the Non-Proliferation of Nuclear Weapons except in the case of an invasion or any other attack on the United States, its territories, its armed forces or other troops, its allies, or on a state towards which it has a security commitment, carried out or sustained by such a non-nuclear-weapon state in association or alliance with a nuclear-weapon state."[23]

Thus, twenty-five years after the NPT entered into force, U.S. and other nuclear-weapons states' security assurances to the non-nuclear NPT parties had lost none of their importance. This long-standing NPT bargain, without which there may never have been an NPT, let alone one with indefinite duration, was in many ways just the opposite of the supposed disarmament-nonproliferation bargain claimed by President Obama. In demanding the PSAs, many important non-nuclear-weapon states made clear that their NPT adherence was conditional on a promise of some security protection from the nuclear powers – and they defined that protection in terms of a nuclear umbrella.

As demonstrated, the claim of an NPT nuclear disarmament-nonproliferation bargain has no foundation, in law or policy throughout most of the Treaty's history. Further, it weakened the nonproliferation-security bargain that was central to the NPT for so many years. The weakening of that bargain was compounded in 2010, with the U.S. issuance of a revised NSA: "the United States is now prepared to strengthen its long-standing 'negative security assurance' by declaring that the United States will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the Nuclear Non-Proliferation Treaty (NPT) and in compliance with their nuclear non-proliferation obligations."[24] The new U.S. NSA received most attention because it no longer threatened nuclear retaliation to chemical or biological attack. However, it is important to note that it abandoned any reference to extended deterrence. Even though a subsequent section of the Nuclear Posture Review Report made clear the continued U.S. commitment to extended deterrence, the absence of that point from the NSA after more than three decades may well contribute to the concern of U.S. allies and partners regarding the future of the U.S. extended nuclear deterrent.

Political Arguments

The argument of many Minimum Deterrence proponents that the NPT rests on a disarmament-nonproliferation bargain has an important political component.

- "… arms control and U.S. nuclear force reductions can bolster America's nonproliferation credentials. The United States and Russia between them maintain well over 90 percent of the nuclear weapons in the world. An active U.S. effort to reduce those stockpiles—an objective to which the United States is committed under the Non-Proliferation Treaty—will give Washington greater credibility in seeking to discourage nuclear proliferation."[25]

- "[Unilaterally reducing to 1,000 deployed nuclear warheads] would transform the post–cold war nuclear security environment, provide Russia with a strong incentive to follow suit, and demonstrate U.S. intentions to fulfill its commitments under the Non-Proliferation Treaty."[26]

- "… we do see important opportunities for the United States to seize that would improve its national security by strengthening the nonproliferation regime. To this end, timely initiatives by the nuclear-weapon states to significantly reduce their nuclear arsenals and to restrain the development of new nuclear weapons can play an important role by addressing increasingly voiced concerns of the non-nuclear-weapon nations about the discriminatory nature of the nuclear Nonproliferation Treaty."[27]

The claim is that nuclear reductions by the nuclear-weapon states will encourage others to forswear nuclear weapons, while their retention of large nuclear arsenals will have the opposite effect. This argument has no basis in evidence or logic. If anything, the opposite is true.

Motives for Nuclear Proliferation or Rollback. Some advocates of Minimum Deterrence argue that fear of U.S. nuclear capabilities drives adversaries like Iran and North Korea to seek, and now in North Korea's case to expand, their own nuclear forces. According to this line of reasoning, a U.S. Minimum Deterrence posture would not pose an offensive threat to these states, and thus would dissuade them from their pursuit of nuclear weapons, with all its attendant political and economic costs. As discussed in the 2013 study on Minimum Deterrence, *Minimum Deterrence: Examining the Evidence*, these arguments do not withstand scrutiny, in at least two important respects.[28] First, Minimum Deterrence theory maintains that any country – even ones like Russia and China, with large and/or growing nuclear arsenals – can be effectively deterred by very small nuclear forces. According to this belief, a country like the United States with vast

military, economic, political, societal and geographical resources could be effectively protected against any nuclear attack with only a minimal deterrent. That is, no nuclear power would conclude that the benefits of decisive victory over the United States would be worth the costs of even limited U.S. nuclear response. Those arguments may actually encourage proliferators' pursuit of nuclear weapons, by echoing their hopes and beliefs that they can deter great power nuclear attacks even though they cannot begin to compete with their existing nuclear arsenals. That effect would obviously be considerably heightened if the United States actually reduced its nuclear forces to Minimum Deterrence levels.

Second, Minimum Deterrence proponents assert that the United States can move to such low nuclear levels without adversely affecting deterrence because of the strength of U.S. conventional forces. For example, the Global Zero U.S. Nuclear Policy Commission Report stated: "strong conventional forces and missile defenses may offer a far superior option [than nuclear weapons] for deterring and defeating a regional aggressor. Non-nuclear forces are also far more credible instruments for providing 21st century reassurance to allies whose comfort zone in the 20th century resided under the U.S. nuclear umbrella. Precision-guided conventional munitions hold at risk nearly the entire spectrum of potential targets, and they are useable."[29]

Actually, that argument has not been used only in support of Minimum Deterrence. Every administration since the end of the Cold War has argued that reduced U.S. reliance on nuclear weapons, and accompanying nuclear reductions, were feasible in part because of the strength of U.S. conventional forces. During the height of the Cold War, the United States required an overwhelming nuclear arsenal because it could not compete conventionally with the Soviet Union. After Desert Storm demonstrated the unprecedented might of U.S. conventional forces, and after the dissolution of the Warsaw Pact, the Soviet Union and the Red Army, earlier arguments about countervailing nuclear and conventional military power were reversed. The United States decided that it could dramatically reduce its nuclear forces, beginning just months after Desert Storm. Conversely, once Russia felt financially able to do so, it instituted a significant nuclear modernization program to offset U.S. conventional superiority.

Adversary proliferators like Iran and North Korea have adopted the same general approach as Russia, although on a smaller scale. They cannot – and know they cannot – begin to compete with the United States on the conventional battlefield. The only solution, according to this logic, is a nuclear capability – all the more so if the United States would be effectively deterred by a very small nuclear force. In the case of both these factors, therefore, there is a direct relationship between adversaries' decisions to proliferate and U.S. nuclear force levels/strategy. However, it is just the opposite of the benign, productive relationship envisioned by Minimum Deterrence advocates. In reality, the deeper the United States reduces its nuclear weapons, and the more it relies on conventional forces for global deterrence, the greater the incentive for adversaries to acquire (or, in the case of Russia and China, expand and improve) nuclear arsenals.

In the years since the NPT entered into force, three states – India, Pakistan and North Korea – have acquired and kept nuclear weapons.[30] Analysts differ on how vigorously Iran is pursuing nuclear weapons, but agree that its program is, at a minimum, a matter of serious concern. The numbers of "deproliferators" is somewhat larger. One state – South Africa – destroyed the nuclear weapons it developed. Three – Ukraine, Belarus and Kazakhstan – transferred to Russia all the nuclear warheads on its territory, and worked with the United States to eliminate their delivery systems. Four – Brazil, Argentina, Libya and Iraq – are known publicly to have abandoned nuclear weapons programs. In none of these states – whether proliferators or "deproliferators" – did U.S. or other great power nuclear reductions have a positive impact on their decisions.

North Korea and Iran embarked on serious nuclear weapons efforts after the United States began deep reductions in its arsenal in 1991-1992. It is especially noteworthy that North Korea's nuclear and missile development accelerated after the United States withdrew its nuclear weapons from the peninsula. Pakistan acquired nuclear weapons to deter India, and India to deter China as well as Pakistan. There is no reason to believe that Chinese reductions – should they occur – would encourage India to reciprocate. First, as discussed above, any such move by China would likely encourage India's conviction in the effectiveness of its own deterrent. Second, even if China were to disarm or otherwise cease to be an adversary, India would remain committed to nuclear deterrence of Pakistan.

None of the states that abandoned nuclear weapons programs or actual arsenals was motivated in any way by the example or prospect of U.S. reductions. The apartheid government in South Africa developed nuclear weapons in the 1970s-1980s for domestic and regional reasons. It felt threatened regionally, especially by Cuban forces in Angola, and domestically by the strong internal and external pressures to replace apartheid with a multiracial democracy. By 1989, South Africa had six nuclear warheads and a seventh in production. The new President elected that year, F.W. de Klerk, decided to abandon both apartheid and the nuclear weapons meant to protect it. South Africa eliminated its warheads in 1990 and joined the NPT the following year.[31]

Brazil's and Argentina's nuclear efforts never advanced to the weapons stage, but in broad terms the motives for both the initiation and termination of their programs resembled those of South Africa. That is, they pursued and then abandoned nuclear weapons efforts for domestic and regional security reasons. Both programs were led by authoritarian military governments, determined to retain power domestically and vis-à-vis each other. Civilian presidents elected in both countries in 1990 quickly decided to terminate the covert weapons programs. In 1991, the two governments created a joint Agency for Accounting and Control of Nuclear Materials to verify the peaceful nature of their nuclear power and research programs. The three plus the International Atomic Energy Agency (IAEA) then signed the Quadripartite Agreement under which the IAEA would implement full-scope safeguards in each country.[32]

Libya's case was quite different, but still focused on regional concerns, and was not affected in any way by U.S. stockpile developments. Qaddafi pursued nuclear weapons as part of his quest for regional dominance. He had virtually no domestic nuclear energy program, relying instead on supplies and expertise from the A.Q. Khan network. His plans fell apart when they were discovered by U.S. and British intelligence, and a shipment of nuclear centrifuge parts from Malaysia to Libya was intercepted and diverted to Italy in October 2003. Caught red-handed just over six months after the United States invaded Iraq, Qaddafi feared that he would be next. To prevent that outcome, and to preserve his regime, Qaddafi publicly agreed in December 2003 to eliminate his weapons of mass destruction and long-range missile holdings and programs.[33]

Iraq also sought regional dominance through nuclear weapons, but was thwarted when its covert nuclear program was discovered. After Operation Desert Storm, the United States, its partners and the IAEA discovered that Iraq had been conducting a clandestine nuclear weapons effort, even as the IAEA implemented safeguards on Iraqi civil nuclear facilities. Like Libya, Iraq abandoned its nuclear weapons pursuits after they were discovered. Unlike Libya, however, Iraq never made a clear public announcement admitting the past and submitting to close verification. Instead, Saddam Hussein may have hoped to resume his nuclear weapons program. The Special Advisor to the Director of Central Intelligence on Iraq's WMD stated in his September 2004 report that some key regime advisors believed that Saddam would once again seek nuclear weapons after United Nations sanctions were lifted.[34]

Ukraine, Belarus and Kazakhstan provided a very different pattern compared to the other states that abandoned their nuclear weapons programs. They had little nuclear weapons development infrastructure[35] but instead had inherited very large warhead stockpiles from the Soviet Union. Belarus and Kazakhstan were both strongly anti-nuclear, primarily for environmental reasons. One-third of Belarusian territory had been rendered virtually uninhabitable by Chernobyl. Kazakhstan claimed serious damage from the Soviet weapons test site at Semipalatinsk in the northern part of the country. Each rather quickly decided to return all nuclear warheads to Russia and to work with the United States on the elimination of the strategic delivery systems within their borders. Ukraine had much more difficulty deciding to denuclearize, not least because many officials believed they required a nuclear deterrent against Russian aggression. Ultimately, they concluded that their security would be best assured by good relations with the West – which in turn would not be possible unless Ukraine became a non-nuclear weapons state.

Thus, the nonproliferation successes and failures of the past four decades have arisen from different motives and perceptions of national interest. Most have focused on regional ambitions or threats. In several (but not all) cases, the decision to proliferate has been made by authoritarian regimes. Although no single overall pattern prevailed, one common thread can be discerned: *government decisions to seek nuclear weapons, or to abandon those*

efforts, have had little or nothing to do with the size, nature or direction of U.S. nuclear forces.

If there were a disarmament-nonproliferation bargain underpinning the NPT, the international commitment to nonproliferation should have grown commensurate with the dramatic reductions in U.S. nuclear forces over the past 25 years. This section has discussed numerous ways in which that has not been the case. The rhetoric of NPT Review Conferences has steadily – and in some ways shrilly – elevated disarmament by the nuclear weapons states over nonproliferation as the core obligation of the Treaty, despite its name and basic purpose. The language of the 2010 Review Conference is striking in that regard, even though the United States had just issued detailed data on the annual size of its nuclear stockpile for presentation at the Conference. The conclusions and recommendations in the Review Conference Final Document devoted almost six pages to nuclear disarmament, and less than half that to nonproliferation. Volume I of the Final Document includes two sections: review of Treaty operations, and conclusions and recommendations. Nowhere in its 40 pages is there a mention of Iran, North Korea or any other state of proliferation concern.[36]

It is noteworthy that both the IAEA and the United Nations Security Council (UNSC) have taken strong stands against Iran's and North Korea's nuclear efforts. The unprecedented UNSC sanctions on the two countries have been particularly important. Still, both the IAEA and UNSC were slow to act, and have had difficulty in sustaining – still less in escalating – pressure on the two over time. Iran's construction of a clandestine uranium enrichment facility at Natanz became publicly known in August 2002, but it was not until February 2006 that the IAEA reported Iran's safeguards obligations to the UNSC, and not until July 2006 that the UNSC issued its first resolution. In response to Iran's defiance of the UNSC requirements, the Council issued progressively stronger resolutions in 2006, 2007, 2008 and 2010. However, no subsequent resolution has been adopted in almost five years. Instead, the five nuclear weapons states plus Germany and the European Commission have been negotiating with Iran on an agreement that would allow Iran to retain and operate many nuclear facilities and activities that were prohibited by the UNSC Resolutions. One or both of two conclusions is inescapable: either Iran simply outwaited the international community, and/or it became obvious that the

international community could not achieve the goal of the multiple resolutions to suspend completely Iran's weapons-relevant nuclear programs.

The international response to North Korea's nuclear and missile developments has also been lacking. North Korea expelled IAEA inspectors in December 2002 and announced withdrawal from the NPT in January 2003. One month later, the IAEA reported the North Korean case to the UNSC. However, the Security Council took no action until July 2006, after North Korea conducted multiple missile launches on July 4, in violation of its 1999 moratorium on long-range missile launches. Subsequent UNSC resolutions imposed progressively stronger sanctions on North Korea, but only in response to severe provocations: October 2006 after the first North Korean nuclear test; June 2009 after the second nuclear test in May; January 2013 after the December 2012 long-range missile launch; and March 2013 after the third nuclear test. No international effort to reach agreement with North Korea on its nuclear program has occurred in several years. The sanctions remain in place, although their impact on the autarchic Pyongyang regime is open to question.

Extended Deterrence. The Minimum Deterrence claim that U.S. nuclear reductions would give an important incentive to other countries to follow suit appears not only false historically, but such U.S. reductions may in the future have the opposite effect: increasing the number of states pursuing nuclear weapons. U.S. extended deterrence commitments with allied countries, the "nuclear umbrella," have been important disincentives to nuclear proliferation. If the United States were to adopt the nuclear force sizes proposed by some Minimum Deterrence proponents, there is evidence that U.S. allies may feel compelled to consider alternative policies that fill the security gap left by U.S. nuclear reductions, including obtaining a nuclear weapon capability of their own. A review of U.S. nuclear commitments to allies will illustrate the point.

As discussed above, U.S. nuclear security guarantees were critical to the decision of many important states like Germany and Japan to adhere to the NPT as non-nuclear weapon states. France began pursuing nuclear weapons in the 1950s in considerable part because of a lack of confidence in the U.S. nuclear umbrella. In President de Gaulle's famous words, the French did not believe that the United States would sacrifice New York for Paris. Moreover, de Gaulle's

characterization of the French nuclear force as "*tous azimuths*" – designed for all directions – underscored France's conviction at the time that its security could not be bound by alliances and security commitments that had been fleeting and unreliable throughout history, and would almost certainly remain so.

Much less is publicly known about Israel's reported decision a few years later to acquire nuclear weapons, given that Israel has never openly acknowledged an arsenal. Nonetheless, it seems clear that Israel believed – and continues to believe – that ultimately it can rely only on itself for its security, despite its close ties to the United States. That belief is reinforced by the absence of any treaty of alliance or other formal security arrangement between Israel and the United States, but probably would remain even if such a security commitment existed.

When the NPT was negotiated, there was a high probability that Germany, Italy and Japan would follow France's lead. The odds now are overwhelmingly against such a choice by Germany or Italy, even if confidence in the U.S. nuclear umbrella were seriously eroded. That is not the case with Japan and South Korea. Japan's extensive enrichment and reprocessing capability, and world-class technical and scientific infrastructure, mean that it could acquire nuclear weapons quickly after a decision to do so. South Korea might take longer, but nuclear weapons could be well within its reach.

Over the past decade, the possibility of "going nuclear" has entered public discourse in both countries in a way that could not be imagined previously. Several major, simultaneous factors appear to be at work. First, China has steadily expanded and improved its nuclear forces, at the same time it has increased territorial assertiveness against its regional neighbors. Second, North Korea has steadily advanced its nuclear weapons and missile delivery systems, while becoming ever more erratic and threatening toward South Korea and Japan. Third, doubts have increased about U.S. extended deterrence, especially given the Obama Administration's commitment to the elimination of nuclear weapons, adoption of a reduced role for them in the interim, and the 2010 elimination of the nuclear-armed Tomahawk Land Attack Missile (TLAM-N), the one component of the U.S. force that was particularly tailored for use in Northeast Asia. Although publicly the Japanese and South Korean governments did not object to the TLAM-N decision, it

definitely exacerbated the concerns raised by Chinese and North Korean developments. Even as the nuclear threat in the region grew steadily, and promised to continue to do so, the United States chose to abandon what was seen there as a central element of its extended deterrent.

Without TLAM-N, nuclear-armed bombers provide the most – and, in the view of some in Japan and South Korea, the only – credible aspect of the U.S. nuclear deterrent. Many believe that the United States would be unlikely to use ICBMs or SLBMs to defend Japan or South Korea, unless the United States was directly attacked. More important, they worry that China and/or North Korea would doubt U.S. willingness to risk a large-scale strategic exchange, or to use supposedly disproportionate force, to defend its allies. Yet, some Minimum Deterrence proponents would limit U.S. nuclear forces to SSBNs/SLBMs alone.[37]

Faced with escalating North Korean nuclear threats and the prospect of continuing U.S. nuclear reductions, some South Korean politicians have publicly expressed the need to develop indigenous nuclear weaponry in order to "maintain a balance of terror that confronts nuclear with nuclear."[38] For the last several years, opinion surveys have reported that roughly two-thirds of South Koreans support nuclear weapons development.[39] One observer argues that such views are not widely shared in the South Korean government or think tanks, in part because of the importance of the U.S. security alliance. He adds that: "In theory, that could change should North Korea acquire greater destructive capabilities and South Korean leaders lose confidence in U.S. promises to defend it from such capabilities. Long before reaching that point, however, South Korea's leaders would likely seek stronger defense commitments from the United States."[40] The problem, of course, is that such an effort would be fruitless if the United States did not have the forces necessary for current extended deterrence commitments, let alone stronger ones.

Anti-nuclear-weapons sentiment is much stronger in Japan than in South Korea, but until recently had declined as regional threats increased. One opinion survey in 1999 reported that only seven percent of the Japanese population supported nuclear weapons acquisition. Ten years later, the number had grown to almost 20 percent – still small, but significantly more than earlier. The Fukushima Daichi disaster in March 2011 greatly reduced public support for civil nuclear

power, and that shift undoubtedly increased opposition to nuclear weapons. Moreover, the Japanese public's allergy to nuclear power has been stable in the years after Fukushima, with a majority continuing to oppose reactor restart in 2014.[41] Nevertheless, Japanese opinion may change, especially if it perceives increased threats to national security. Even after Fukushima, some senior conservative former officials called publicly for serious consideration of nuclear weapons acquisition. At the same time, observers expressed doubt about U.S. willingness to endanger its security by defending Japan against regional threats.[42]

As in South Korea, confidence in U.S. extended deterrence provides an essential underpinning for Japan's non-nuclear policy. Steep U.S. nuclear reductions to Minimum Deterrence levels would seriously accelerate the decline in that confidence that we have witnessed for the last several years. It is not inevitable that the Japanese and/or South Korean response would be to acquire nuclear weapons, but the possibility is a strong one. Moreover, absent a significant lessening of the longstanding hostility between those two U.S. allies, it seems most likely that, if one of the two went nuclear, the other would follow.

The concern that weak U.S. security guarantees could fuel proliferation extends beyond formal U.S. allies. The risk appears especially severe that Saudi Arabia and possibly other Gulf states, having little or no confidence in U.S. willingness to defend them against a prospective Iranian nuclear threat, would seek to acquire nuclear weapons if Iran is seen as doing so. In 2007, the U.S. State Department's International Security Advisory Board warned that "a lessening of the U.S. nuclear umbrella could very well trigger a cascade [of nuclear proliferation] in East Asia and the Middle East."[43] More recently, Simon Henderson and Olli Heinonen, former IAEA Deputy Director for Safeguards, were much more direct, stating that a "major probable consequence of Iran achieving nuclear weapons capability is that Saudi Arabia will seek to match it."[44] Saudi Arabia lacks the nuclear expertise and infrastructure of Japan or even South Korea, but many observers believe that it could quite literally buy those, along with nuclear weapons and material.

Arms Reductions

The argument of most Minimum Deterrence advocates that the United States can effectively lead by example in arms reductions is also contrary to experience. According to this line of reasoning, deep U.S. reductions will lead other nuclear weapons states to do the same, whether because of U.S. moral leadership or, more likely, the dramatic reduction in the supposed U.S. nuclear threat. For example:

- "By unilaterally reducing its arsenal to a total of 1,000 warheads, the United States would encourage Russia to similarly reduce its nuclear forces without waiting for arms control negotiations. To induce other nuclear weapons states to join in further reductions, U.S. cuts below this level should occur through multilateral negotiations."[45]

- "…the United States should pursue by example and diplomatic exertion a gradual shift in nuclear forces and targeting doctrine to induce parallel Russian behavior and to encourage China to maintain its self-restraint in building up nuclear forces and retaining a no-first-use policy."[46]

- "If the United States abandons its counterforce capability under a minimal deterrence policy, changes in Russian and Chinese arsenal size and deployment could result. The Russians could make some immediate changes in response. … Changes in the Russian and Chinese nuclear forces would not be automatic, of course. We believe, however, that moving away from counterforce will more importantly open opportunities for negotiated symmetric reductions in the forces of all sides."[47]

Thus, Minimum Deterrence proponents argue that nuclear relations between nuclear-weapons states follow essentially the same dynamic as between those states and actual or potential proliferators. Both arguments are equally contrary to available evidence.

Many holders of this hypothesis point to the Presidential Nuclear Initiatives (PNIs) of 1991-1992 as evidence of its validity. In September 1991, President George H.W. Bush announced the deepest unilateral nuclear reductions in history. The United States would eliminate all ground-launched, and one-half of its sea-launched, tactical nuclear weapons, and put the remaining sea-launched tactical weapons in storage. President Bush also announced cancellation of important strategic and tactical modernization programs: the mobile versions of the Peacekeeper and Small Intercontinental Ballistic Missiles (ICBMs); and modernized replacements for the strategic and tactical versions of the Short-Range Attack Missile (SRAM and SRAM-T). In January 1992,

President Bush added outright cancellation of the Small ICBM, an end to production of the Peacekeeper ICBM and the W-79 Sea-Launched Ballistic Missile (SLBM) warhead, an end to purchase of advanced cruise missiles, and a cap on acquisition of the B-2 heavy bomber at 20.

The PNIs were "unilateral/reciprocal." That is, the United States was willing to implement these reductions unilaterally, but challenged the Soviet Union to make comparable moves. At the time of the President's September 1991 announcement, few if any Bush Administration officials expected that the Soviet Union would respond as positively and quickly to the challenge as it did. The President gave his speech on September 27, 1991. One week later, on October 5, an interagency U.S. delegation arrived in Moscow to seek to persuade the Soviet Government to follow the U.S. lead. The focus of the trip immediately changed, because that night President Mikhail Gorbachev publicly announced broadly similar reductions. The Soviet Union officially dissolved on Christmas Day 1991. Russian President Boris Yeltsin's positive response to the second Bush PNI was even faster, and fully anticipated. President Bush presented his new initiatives on January 28, 1992, and President Yeltsin replied the next day.[48]

The PNIs occurred at a unique time in Soviet and Russian history. Gorbachev and Yeltsin recognized that the Soviet Union (and then Russia) could not sustain previous levels of defense spending. They also were interested in reining in the power of the military. For both reasons, serious nuclear force reductions were very much in their interest. Ground-launched tactical reductions were especially important because they were based disproportionately in Ukraine and Belarus, and had only recently been moved from former Warsaw Pact states. The Soviet and then Russian Governments were concerned about loss of control of these forces. Although those fears were assuaged when all shorter-range systems were moved to Russia in spring 1992, their new location appeared to remove much of their military value. Finally, both Gorbachev and Yeltsin put an unprecedentedly high priority on good relations with the United States and NATO, which they saw as central to their military, economic and political security.

Thus the PNIs were seen initially as an overwhelming successes. They promised huge nuclear reductions in a short period of time, with no need for lengthy negotiations or intrusive verification measures – indeed, without any negotiations or verification. Instead of verification,

the sides chose transparency: periodic exchanges of information on PNI implementation progress. For a while, that approach appeared to succeed. However, after approximately a year, the Russians consistently recycled previous reports, until both sides tacitly agreed to abandon what was now a fruitless exercise. As a result, we have little information on PNI implementation, but it is clear that the United States followed through on all of its commitments, while Russia did not. Indeed, the United States went beyond the PNIs. In October 1991, less than a month after President Bush's first PNI speech, the NATO Nuclear Planning Group announced that the number of air-delivered nuclear warheads would be "greatly reduced;" press reports stated that the reduction was fifty percent.[49] Then, in April 2010, the U.S. Nuclear Posture Review decided to eliminate all remaining sea-launched tactical nuclear weapons.

Estimates vary on how many tactical nuclear forces the United States and Russia possess, but all agree that Russia has a huge numerical advantage in this area. Olivier Meier and Simon Lunn estimated in January 2014 that the United States deploys 150-200 short-range nuclear weapons (all gravity bombs), while "Russia probably deploys around 2,000 operational tactical nuclear weapons and may have many more in reserve."[50] That may be an underestimate. The Russian newspaper *Pravda*, certainly not known for its independence from the Kremlin, expressed pride in Russian tactical nuclear superiority:

> Here is another surprise. As for tactical nuclear weapons, the superiority of modern-day Russia over NATO is even stronger. The Americans are well aware of this. They were convinced before that Russia would never rise again. Now it's too late. To date, NATO countries have only 260 tactical nuclear weapons in the ETO [European Theater of Operations]. The United States has 200 bombs…. France has 60 more atomic bombs. That is pretty much it. Russia, *according to conservative estimates* [emphasis added], has 5,000 pieces of different classes of TNW [theater nuclear weapons] – from Iskander warheads to torpedo, aerial and artillery warheads! The US has 300 tactical B-61 bombs on its own territory, but this does not change the situation against the backdrop of such imbalance. The US is unable to improve it either, as it has destroyed the 'Cold War legacy' – tactical nuclear missiles, land-based missiles and nuclear warheads of sea-based Tomahawk cruise missiles.[51]

Moreover, *Pravda* made no effort at pretense about Russia's compliance record on the PNIs: On the contrary, noncompliance was to be lauded.

> After such [PNI] reductions, the arsenals of tactical nuclear weapons of Russia and the United States were to keep 2,500-3,000 tactical nuclear warheads. However, it turned out otherwise. The illusion of world supremacy played a cruel joke on Washington…in Russia, experts were quick to agree that against the backdrop of the post-Soviet geostrategic situation, reducing and eliminating tactical nuclear weapons was unacceptable…for over two decades, the West, having discarded Russia, had been cutting its tanks and destroying tactical nuclear weapons. Russia, feeling its own weakness, kept all tanks and tactical nuclear weapons.[52]

The *Pravda* analysis turns the lead-by-example hypothesis on its head. According to *Pravda*, U.S. reductions provided an opportunity for Russian nuclear superiority. Further, it described the U.S. commitment to reductions as both naïve and based on an assumption of long-lasting Russian weakness.

In the first years after the end of the Cold War, many Western observers assumed that Russia would eventually implement the PNIs, because there was little military benefit in retaining shorter-range nuclear forces. That changed with two important developments that some observers, especially Russian, claim are interrelated: the inclusion in NATO of the former Warsaw Pact members along with the three Baltic States, and the expansionist foreign and military policy of President Vladimir Putin. According to this reasoning, shorter-range nuclear forces on Russian territory made sense to deter a NATO now on Russia's border, and to provide credibility to – and even possibly to support actively – Russian expansion into neighboring states like Georgia, Ukraine, Moldova and potentially beyond. In that regard, it is noteworthy that Russian Foreign Minister Sergei Lavrov said in December 2014 that Russia was within its rights to deploy nuclear weapons in Crimea. He did not confirm or deny rumors that such deployments are either underway or planned, but stated that "'Crimea has become a part of a state which possesses such weapons in accordance with the Nuclear Nonproliferation Treaty. In accordance with international law…Russia has every reason to dispose of its nuclear arsenal – to suit its interests and international legal obligations.'"[53]

Leaving aside the illegitimacy of the Russian "annexation" of Crimea, Lavrov was right that deployment of tactical nuclear weapons anywhere on Russian territory is consistent with its international legal obligations. The PNIs were political, not legal, commitments. The United States was willing to implement them no matter what the Soviet Union (and then Russia) did. It

also believed that informal agreements were appropriate for the relationship with a new, increasingly trusted partner. As we have seen, the United States took the PNI commitments very seriously; Russia did not.

The hypothesis that U.S. nuclear reductions will be emulated by others also was not borne out by U.S.-Soviet/U.S.-Russian negotiated treaties, with the single (but partial) exception of the START II Treaty. The first real bilateral nuclear reductions agreement was the Intermediate-Range Nuclear Forces (INF) Treaty signed in 1987. The United States sought for more than three years to engage the Soviet Union in serious negotiations over INF missiles in Europe. Those went nowhere while the Soviets conducted an active propaganda campaign to persuade NATO publics and governments to abandon plans to deploy Pershing II ballistic missiles and Ground-Launched Cruise Missiles (GLCM), NATO's counters to the hundreds of Soviet SS-20 ballistic missiles being deployed. The USSR began to negotiate in good faith only in March 1985, after NATO began – and had sustained for over a year – Pershing II and GLCM deployments. The result was the INF Treaty, which banned all U.S. and Soviet ground-launched INF systems worldwide. Clearly the USSR had no interest in constraining its forces until it became convinced that was the only means available to constrain the United States. Moreover, the motive was sufficiently strong to lead the Soviet Union to abandon its longstanding demand that agreement on INF and/or strategic arms reductions could be reached only if the sides also completed a new treaty constraining strategic defense and space forces. When the United States steadfastly refused to accept undue constraints in the U.S.-Soviet Defense and Space Talks, the USSR dropped that linkage.

The same pattern prevailed through two decades of bilateral strategic arms reductions – again with the partial exception of the 1993 START II Treaty. The START Talks began in June 1982 and were suspended with the INF negotiations in December 1983. They resumed in March 1985, along with the INF negotiations and the opening of Defense and Space Talks, under the collective umbrella of the Nuclear and Space Talks. It was a time of significant U.S. strategic modernization, with development of the B-2 bomber and deployment of the Trident strategic ballistic missile submarine (SSBN) and submarine-launched ballistic missile (SLBM), the Peacekeeper ICBM with plans for both mobile and silo-based versions, the B-1 heavy bomber,

and the Air-Launched Cruise Missile (ALCM). Added to this were the dramatic increase in missile defense programs under the Strategic Defense Initiative (SDI), and a significant growth in deployed strategic warheads (even as the overall stockpile remained steady[54]). The Soviet Union under Gorbachev concluded that it could not compete with the United States in these areas, making the START Treaty in its interest.

The same pattern was repeated a decade later, when the United States and Russia concluded the Strategic Offensive Reductions Treaty (SORT) – at Russian insistence. The Soviet Union, and then Russia, had long maintained that U.S. abrogation of the Anti-Ballistic Missile (ABM) Treaty would be grounds for withdrawal from the START Treaty. President Vladimir Putin turned that position on its head after the United States announced in December 2001 its intention to withdraw from the ABM Treaty. Putin's response was to call for a bilateral treaty that would lock in the reductions in deployed strategic warheads that the George W. Bush Administration had announced it would implement unilaterally. The United States argued to Putin's proposal. And then, what must be one of the – if not *the* – shortest and simplest arms treaties in history was signed in May 2002, just one month before U.S. withdrawal from the ABM Treaty. SORT was agreed when Russia was still behind the United States in deployed strategic weapons, and wanted to constrain it as much as possible.

If anything, the pattern of Russian perception of arms reduction treaties as a means to reduce (or even eliminate) strategic disadvantage was even more striking in the New START Treaty signed in 2010. The United States was no longer pursuing significant strategic modernization, regularly postponing replacements for all three legs of the triad, but still had an advantage in deployed systems. Russia, on the other hand, had embarked on a major modernization and expansion effort. New START served Russian interests well in that context. Its central limits required U.S., but not Russian, reductions in deployed strategic warheads and delivery systems. The limit on total deployed and nondeployed strategic launchers required significantly larger U.S. than Russian reductions.[55] New START also removed START I constraints on strategic systems' development and deployment; mobile ICBMs were the most important example. Finally, it significantly reduced the number and type of on-site inspections, limiting U.S. access to Russian

bases shortly before Russia ended the Cooperative Threat Reduction (CTR) program with its separate access to Russian facilities.

After Russia apparently achieved its remaining arms control aims with the New START Treaty, it has shown no interest in future reductions. In June 2013, President Obama proposed that the sides negotiate new cuts in deployed strategic warheads by up to one-third below New START levels – that is, down to as low as 1000. The President also said the United States would work with NATO allies to seek bilateral shorter-range nuclear force reductions with Russia; he did not specify whether they should seek a new treaty or an informal unilateral/reciprocal arrangement like the PNIs.[56]

The Russian response to the President's proposal was dismissive. Presidential Advisor Yuri Ushakov said they would study the proposal, but strongly implied that Russia would not enter into any negotiations on lower strategic limits unless they involved the other nuclear-weapon states and the United States agreed to negotiate limits on missile defense.[57] Deputy Prime Minister Dmitry Rogozin was much more blunt and disrespectful, claiming that the President might have been "'openly lying, bluffing and being devious'" in proposing new arms reductions without offering limits on missile defense.[58] Other Russian officials have often levied an additional condition for opening strategic forces talks: U.S. willingness to negotiate conventional force limits.[59] They have also refused to negotiate over shorter-range nuclear forces unless the United States first removes all remaining warheads from Europe.[60] That, of course, would undercut the credibility of NATO's small deterrent force and change overwhelming Russian superiority to a monopoly. Thus, a follow-on to New START would be acceptable to Russia if, and only if, it reduced or eliminated two important areas of U.S. advantage – missile defense and conventional arms – while not affecting areas of Russian advantage.

With U.S. nuclear forces constrained, Russia's attention has shifted to military modernization. It has tested a new ground-launched cruise missile in violation of the INF Treaty. It has also developed a new ground-launched ballistic missile that is destined for use at INF range, but appears to circumvent the INF Treaty rather than violating it because the system was also tested

at strategic range.[61] Russia could feel secure in taking such actions because it could be confident that the United States would never be able politically to deploy INF-range systems in return. It is interesting that both President Putin and then-Defense Minister Sergei Ivanov said in 2007 that the INF Treaty was a mistake that did not serve Russian interests. Yet in 2012 the Chief of the Russian General Staff said that Russia would not withdraw from the Treaty.[62] It is difficult to avoid the conclusion that the Treaty now serves Russian interests because it continues to constrain the United States while Russia may flaunt both its spirit and letter.

As mentioned above, START II provided an important exception to the general pattern of Russian nuclear force reduction policy, but it was only a temporary one. In signing the Treaty in January 1993, the new Russian Government agreed to eliminate its MIRVed ICBMs, the backbone of its strategic force, while allowing the United States to maintain an area of advantage in MIRVed SLBMs. In doing so, Russia endorsed a long-standing U.S. view that MIRVed ICBMs are destabilizing.

The special circumstances surrounding START II negotiation and signature were fundamentally similar to those of the PNIs. The Russian economy was a shambles, with no possibility in the foreseeable future of maintaining, let alone modernizing, the strategic forces allowed under the START I Treaty. Moreover, START II helped to further one of the main foreign and defense policy aims of newly independent Russia: to forge close relations with the United States and the other NATO Allies. One important way to do that was through eliminating the strategic weapons systems, such as the SS-18 heavy ICBM, that appeared particularly threatening to the West.

The Russian Parliament did not share the strategic worldview of the Yeltsin Government and was far more independent than it would become under Putin. Throughout Yeltsin's presidency, the Parliament refused to consent to START II. It finally did so in April 2000, after Putin came to power. However, its resolution of ratification, which Putin approved, was subject to the United States ratification of the September 1997 executive agreements on ABM Treaty demarcation and succession. Those had no chance of Senate approval and were never submitted by the Clinton Administration. START II was moribund until Putin declared it null and void

after the United States withdrew from the ABM Treaty in June 2002. Thus START II suffered a more complete defeat than did the PNIs.

Other nuclear-armed states have evinced even less interest in nuclear arms negotiations. The United Kingdom and France are already at very low warhead levels and have reiterated their respective commitments to retain nuclear capabilities. China claims that it would be willing to enter negotiations if the United States and Russia came down to, or near, its force levels. However, it has been completely opaque about those, and outside estimates vary widely, from roughly 200 to 1000 warheads.[63] Further, China's behavior, rather than its rhetoric, indicates that it intends to continue modernizing and expanding its land- and sea-based nuclear forces. The same is true of India and Pakistan, which have not made even a pretense of interest in multilateral reductions if the United States and Russia reduce to their levels.

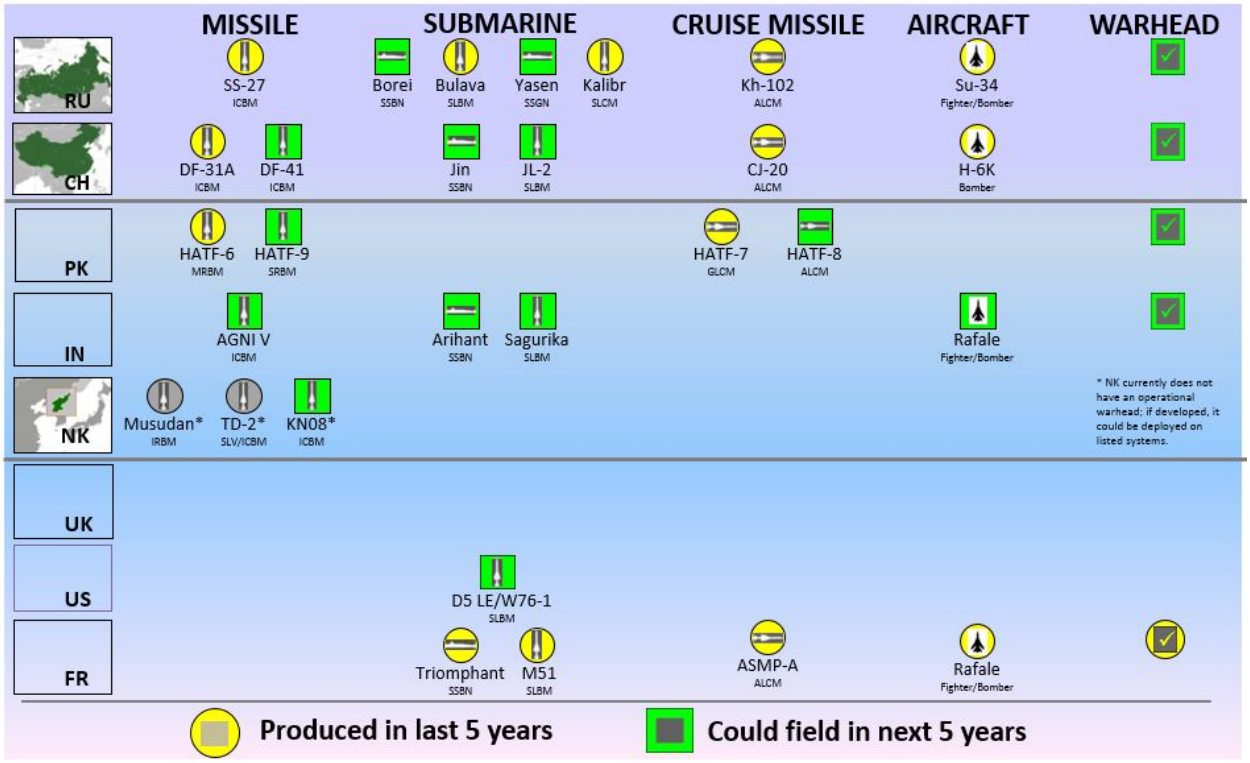
U.S. Nuclear Modernization. The corollary to the disarmament "lead-by-example" hypothesis is the Minimum Deterrence claim that the United States should not modernize its nuclear forces because this may lead other countries to modernize their own forces or gain nuclear capabilities of their own. Minimum Deterrence proponents have made very specific claims in this regard:

- "… lower US deployed force levels could dissuade Moscow from moving forward with destabilizing nuclear modernization programs – such as the development of a new heavy intercontinental ballistic missile (ICBM)."[64]

- "If we wish to convince countries like Iran that the development of nuclear weapons is not in their best interest, we need to demonstrate that maintaining or enhancing our own arsenal is not in our interest."[65]

Multiple countries have ongoing modernization programs that began after the end of the Cold War and the subsequent vast drawdown in U.S. nuclear forces. Figure 1 shows some of the current and projected nuclear weapon programs among the nuclear powers.

Figure 1. Recently Produced and Projected Nuclear Weapon Systems



Source: USSTRATCOM presentation, October 17, 2014, used with permission.

As Figure 1 illustrates, the United States has fielded few new nuclear systems since the end of the Cold War; yet other nuclear powers have continued to modernize and add new capabilities to their nuclear arsenals. If Minimum Deterrence claims were true, then U.S. inaction should have led to inaction by others. This has not been the case.

The lead-by-example hypothesis is also contrary to experience with nuclear testing. All five nuclear-weapon states claim to have observed nuclear testing moratoria for about two decades.[66] Yet India, Pakistan and North Korea all began declared weapons testing after the P-5 announced an end to same.[67] Moreover, Russia's claimed test moratorium "apparently" has not kept Russia from conducting low-yield tests.[68] And, both Russia and China appear to be developing new warhead types.[69] On the flip side, U.S. Senate rejection of the Comprehensive Test Ban Treaty (CTBT) dissuaded few of the States Party from acceding to it. As of January 2015, 163 states had ratified the CTBT. The majority – 106 – did so after the U.S. Senate voted against advice and consent to ratification. Another 33 states have signed but not ratified the Treaty.[70] Only three of those (besides the United States) have nuclear programs: China, Iran and Israel. Of the

three, only China might ratify if the United States does, because it might not want to be the only NPT nuclear-weapon states not a party to the Treaty. For Iran and Israel, the status of U.S. ratification would have fundamentally no impact on their positions on the CTBT.

Summary

There is little to no evidence to support the belief that U.S. nuclear reductions to Minimum Deterrence levels would have the claimed positive influence on other states' nonproliferation and arms control behavior and some reason to expect that deep U.S. nuclear reductions could exacerbate proliferation.

A mainstay of the Minimum Deterrence narrative is the assertion that the Nuclear Nonproliferation Treaty (NPT) rests on a nuclear disarmament-nonproliferation bargain – thus the United States is obliged by treaty to push for ever-lower nuclear force numbers. This assertion is without basis in the Treaty text or its negotiation and ratification record. The NPT does not require nuclear disarmament. Moreover, the recent U.S. endorsement of that alleged requirement has not inspired better proliferation behavior by others; the only result seems to have been an escalation in demands for more nuclear-state reductions. The nonproliferation success stories of the past decade have been important and welcome, but appear not to have been inspired in any way by U.S. reductions. As Jacques E.C. Hymans states, "In sum, if the nuclear weapons states exercise restraint or even seriously pursue disarmament, such actions are unlikely to achieve the non-proliferation objectives that their advocates claim."[71]

Some central nonproliferation-based arguments of the Minimum Deterrence narrative may actually be counterproductive, encouraging rather than dissuading actual or potential proliferators. For many U.S. friends and allies, U.S. security guarantees and extended deterrence commitments were essential to their decisions to adhere to the NPT as non-nuclear weapon states. That remains the case in some important cases. As a result, growing doubts about the reliability and effectiveness of U.S. extended deterrence is leading at least some officials and serious commentators in states like Japan, Turkey, South Korea and Saudi Arabia to publicly question their continued non-nuclear-weapon status. In short, available evidence does not

support the Minimum Deterrence assertion that U.S. "leadership" in nuclear disarmament will lead to fewer states pursuing nuclear weapons. The opposite may be true.

Based on the evidence, the claim that the United States must "lead by example" for beneficial nuclear arms reductions is without demonstrated merit. The deep unilateral tactical nuclear reductions of the 1991-1992 were supposed to be reciprocal, but only the United States implemented them fully, creating a huge asymmetry in U.S. and Russian tactical nuclear forces. Over the decades, the Soviet Union and then Russia were willing or even eager to pursue negotiated nuclear reductions when those would eliminate, or at least greatly reduce, a U.S. force advantage. After the New START Treaty required the unilateral reduction of U.S. deployed strategic nuclear weapons, Russia appears to have lost all interest in follow-on negotiations – all the more so because it is rebuilding its forces across the board and the United States will not do so for several years at best. Russia appears not to have seen U.S. restraint as a model to emulate, but as an opportunity for advantage.

Arms control-related arguments have also proven unfounded or even actively counterproductive. Except for a brief period after the fall of the Soviet Union, the primary aim of the Soviet Union and then Russia in pursuing arms reduction treaties was to constrain U.S. nuclear advantage. That goal was achieved for non-strategic nuclear forces in the 1987 INF Treaty and the 1991-1992 PNIs. Now that the New START Treaty, coupled with Russian force modernization, promises to do the same for strategic forces, Russia has no apparent interest in further negotiations. With overwhelming numerical superiority in shorter-range systems, Moscow appears now to be pursuing potential qualitative superiority in strategic forces. Advocates of a U.S. Minimum Deterrence posture may believe that the United States should lead by example, but no other state appears willing to follow.

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[1] George Perkovich and James M. Acton, "Abolishing Nuclear Weapons: Adelphi Paper 396, in George Perkovich and James M. Acton, eds., *Abolishing Nuclear Weapons: A Debate* (Washington, DC: Carnegie Endowment for International Peace, 2009), pp. 13-14.

[2] Bruce G. Blair, Thomas B. Cochran, Jonathan Dean, Steve Fetter, Richard L. Garwin, Kurt Gottfried, Lisbeth Gronlund, Henry Kelly, Hans M. Kristensen, Robert Nelson, Robert S. Norris, Ivan Oelrich, Christopher Paine, Frank N. von Hippel, David Wright, Stephen Young, *Toward True Security* (Washington, D.C.: Union of Concerned

Scientists, February 2008), p. 1, available at http://www.ucsusa.org/sites/default/files/legacy/assets/documents/nwgs/toward-true-security.pdf.

[3] *Global Zero U.S. Nuclear Policy Commission Report: Modernizing U.S. Nuclear Strategy, Force Structure and Posture* (Washington, DC: Global Zero, 2012), p.16, available at http://www.globalzero.org/files/gz_us_nuclear_policy_commission_report.pdf.

[4] Yousaf Butt, "Points on Missile Defense," in Paul Ingram, "Summary of International Workshop 'Prospects for Russian – U.S. Arms Control," Arms Control Association, May 16, 2013, p. 15, available at http://www.armscontrol.org/files/May-6-Moscow-Conf-Rpt-final.pdf.

[5] Hans M. Kristensen, *Trimming Nuclear Excess: Options for Further Reductions of U.S. and Russian Nuclear Forces*, Special Report No. 5 (Washington, D.C.: Federation of American Scientists, December 2012), p. 29 available at: http://fas.org/_docs/2012TrimmingNuclearExcess.pdf.

[6] Hans M. Kristensen, "Non-Strategic Nuclear Weapons Arms Control," in Paul Ingram, "Summary of International Workshop 'Prospects for Russian – U.S. Arms Control," Arms Control Association, May 16, 2013, p. 17, available at http://www.armscontrol.org/files/May-6-Moscow-Conf-Rpt-final.pdf.

[7] Mohamed I. Shaker, *The Nuclear Non-Proliferation Treaty: Origin and Implementation 1959-1979 (London: Oceana Publications, 1980), Volume I.*

[8] Perkovich and Acton, *op. cit*., p. 16.

[9] Leonard Weiss, "Nuclear-Weapon States and the Grand Bargain," *Arms Control Today,* December 1, 2003, available at http://www.armscontrol.org/act/2003_12/Weiss.

[10] Treaty on the Nonproliferation of Nuclear Weapons, available at http://www.un.orgl.

[11] Spurgeon Keeny, "Provisions of the NPT and Associated Problems," Memorandum to Henry Kissinger, January 24, 1969, declassified, p. 5, available at http://2001-2009.state.gov.

[12] Treaty on the Nonproliferation of Nuclear Weapons, *loc.cit*.

[13] Treaty on the Non-Proliferation of Nuclear Weapons, *loc.cit*.

[14] "Decision Three: Extension of the Treaty on the Non-Proliferation of Nuclear Weapons," in 1995 Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, *Final Document Part II*, New York, 1995, NPT/CONF.1995/32 (Part II), available at http://www.un.org/disarmament/WMD/Nuclear/1995-NPT/pdf/NPT_CONF199503.pdf.

[15] White House, Office of the Press Secretary, "Remarks by President Barack Obama, Hradcany Square, Prague, Czech Republic," April 5, 2009, available at http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered.

[16] 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, *Final Document Volume I* (United Nations: New York, 2000); and 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, *Final Document Volume I* (United Nations: New York, 2010), available at http://www.un.org/disarmament/WMD/Nuclear/NPT_Review_Conferences.shtml.

[17] *Fact Sheet: Increasing Transparency in the US Nuclear Weapons Stockpile*, May 3, 2010, available at http://www.defense.gov/npr/docs/10-05-03_Fact_Sheet_US_Nuclear_Transparency__FINAL_w_Date.pdf.

[18] Treaty on the Non-Proliferation of Nuclear Weapons, *loc.cit*.

[19] George Bunn and Roland M. Timerbaev, "Security Assurances to Non-Nuclear Weapon States," *The Nonproliferation Review*, Fall 1993, p. 12, available at http://cns miis.edu/npr/pdfs/buntim11.pdf.

[20] United Nations Security Council, "Questions Relating to Measures to Safeguard Non-Nuclear Weapon States Parties to the Treaty on the Non-Proliferation of Nuclear Weapons: Resolution 255 (1968) of 19 June 1968," available at http://www.un.org/en/ga/search/view_doc.asp?symbol=S/RES/255(1968). Although France did not join the NPT, it simply abstained on the resolution. The fifth nuclear weapon state, the People's Republic of China, was not yet a UN member; Taiwan continued to hold the Chinese seat.

[21] Lyndon B. Johnson, *Remarks on Signing the Nuclear Nonproliferation Treaty (July 1, 1968)*, available at http://millercenter.org/president/lbjohnson/speeches/speech-4037.

[22] 1995 Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, *Developments with Regard to Effective International Arrangements to Assure Non-Nuclear Weapon States Against the Use or Threat of Use of Nuclear Weapons: Background Paper Prepared by the United Nations Secretariat,*

NPT/CONF. 1995/6, 15 March 1995, p. 9, available at http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N95/072/78/PDF/N9507278.pdf?OpenElement.

[23] "Clinton Issues Pledge to NPT Non-Nuclear Weapon States," April 5, 1995, available at http://www.fas.org/nuke/control/npt/docs/940405-nsa htm.

[24] U.S. Department of Defense, *Nuclear Posture Review Report,* April 2010, p. 15, available at http://www.defense.gov/npr/docs/2010%20Nuclear%20Posture%20Review%20Report.pdf.

[25] Steven Pifer and Michael E. O'Hanlon, *The Opportunity: Next Steps in Reducing Nuclear Arms* (Washington D.C.: Brookings Institution Press, 2012), pp. 8-9.

[26] Blair et al, *Toward True Security*, pp. 18-19.

[27] Sidney D. Drell and James E. Goodby, *What are Nuclear Weapons for? Recommendations for Restructuring U.S. Strategic Nuclear Forces*, (Washington, D.C.: Arms Control Association, October 2007), p. vi, available at http://www.armscontrol.org/system/files/20071104_Drell_Goodby_07_new.pdf.

[28] See Keith Payne, James Schlesinger, et al., *Minimum Deterrence: Examining the Evidence (*Fairfax, VA: National Institute for Public Policy, 2013), especially Chapter 7.

[29] *Global Zero U.S. Nuclear Policy Commission Report, op. cit.*, p. 2.

[30] Israel is reported to have developed a nuclear weapon in 1967, one year before the NPT was signed and three years before it entered into force.

[31] See David Albright, "South Africa Nuclear Weapons Program," March 4, 2001, available at http://web.mit.edu/ssp/seminars/wed_archives01spring/albright htm.

[32] Global Security Institute, "Country Profiles: Argentina and Brazil," May 22, 2012, available at http://gsinstitute.org. Argentina and Brazil were not yet subject to the NPT requirement for full-scope IAEA safeguards because they did not accede to the Treaty until 1995 and 1998, respectively.

[33] See Robert G. Joseph, *Countering WMD: The Libyan Experience* (Fairfax, VA: National Institute Press, 2009).

[34] *Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD* (Washington, D.C.: Central Intelligence Agency, 2004), available at https://www.cia.gov/library/reports/general-reports-1/iraq_wmd_2004/chap4.html#sect1.

[35] The most important exception is the plutonium-producing reactor in Kazakhstan, which shut down in 1999 and was decommissioned in 2009.

[36] 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, 3-28 May 2010, *Final Document – Volume I (NPT.CONF.2010/50 Vol. I).* available at http://www.un.org/ga/search/view_doc.asp?symbol=NPT/CONF.2010/50 (VOL.I).

[37] Benjamin Friedman, Christopher Preble, and Matt Fay, *The End of Overkill? Reassessing U.S. Nuclear Weapons Policy* (Washington, D.C.: CATO Institute, 2013), available at http://www.cato.org/publications/white-paper/end-overkill-reassessing-us-nuclear-weapons-policy.

[38] "Saenuri Calls for Nuclear Capability to Deter the North," *Korean Joongang Daily*, February 19, 2013 (quoting Representative Shim Jae-cheol of the ruling Saenuri Party, available at http://koreajoongangdaily.joins.com/news/article/article.aspx?aid=2967341.

[39] Nuclear Threat Initiative, *Country Profile: South Korea*, available at available at http://www.nti.org/country-profiles/south-korea/, and Mark Hibbs, "Will South Korea Go Nuclear," *Foreign Policy*, March 15, 2013, available at http://foreignpolicy.com/2013/03/15/will-south-korea-go-nuclear/.

[40] Hibbs, op. cit.

[41] Andrew DeWit, "Japan's Energy Policy Impasse," *The Asia-Pacific Journal,* Vol. 12, Issue 14, No. 1, April 7, 2014.

[42] William Larn, "The Future of Japan's Non-Nuclear Weapons Status," Australian Institute of International Affairs, n.d., available at http://www.internationalaffairs.org.au/the-future-of-japans-non-nuclear-weapons-status/.

[43] United States Department of State, International Security Advisory Board, *Report on Discouraging a Cascade of Nuclear Weapons States*, October 19, 2007, p. 23, available at http://2001-2009.state.gov.

[44] Olli Heinonen and Simon Henderson, "Nuclear Kingdom: Saudi Arabia's Atomic Ambitions," Washington Institute for Near East Policy, Policy Watch 2230, March 27, 2014, available at http://www.washingtoninstitute.org/policy-analysis/view/nuclear-kingdom-saudi-arabias-atomic-ambitions.

[45] Bruce G. Blair, et al, *Toward True Security*, op. cit., p. 18.

[46] George Perkovich, *Do Unto Others: Toward a Defensible Nuclear Doctrine*, (Washington, DC: Carnegie Endowment for International Peace, 2013), p. 61.

[47] Has M. Kristensen, Robert S. Norris, Ivan Oelrich, *From Counterforce to Minimal Deterrence: A New Nuclear Policy on the Path Toward Eliminating Nuclear Weapons*, Occasional Paper No.7 (Washington, DC: Federation of American Scientists and National Resources Defense Council, 2009), p. 28, available at http://www.fas.org/pubs/_docs/OccasionalPaper7.pdf.

[48] Susan J. Koch, *The Presidential Nuclear Initiatives of 1991-1992* (Washington, DC: National Defense University, 2012), available at http://ndupress.ndu.edu/Portals/68/Documents/casestudies/CSWMD_CaseStudy-5.pdf.

[49] Koch, *op. cit.*, pp. 10-11.

[50] Olivier Meier and Simon Lunn, "Trapped: NATO, Russia and the Problem of Tactical Nuclear Weapons," *Arms Control Today*, January 2, 2014, available at https://www.armscontrol.org/act/2014_01-02/Trapped-NATO-Russia-and-the-Problem-of-Tactical-Nuclear-Weapons.

[51] "Russia Prepares Nuclear Surprise for NATO," *Pravda.ru*, November 12, 2014, available at http://english.pravda.ru/russia/politics/12-11-2014/129015-russia_nato_nuclear_surprise-0/.

[52] "Russia Takes Complete Advantage of Castrated Armed Forces of the West," *Pravda.ru*, November 13, 2014, available at http://english.pravda ru/russia/politics/13-11-2014/129021-russia_usa_nuclear_weapons-0/.

[53] Sergei I. Loiko, "Russia Says It Has a Right to Put Nuclear Weapons in Crimea," *LA Times*, December 15, 2014, available at http://www.latimes.com/world/europe/la-fg-russia-nuclear-crimea-20141215-story.html.

[54] The U.S. active stockpile, including both deployed and non-deployed warheads, was almost exactly the same at the beginning and end of the Reagan Administration: 23,208 in 1981 and 23,205 in 1988. *Fact Sheet: Increasing Transparency in the US Nuclear Weapons Stockpile, loc.cit.*

[55] As of New START entry into force in February 2011, the United States had: 882 deployed ICBMs, SLBMs and heavy bombers; 1800 strategic warheads deployed on ICBMs and SLBMs and counted as deployed on heavy bombers; and 1124 deployed and non-deployed strategic launchers. The respective Russian figures were 521, 1537 and 865. U.S. Department of States, *Fact Sheet: New START Treaty Aggregate Numbers of Strategic Offensive Arms*, June 1, 2011, available at http://www.state.gov/t/avc/rls/164722.htm.

[56] White House, Office of the Press Secretary, "Remarks by President Obama at the Brandenburg Gate," June 19, 2013, available at http://www.whitehouse.gov/the-press-office/2013/06/19/remarks-president-obama-brandenburg-gate-berlin-germany.

[57] Scott Wilson, "Obama, in Berlin, Calls for U.S., Russia Cuts in Nuclear Warheads," *Washington Post*, June 19, 2013, available at http://www.washingtonpost.com/politics/obama-to-call-for-nuclear-warhead-reduction-in-us-russia/2013/06/19/23b8e7aa-d8ac-11e2-a9f2-42ee3912ae0e_story.html.

[58] Jackie Calmes, "Obama Asks Russia to Join in Reducing Nuclear Arms," *New York Times*, June 19, 2013, available at http://www nytimes.com/2013/06/20/world/europe/obama-asks-russia-to-join-in-reducing-nuclear-arms.html?pagewanted=all&_r=0.

[59] Rose Gottemoeller and Edward L. Warner III written response for the record, in Senate Foreign Relations Committee, *The New START Treaty* (Treaty Doc. 111-5), S. Hrg. 111-738, 111th Cong., 2nd sess. (Washington, D.C.: GPO, 2010), p. 245; Sergey Karaganov, "Russia and the United States: A Returning," *Rossiyskaya Gazeta Online*, June 2, 2009, available at http://toolkit.dialog.com; and Elaine M. Grossman, "Russian Experts Question Role of Conventional 'Prompt Global Strike' Weapons," *Global Security Newswire*, April 7, 2009, at www nti.org.

[60] See Steven Pifer, "The Russian Arms Control Agenda After New START," in Stephen J. Blank, ed., *Russia and the Current State of Arms Control* (Carlisle, PA: Strategic Studies Institute, September 2012).

[61] Paul N. Schwartz, "Russian INF Treaty Violations: Assessment and Response," Center for Strategic and International Studies, October 16, 2014, available at http://csis.org/publication/russian-inf-treaty-violations-assessment-and-response; and Steven Pifer, "The Moscow Missile Mystery: Is Russia Actually Violating the INF Treaty?," *Opinion*, Brookings Institution, January 31, 2014, available at http://www.brookings.edu/research/opinions/2014/01/31-moscow-missile-mystery-russia-violating-inf-pifer.

[62] Pifer, "The Moscow Missile Mystery," *loc.cit.*

[63] Frank Klotz and Olivier Bloom, "China's Nuclear Weapons and the Prospects for Multilateral Arms Control," *Strategic Studies Quarterly*, Winter 2013.

[64] Kingston Reif, "Nuclear Weapons Cuts will make the United States Safer," Bulletin of the Atomic Scientists, March 6, 2013, available at: http://www.thebulletin.org/web-edition/columnists/kingston-reif/nuclear-weapons-cuts-will-make-the-united-states-safer.

[65] Lawrence N. Krauss, "Letting Go of Our Nukes," *New York Times*, July 6, 2013, available at http://www.nytimes.com/2013/07/07/opinion/sunday/letting-go-of-our-nukes html?_r=0.

[66] The declared moratoria dates are as follows: 1990 – Soviet Union/Russia; 1992 – United States and United Kingdom; 1996 – France and China. Jonathan Medalia, *Comprehensive Nuclear-Test-Ban Treaty: Background and Current Developments*, Congressional Research Service, September 29, 2014, available at http://www.fas.org/sgp/crs/nuke/RL33548.pdf.

[67] India conducted its first nuclear test in 1974, but claimed it was a peaceful nuclear explosion. Its first announced weapons test was in May 1978.

[68] See William J. Perry and James Schlesinger et al., Congressional Commission on the Strategic Posture of the United States, *America's Strategic Posture* (Washington, D.C.: United States Institute of Peace, 2009), p. 83.

[69] Mark B. Schneider, *Russian Nuclear Modernization*, Fairfax, VA: National Institute for Public Policy, 2012, pp. 7-9; and Lyle J. Goldstein and Andrew Erickson, *China's Nuclear Forces Modernization*(Newport, RI: U.S. Naval War College, 2005), pp. 41, 51, 55 and 102-103.

[70] Comprehensive Test-Ban Treaty Organization, S*tatus of Signature and Ratification*, available at http://www.ctbto.org/the-treaty/status-of-signature-and-ratification/.

[71] Jacques E.C. Hymans, *The Psychology of Nuclear Proliferation* (New York: Cambridge University Press, 2006), p. 223.