



AN UNNOTICED CRISIS

The End of History for Nuclear Arms Control?

Alexei Arbatov



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Carnegie Moscow Center
16/2 Tverskaya
Moscow, 125009, Russia
Tel. +7 495 935 8904
Fax: +7 495 935 8906
info@Carnegie.ru

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Contents

About the Author	v
Summary	1
Introduction	3
Crisis Symptoms	3
World Order Change	5
The Weapons Will Take Care of You	11
Military-Strategic Innovations	14
Nonlinear Dependence	17
The Erosion of Nuclear Nonproliferation Norms	19
Untangling the Knot	22
Notes	25
Carnegie Moscow Center	29

About the Author

Alexei Arbatov is the chair of the Carnegie Moscow Center's Nonproliferation Program. Formerly, he was a member of the State Duma, vice chairman of the Russian United Democratic Party (Yabloko), and deputy chairman of the Duma Defense Committee. Arbatov is a member of the Russian Academy of Sciences. He leads the academy's Center for International Security at the Institute of World Economy and International Relations, where he was once a department head and a research fellow.

Summary

Beginning with the signing of the Partial Nuclear Test Ban Treaty in 1963, an international arms control regime has limited existing nuclear arsenals and prevented further proliferation of nuclear weapons. But that entire system could soon unravel. Nearly all negotiations on nuclear arms reduction and nonproliferation have come to a stop, while existing treaty structures are eroding due to political and military-technological developments and may collapse in the near future. These strategic and technical problems can be resolved if politicians are willing to work them out, and if experts approach them creatively.

A Steady Erosion

- Problems other than nuclear arms control dominate the security agenda of the polycentric world.
- Political momentum facilitated negotiations and agreements between Russia and the United States in the 1990s and during a brief reset period between 2009 and 2011. But renewed confrontation and curtailed cooperation between the two countries since then have undermined progress.
- With the disintegration of the nuclear arms control regime, threats of and plans for the combat use of nuclear forces will return to the strategic and political environment.
- Mutual mistrust, suspicion, and misunderstanding among nuclear states will also increase, which may lead to a fatal error in a crisis, with grave consequences.

What World Powers Can Do To Revive Nuclear Arms Control

Forge a unified position. Only political unity among the major global powers and alliances, coupled with urgent and effective action, can reverse the trend of disintegration and help to avoid the “end of history” of nuclear arms control.

Preserve existing treaties. The 2010 New Strategic Arms Reduction Treaty (New START) and the 1987 Intermediate-Range Nuclear Forces (INF) Treaty should remain in effect to limit offensive nuclear weapons.

Set new goals. Because total nuclear disarmament is a distant aim, the parties' immediate goals should be less ambitious and more suited to the existing—and far from ideal—world order.

Explore a range of options and angles. Objectives could include achieving the next step in reducing the U.S. and Russian nuclear arsenals on a bilateral basis after 2020, unconditionally committing to a no-first-use policy for nuclear weapons, mutually lowering the alert levels for all legs of strategic forces in a verifiable manner, and transforming the bilateral arms control process into a multilateral one.

Introduction

The Ukrainian conflict and wars in the Middle East, which have captured the spotlight for over a year, have overshadowed other international security challenges. One victim of this preoccupation has been a creeping crisis over the international arms control regime. It has not claimed any lives yet. But should this crisis continue to expand, the entire system of limiting existing nuclear arsenals and preventing further proliferation of nuclear weapons could unravel, with consequences far more devastating than the crisis in Ukraine.

For over fifty years, starting with the signing of the Partial Nuclear Test Ban Treaty in 1963, the world has had in place a legally binding framework for controlling the most devastating weapon ever invented by mankind. There is now a real and unprecedented possibility that this framework will disintegrate. Even more striking is that this risk has arisen a quarter of a century after the end of the Cold War—an event that gave rise to hopes that the risk of nuclear disaster would forever remain in the past, and that nuclear disarmament would turn from a utopian vision into military-political reality.

The progress achieved in April 2015 at the talks between the P5+1—China, France, Russia, the United Kingdom, and the United States plus Germany—and Iran is the only bright spot on the nuclear negotiations landscape, though a final deal has yet to be reached. All other negotiations on nuclear arms reduction and nonproliferation have come to a dead end. The existing treaty regimes are eroding under the weight of political and military-technological developments and may collapse in the near future. In particular, even as the two key agreements between Russia and the United States to limit offensive nuclear weapons—the 2010 New Strategic Arms Reduction Treaty (New START) and the 1987 Intermediate-Range Nuclear Forces (INF) Treaty—are still being observed, their future is in doubt.

Crisis Symptoms

The crisis of arms control is both multifaceted and comprehensive. The United States has abandoned the 1972 Anti-Ballistic Missile Treaty and no longer accepts any restrictions on its missile defense deployments. It has not ratified

the Comprehensive Nuclear Test Ban Treaty (CTBT) almost two decades after negotiations concluded. For the foreseeable future, there is little prospect of the United States accepting new obligations. At the same time, the United States has accused Russia of violating the INF Treaty. As a result, Republicans in the U.S. Congress have argued for retaliating by renouncing the treaty and even by withdrawing from New START.¹

Russian officials, for their part, have openly questioned the value of the INF Treaty and also raised the possibility of withdrawing from it.² At the same time, nongovernmental political and strategic analysts in Russia have discussed the possibility of abandoning New START and the CTBT. The most radical voices among them have gone so far as to propose that Russia withdraw from the Nuclear Non-Proliferation Treaty (NPT) in order to sell and service nuclear weapons abroad.³

Meanwhile, the Nunn-Lugar Cooperative Threat Reduction Program to eliminate Russian nuclear and chemical weapons and to decommission Russian nuclear submarines was ended in 2013. The next year, Russia and the United States decided to discontinue their cooperation on the safety and security of nuclear facilities and materials. For the first time, Moscow has refused to participate in the next Nuclear Security Summit, which will be held in Washington in 2016.

It appears that many parliamentarians, influential politicians, and civic organizations in both the United States and Russia have embarked on a course of destruction of everything that state leaders, diplomats, and militaries have so painstakingly built in this realm over several decades.

Apart from the two nuclear superpowers, the other seven states with nuclear weapons are as reluctant as ever to join the disarmament process and limit their arsenals. Negotiations toward a Fissile Material Cut-Off Treaty—an agreement to achieve the rather peripheral goal of preventing the new production of fissile material for weapons—have been deadlocked for many years and their prospects remain bleak. A conference to discuss the establishment of a weapons of mass destruction-free zone in the Middle East has been postponed for several years in a row.

The nonproliferation regime too is in disarray. The P5+1 talks have produced a general outline of a long-term agreement to limit Iran's nuclear program, but the framework has encountered strong opposition in the U.S. Congress from Republicans and Democrats alike. It has also come under criticism in Tehran. The 2015 NPT Review Conference ended in failure. This state of affairs, along with North Korea's increasing nuclear potential (the country withdrew from the NPT in 2003 and has since conducted three nuclear tests), exerts a growing pressure on the NPT and its regime and institutions.

The history of nuclear arms control has endured periods of stagnation and setbacks before, and some of these were quite lengthy. The Strategic Arms Limitation Treaty II (SALT II) and START II never entered into force, and the CTBT is

still waiting to do so. Negotiations over START III weren't completed. The Anti-Ballistic Missile Treaty was even abrogated. But the current period of disintegration is unprecedented, with literally every channel of negotiation deadlocked and the entire system of existing arms control agreements under threat. The lack of attention to this situation from the great powers is also unprecedented, but it fits within the drastic deterioration in broader relations between Russia and the United States.

There is no question that the crisis in Ukraine and the crisis over nuclear arms control complement and exacerbate each other politically. However, there is no direct connection between them. The nuclear arms control crisis started much earlier and has its own origins. A peaceful resolution of the Ukraine problem could potentially create a more favorable climate for nuclear arms control. But it would not resolve a host of other political, strategic, and military-technological challenges, all of which are deep-rooted and together have precipitated the current nuclear crisis. To resolve these issues, the parties will have to understand the causes of the present crisis, formulate new concepts of strategic stability, and reevaluate the role, priorities, and methods of limiting existing nuclear arsenals and preventing the further proliferation of nuclear weapons.

World Order Change

As paradoxical as it might seem, nuclear arms control was an integral part of the Cold War world order. However, this dialectical relationship did not appear immediately, at the outset of the Cold War, or on its own. It took a series of dangerous crises (the 1962 Cuban Missile Crisis being the riskiest one) and several cycles of an intensive and extremely costly arms race for the Soviet Union and the United States to realize the dangers they faced and the need for practical steps to prevent a global catastrophe. Nuclear arms control treaties became a top priority of their relationship and of international security more generally.

At that time, international politics was largely shaped by the global competition between the two superpowers. The possibility of a deliberate or accidental nuclear war was the main threat to international security. As a result, efforts to limit and reduce the two superpowers' nuclear arsenals on the basis of parity (and, subsequently, strategic stability) became the major pillar of common security and the world order after the late 1960s.

The concept of strategic stability formalized the relationship of mutual nuclear deterrence based on each side's devastating second-strike capability; it also led to mutual incremental reductions of nuclear arsenals. This approach to arms control was consistent with a "managed" Cold War, which was characterized by harsh rivalry in zones that were outside of tacitly recognized spheres of U.S. and Soviet interest, coupled with mutual efforts to avoid a head-on, armed confrontation. Nuclear nonproliferation played a subordinate role in that arrangement, but it was required because it was commonly acknowledged that reductions

in the numbers of U.S. and Russian nuclear weapons would have been impossible if the number of nuclear-weapon states had increased.

Two changes that no one could have anticipated at the time occurred with the end of the bipolar confrontation and the arms race by the late 1980s. First, relations between Russia and the United States gradually lost their central role in global politics. Second, nuclear arms control ceased being the major pillar of international security.

The first change resulted from the collapse of the Soviet Union as both an empire and a social-ideological system. With the gradual emergence of the polycentric world, other power centers assumed an increasingly important role—China and the European Union (EU) became global players, and Brazil, India, Iran, Pakistan, Saudi Arabia, South Africa, and Turkey became regional ones. Nuclear arms control did not figure prominently in their foreign policy interests and security concepts, if at all.

In the nearly quarter century since the end of the Cold War, the United States (frequently with aid from its allies) has actively tried to create and take charge of a unipolar world order. Its actions when trying to resolve regional conflicts (in Iraq, Libya, Syria, and the former Yugoslavia), build a new system of European security (through poorly judged North Atlantic Treaty Organization, or NATO, and EU expansions), and limit and prevent the spread of nuclear weapons have often led to substantial harm. Russian President Vladimir Putin has spoken repeatedly—and quite eloquently and emotionally—about the negative consequences of the actions of the United States and the West in general, including in Munich in 2007 and Sochi in 2014.⁴

But despite its best efforts, the United States' ability to affect the course of world events (even with help from NATO) has been declining steadily. The West has also been less and less willing to bear the material and human costs of its involvement in regional conflicts, as evidenced by its operations in Afghanistan, Iraq, Libya, and Syria.

The second shift—the declining importance of arms control in international security—resulted from the fact that the transition from confrontation to cooperation between the two superpowers all but eliminated the fear of the threat of nuclear war between them. This change put the spotlight on the economy, climate change, resources, migration, and the other challenges of globalization, as well as such security concerns as local ethnic and religious conflicts, international terrorism, drug trafficking, and other types of transnational crime. The only high priority nuclear-related concern to attract attention was proliferation.

For some time, the momentum generated by the unprecedented improvement in relations between the Soviet Union/Russia and the West compensated for the implications of these two shifts for arms control. The former adversaries made serious progress on disarmament, which became a symbol of their military-political rapprochement; in particular, they achieved unparalleled transparency and

predictability in the main component of their armed forces—strategic nuclear forces (SNFs).

Meanwhile, enormous Cold War-era weapon stockpiles were cut by almost an order of magnitude (counting tactical arms reductions), significantly reducing the risks of losing control over nuclear arms and of accidental launches. These threats were also mitigated by the withdrawal of tactical and strategic nuclear weapons from the territories of the former Soviet and Warsaw Pact states and their transfer to Russia, where they were dismantled.

Thus, as mutual trust increased, the role of nuclear disarmament in bilateral relations decreased. Later on, this dialectical relationship would be broken.

Nevertheless, following the breakthroughs of the first decade after the Cold War, from 1987 to 1997, and the start of a new phase in global politics, the process of nuclear disarmament continued drifting toward the periphery of international security, while its goals and desirable next steps were becoming less obvious. Even in Russian-U.S. relations, nuclear arms reductions were playing a significantly less important role than during the Cold War.

This trend became especially pronounced during the administration of former U.S. president George W. Bush, between 2001 and 2009. During that period, U.S. officials argued that arms control between the United States and Russia was a “Cold War legacy”: arms control agreements were for adversaries, and partners and friends had no need for them even if they possessed nuclear weapons. To make this point, the example of France, the United Kingdom, and the United States was usually cited (disregarding the fact that these countries were NATO allies, whereas Russia was not invited to join the alliance during the 1990s or any time afterward).

In 2002, the United States withdrew from the Anti-Ballistic Missile Treaty, which had been the cornerstone of the strategic weapon limitation process for the previous thirty years. The Strategic Offensive Reductions Treaty (SORT), signed in 2002, was never fully functional because the parties failed to agree on counting rules and verification provisions; the United States demanded maximal allowances and minimal restrictions.⁵ And the agreements that have followed the unprecedented reductions of START I called for increasingly marginal reductions in SNF levels (see figure 1).

Notwithstanding all the declarations of friendship and partnership between the United States and Russia, the two countries have failed to formulate a coherent alternative to the concept of mutual nuclear deterrence based on the principles of strategic stability (mutually assured destruction through a second-strike capability). Meanwhile, during the first decade of the twenty-first century, the two powers retained a total of almost 10,000 nuclear warheads deployed in their combat-ready SNFs and in storage (including substrategic arms) that were primarily assigned missions against each other and their allies.

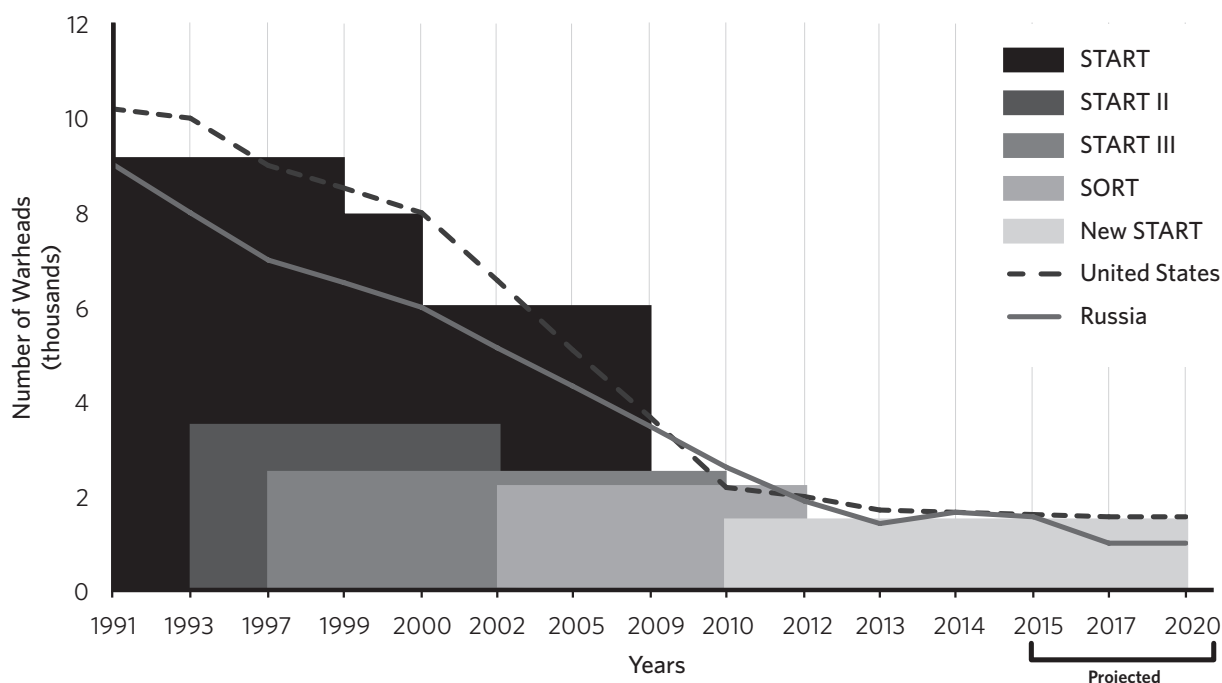
Neglect of nuclear arms control and the prolonged stagnation in the negotiation process during the decade from 1998 to 2008 have had harmful effects. With START I about to expire in 2009, the parties suddenly realized that there was nothing to replace it: the START II, START III, and SORT agreements were not properly ratified or finalized. Therefore, it fell to the administrations of U.S. President Barack Obama and then Russian president Dmitry Medvedev to hastily work out New START (also known as the Prague Treaty), which effectively legitimized the SNF levels agreed upon in SORT eight years earlier (around 2,000 deployed warheads, by actual force loading, in contrast to agreed counting rules that defined each heavy bomber as one delivery vehicle and one warhead). That treaty was an important achievement in preventing the collapse of the central pillar of nuclear arms control and ensuring strategic transparency and predictability for another decade—until 2020.

However, further progress proved impossible—marking a sharp difference from the past, when, upon the signing of every new treaty, each side had its own agenda for the follow-on agreement. An attempt to continue the process was made by President Obama in a 2013 speech in Berlin, in which he called for a further 30 percent reduction in nuclear warheads, down to about 1,000 for each side. However, the proposal was not welcomed in Moscow for political and strategic reasons.

At first glance, the concept of mutual nuclear deterrence sounds quite reasonable. Indeed, during the Cold War era, it was the preferable alternative to the traditional idea of actually using the full extent of one's military might to achieve victory over an adversary, which in the nuclear age would have led to a disaster. However, the concept also has something apocalyptic about it: states base their security on the mutual capability and readiness to kill tens of millions of each other's citizens and destroy centuries of civilization in a matter of hours.

The events of 1998–2008 demonstrated that, in the absence of active arms control efforts, a good political relationship between Russia and the United States, which had continued well into the mid-2000s, did not automatically eliminate the harsh strategic reality of mutual nuclear deterrence—regardless of how much it was sugarcoated by political declarations. Having been essentially ignored, this military reality, along with other factors, ultimately undermined political relations between Russia and the United States at the end of the first decade of the new century.

Figure 1. The Reduction in U.S. and Russian Strategic Nuclear Forces



Notes: START is the Strategic Arms Reduction Treaty. SORT is the Strategic Offensive Reductions Treaty.

Sources: U.S. Department of State, Bureau of Arms Control, Verification and Compliance Press Releases and Fact Sheets, 2015, accessed May 13, 2015, <http://www.state.gov/t/avc/rls/c29712.htm>; Daryl Kimball and Tom Z. Collina, "U.S.-Russian Nuclear Arms Control Agreements at a Glance," April 2014, Arms Control Association, <http://www.armscontrol.org/factsheets/USRussiaNuclearAgreementsMarch2010>; Alexei Arbatov, "The New START Treaty (Historic and Strategic Perspectives)," 2011, International School on Disarmament and Research on Conflicts, accessed May 13, 2015, http://www.isodarco.it/courses/andalo11/paper/ISO11_Arbatov_START.pdf.

The inability of the two powers' political and expert communities to elaborate realistic alternatives to mutual nuclear deterrence and realize them in practical arms control arrangements stemmed from a lack of interest and imagination, as well as from taking cooperative relations for granted. This left a "nuclear time bomb" under the foundation of Russian-U.S. relations, which quickly came to the surface and generated fresh, hostile nuclear interactions when domestic and foreign political factors drove Russia and the West apart in 2013.

A 2006 initiative by four prominent American statesmen to revive the idea of a nuclear-free world as a final goal of nuclear arms control was met with a broad positive response in the world's political and expert communities.⁶ This quest was reciprocated by analogous groups of public figures in many countries, including Russia.⁷ The initiative was crucial in propelling the Obama administration's policy on the issue, and it facilitated New START in 2010, as well as a number of important projects on the safety of nuclear materials in the world. Nonetheless, as an isolated attempt to enhance nuclear security, it met with growing political and strategic obstacles after 2011.

The tension between the polycentric world order and nuclear disarmament was clearly manifested by the failure of a multilateral arms limitation regime

to materialize. Third countries have participated in treaties that restrict manufacturing and qualitative developments in weaponry (the Partial Nuclear Test Ban Treaty, NPT, and CTBT) as well as disarmament agreements that apply to certain spaces (such as treaties banning the stationing of weapons of mass destruction in outer space, on the seabed, and on the ocean floor, and accords involving nuclear-weapon-free zones). However, third nuclear-weapon states have not agreed to legally binding nuclear-weapon limitations, despite both deep reductions in Russian and American nuclear arsenals since 1991 and Moscow's appeals to make the bilateral process a multilateral one (which have occasionally been supported by Washington).

There have not been any well-thought-out proposals for an effective way in which these states could join the disarmament process. In fact, it is not even clear which conceptual framework—parity, proportionate reductions, or strategic stability, among many others—should be adopted for multilateral limitations. There is also neither any accepted definition of the kinds and types of nuclear weapons that could be subject to agreements, nor any serious elaboration of acceptable and sufficient verification mechanisms.

As for the third countries themselves, they continue to assert that Russia and the United States still possess 90 percent of the world's nuclear weapons and call for the "Big Two" to undertake reductions to levels close to their own as a precondition for participating in the multilateral disarmament process. This would imply yet another order-of-magnitude reduction for the two leading powers after cuts of almost the same scale since 1991, which hardly seems realistic.

After the end of the Cold War, nuclear nonproliferation replaced nuclear disarmament as the central security issue for the new world order. In turn, disarmament now plays a more or less subordinate role in helping to strengthen the NPT regime and institutions (as per Article VI of the treaty). Nevertheless, states, politicians, and experts around the world have endlessly disagreed on whether there is a correlation between additional disarmament measures and further steps to enhance the nonproliferation regime.

Another important new problem was that although Russia and the United States retained their leading roles in the nonproliferation regime, they could no longer dictate terms to other countries, not least because they disagreed on various political and economic issues. The history of negotiations on the North Korean and Iranian nuclear programs provides telling examples of the limited capabilities of the two leading powers and the entire P5 group, along with its major allies (Germany, Japan, and South Korea).

Furthermore, the United States and Russia have maintained partnerships with some countries of proliferation concern (India, Iran, and Pakistan). They have also competed against each other as exporters of peaceful nuclear technologies and materials. The non-nuclear NPT members resent the privileged position of the treaty's "Nuclear Five" and have been especially critical of Russia and the United States.

In stark contrast to the situation during the Cold War, the great powers are no longer willing to take as much responsibility, bear as many costs, or accept as many losses as they did to ensure the security of their partners and clients. At the same time, the great powers have resorted to force many times in the last quarter century—in the Balkans, the Middle East, and the post-Soviet space. As a result, some nonaligned countries have turned to their own resources to ensure their security and status, and they see the acquisition of nuclear energy assets and their inherent technological potential for creating nuclear weapons as an appealing option. After the outstanding achievements of the early and mid-1990s, all these factors have created growing obstacles to strengthening the nuclear nonproliferation regime.

The development of new methods of arms control at this time was consistent with the emerging post-Cold War world order. They included strengthening the NPT regime and enhancing International Atomic Energy Agency (IAEA) safeguards; developing stricter control over storage facilities for nuclear weapons and fissile materials; increasing security at nuclear sites; and stopping the production of weapons-grade uranium and plutonium. Other methods have included returning highly-enriched uranium fuel for research reactors to the exporter countries and modifying the reactors to use low-enriched uranium, as well as creating nuclear fuel banks to ensure the nonproliferation of national nuclear fuel cycle technologies.

These new forms of nuclear arms control could, however, only be developed in conjunction with concurrent nuclear arms reductions by Russia and the United States, and—eventually—other nuclear-weapon states. However, starting in the late 1990s, Russian-American negotiations began to slow down and then came to a complete standstill after the 2010 New START.

Two major political obstacles to nuclear arms control had emerged at the start of the second decade of the new century. First, problems other than nuclear arms control dominated the security agenda of the polycentric world. Second, the renewed confrontation and curtailed cooperation between Russia and the United States had undermined the political momentum that facilitated negotiations and agreements in the 1990s and during the brief reset period of 2009 to 2011.

Many politicians and experts (especially in Russia) have recently brushed off mutual nuclear reductions as a Cold War relic that has no significance in the modern world. Their bravado notwithstanding, the deep stagnation of this process is fraught with dire consequences.

The Weapons Will Take Care of You

One could say that if you don't take care of nuclear weapons, they will take care of you. This applies foremost to the nuclear arms race and arms control. Arms limitation agreements by themselves do not remove nuclear weapons or operational

plans for their use from the international strategic environment. But within a legally binding limitation framework complemented by verification provisions and confidence-building measures, nuclear weapons do gradually lose their function as an instrument of warfare—at least in the minds of the public and political decisionmakers. These weapons tend to be objects of cooperation and reassurance between nuclear powers in the crucial area of their security, as both subjects of legal regulation and instruments for preventing rather than making wars. All this is not enough to do away with the fundamental paradox of nuclear deterrence, but it tangibly mitigates deterrence’s harmful effects on states’ political relations and lowers the probability of nuclear collision.

Alternatively, the disintegration of a nuclear arms control regime returns threats and plans for the combat employment of nuclear forces to the strategic and political environment. It also increases mutual mistrust, suspicion, and misunderstanding among nuclear states, which may lead to a fatal error in a crisis, with grave consequences.

Even before the Ukraine crisis, Russia had elevated the role of nuclear weapons in guaranteeing its security. In a 2012 newspaper article outlining his platform for the presidential election, Vladimir Putin stressed, “We will under no circumstances surrender our strategic deterrent capability, and indeed, will in fact strengthen it. . . . As long as the ‘powder’ of our strategic nuclear forces created by the tremendous efforts of our fathers and grandfathers remains dry, nobody will dare launch a large-scale aggression against us.”⁸ In keeping with this promise, an unprecedented program—at least by post-Cold War standards—to modernize all three legs of Russia’s strategic nuclear forces was announced. It calls for the deployment by 2020 of 400 intercontinental and submarine-launched ballistic missiles and eight nuclear-powered ballistic missile submarines, as well as the development of a new heavy bomber soon after 2020.⁹

Domestic politics probably played a large role in launching the new campaign, which is focused on combating external threats, and in facilitating a major increase in military spending to boost Russia’s defenses. Domestic politics was also behind the unfavorable atmosphere for seeking compromises in arms control negotiations with the United States and the West as a whole. Since 2010, arms control has become an extremely unpopular topic in Russia, and past agreements have often been referred to as almost treason.¹⁰

Official U.S. statements put less emphasis on nuclear deterrence and a greater emphasis on non-nuclear defensive and offensive systems and forces. Nevertheless, the United States does not intend to abandon nuclear deterrence either. According to the Department of Defense’s 2010 *Nuclear Posture Review Report*, “The fundamental role of U.S. nuclear weapons, which will continue as long as nuclear weapons exist, is to deter nuclear attack on the United States, our allies, and partners.”¹¹

The Ukrainian drama has elevated tensions to levels that seemed unthinkable just a short time ago. For the first time in many decades, politicians are starting

to contemplate scenarios involving armed conflict between Russia and NATO. There is a new military buildup along Russia's borders with NATO countries, as well as regular shows of force, including demonstration flights of strategic bombers and missile tests. In addition, references to the role of nuclear weapons in crisis management have featured in some official statements. In August 2014, at the height of the Ukraine crisis, the Russian president said in an interview: "Our partners, regardless of the situations in their countries or their foreign policies, should always keep in mind that Russia is not to be messed with. I want to remind you that Russia is one of the largest nuclear powers. This is reality, not just words; moreover, we are strengthening our nuclear deterrence forces."¹²

Lower-ranking officials and independent analysts enthusiastically expounded on this statement, and they proposed complementing the official Russian Military Doctrine with less than novel ideas for using nuclear weapons in local conflicts for "preventive strikes," "shows of resolve," and the "de-escalation of conflict."¹³

As for the United States, after the summer of 2013, the U.S. president began to discard the goal of nuclear disarmament and to take a follow-on to New START off the table. The onset of the Ukraine crisis cemented this development. High-ranking U.S. officials started talking of the need to prepare for an armed conflict with the modernized Russian army. Moreover, independent experts resurrected tactical nuclear warfare as an element of NATO strategy in a possible military confrontation with Russia and proposed enhancing the alliance's theater nuclear capabilities.¹⁴

All parties should remember the extreme caution that Soviet and American leaders exercised after the 1962 Cuban Missile Crisis with respect to any words—let alone actions—pertaining to nuclear weapons. The current generation of leaders lacks the benefit of decades of Cold War experience in managing dangerous crises under the permanent threat of nuclear war. These new leaders have come into their positions after decades of relaxed and cooperative relations between the great powers and a great expansion of nuclear arms control. They take this legacy for granted and often deal with it in quite a cavalier manner. They may be impressed with the proposals of today's novice strategic theorists, who are merely reinventing old ideas (like limited nuclear strikes), not realizing that these concepts have been discussed for decades and rejected for their unresolved paradoxes and risks.

As bad as the Cold War was, the current situation may be worse. Cold War-era politicians gained experience in the course of dangerous crises, and it helped them to avert a nuclear catastrophe. Modern-day leaders, by contrast, will have to gain experience from scratch, and only time will tell how successful they will be at avoiding catastrophe.

A peaceful resolution of the Ukraine crisis may result in a more favorable climate for nuclear arms control. But it will not resolve other structural factors that have exacerbated the crisis of nuclear arms control.

Military-Strategic Innovations

In the course of the last twenty years, strategic arms reduction treaties between Russia and the United States have entailed more and more marginal reductions of the parties' nuclear forces. Changes in the world order are not the only cause; Russian and American strategic calculations are also now influenced by factors other than the balance of their strategic offensive nuclear weapons. Further reductions will be difficult without addressing those other factors.

By the late 1960s, the Soviet Union and the United States had reached a set of explicit and tacit understandings that negotiations to reduce nuclear arsenals would be based on a number of caveats and conditions. They agreed, for example, that they would disregard the nuclear forces of third countries as well as each other's nonstrategic (tactical) nuclear weapons; they accepted severe restrictions on missile defense systems; and they ignored long-range conventional weapon systems (which did not exist at that time). Presently, neither Moscow nor Washington accepts all of these principles.

After 2010, the United States came up with a proposal to limit nonstrategic weapons in the next START agreement by covering both strategic and tactical nuclear arms held in storage. The proposal stemmed from concerns expressed by its allies in Europe and the Far East with territories that are within range of Russian tactical nuclear weapons. Russia (just like the Soviet Union), relying on its own experience of allied relations, has never understood or even recognized the United States' sensitivity toward its allies' concerns. Moscow considers U.S. forward-based tactical nuclear weapons (which are now supposedly assigned the task of deterring Russian tactical weapons) to be nothing more than a forward-deployed addition to the U.S. strategic arsenal that is capable of striking deep into Russian territory. Moscow has, therefore, demanded that the United States withdraw these weapons (which amount to about 200 air-dropped gravity bombs) from Europe as a precondition to any possible discussions.

Incidentally, certain features of nonstrategic nuclear weapons make it impossible to put them in the same basket as strategic nuclear weapons, as Washington has proposed. Tactical systems are assigned missions at different geostrategic azimuths (including hypothetical opponents in the East and South) and use dual-purpose delivery vehicles. Besides, all tactical nuclear munitions are located separately in special storage facilities during peacetime. Substrategic nuclear weapons therefore present a special and extremely complicated aspect of arms control,¹⁵ and discussion about them is presently deadlocked.

For its part, Russia has demanded that third countries join the process of nuclear disarmament as a precondition to further progress on nuclear arms reductions by Russia and the United States. At a 2012 meeting with experts at Russia's nuclear research center in Sarov, President Putin said, "We will not disarm unilaterally. As for further steps in nuclear disarmament, those steps should be comprehensive in nature, and all nuclear powers should participate

in the process. We cannot disarm while other nuclear powers are increasing their arms. That's out of the question!"¹⁶ This subject is still more complicated than tactical nuclear arms.

Other military-technological developments present yet more obstacles to the disarmament process. The United States is deploying a global ballistic missile defense (BMD) system with regional segments in the Euro-Atlantic and Asia-Pacific regions. Despite Russian objections, the United States has refused to limit its BMD effort either by creating a joint system or by accepting legally binding commitments to demonstrate that the system will not be aimed at Russia. In 2011, Moscow began developing its own Air-Space Defense system intended to integrate missile, air, and space defenses "in the same bundle," to use President Putin's description.¹⁷

Another key trend in military technology, also led by the United States, is the development of high-precision long-range conventional missiles supported by advanced command, control, and information gathering systems, some of which are based in space. In the foreseeable future, fractional orbit or hypersonic boost-glide weapons with conventional warheads may also be developed. Just as in the case of conventional strategic defensive systems, Russia is determined to catch up with the United States in long-range offensive non-nuclear arms.

Many of these developments were highlighted in the amended version of the Russian Military Doctrine, which was adopted in 2014. The fourth item on the list of military threats to Russia—after NATO expansion, global and regional destabilization, and the buildup of foreign military forces around Russia—is "the creation and deployment of strategic missile defense systems undermining global stability and violating the established correlation of forces in the nuclear-missile sphere, the implementation of the Prompt Global Strike concept, and also the militarization of outer space and the deployment of strategic non-nuclear precision-guided weapon systems."¹⁸ This statement represents clear evidence of Russia's concern. The 2014 military doctrine highlights the need for "strategic (both nuclear and non-nuclear) deterrence, including prevention of military conflicts,"¹⁹ as one of the peacetime objectives of the Russian armed forces.

At the same time, fortunately, the amended version of the doctrine ignores the irresponsible voices that have proposed various exotic nuclear concepts, thus leaving in place the quite reasonable and restrained wording of the former doctrine as it relates to the use of nuclear weapons: "The Russian Federation reserves the right to use nuclear weapons in response to the use of nuclear and other types of weapons of mass destruction against it and (or) its allies, and also in the event of aggression against the Russian Federation involving the use of conventional weapons when the very existence of the state is under threat."²⁰

In his 2014 speech to the Valdai Discussion Club, President Putin described the causes for Moscow's concern about new weapon systems: "Today, many types of high-precision weaponry are already close to mass-destruction weapons in terms

of their capabilities, and in the event of full renunciation of nuclear weapons or radical reduction of nuclear potential, nations that are leaders in creating and producing high-precision systems will have a clear military advantage. Strategic parity will be disrupted, and this is likely to bring destabilization. The use of a so-called first global preemptive strike may become tempting. In short, the risks do not decrease, but intensify.”²¹

Research done by many independent Russian experts demonstrates that, for the foreseeable future, the threat posed by potential U.S. long-range high-precision weapon systems has been grossly exaggerated, especially in terms of their capability to conduct a preemptive strike against Russian strategic forces and so prevent a Russian retaliatory strike.²²

As such, Russia is perhaps repeating the Soviet experience of the early 1980s, when the threat of the U.S. Strategic Defense Initiative (also known as “Star Wars”) was greatly overstated. That threat never materialized because of technical problems and budget cuts. However, in responding to this “threat,” the Soviet Union expended significant funds, which could have been better used for other military or peaceful needs. It is also possible that the overly sensitive contemporary reaction to current hypothetical threats is driven by domestic political considerations.

A preemptive U.S. strike conducted with air- and sea-launched subsonic cruise missiles against numerous protected and mobile targets, such as Russian silo-based and mobile intercontinental ballistic missiles, would be an exceedingly risky undertaking.²³ Such a strike would involve lengthy preparations lasting days or even weeks, which would greatly increase the likelihood of a nuclear response during the large-scale conventional U.S. attacks—just as the Russian Military Doctrine stipulates. The number of hypersonic boost-glide systems that the United States would deploy—should that deployment occur—would probably be too small for such a massive operation. Besides, Russian SNFs may be protected by both passive and active defense systems, which is one of the goals of the recently constituted Russian Air-Space Defense command.²⁴

At the same time, high-precision non-nuclear systems do create a number of serious problems. Russia is naturally concerned about the diminishing role of nuclear deterrence, on which its leadership heavily relies, especially in light of the country’s significant technological lag in the development of high-precision weapons. In addition, new conventional systems will significantly complicate estimates of strategic balance and calculations of the sufficiency of deterrent forces. They will create even greater problems for arms control negotiations and could even jeopardize the INF Treaty and New START.

Nonlinear Dependence

Many experts skeptical about nuclear disarmament maintain that there is no link between nuclear arms reductions and nonproliferation.²⁵ Indeed, academic and government officials and politicians have been debating this issue for decades.

The two basic documents of 1972—the Anti-Ballistic Missile Treaty and the Interim Agreement on the Limitation of Strategic Offensive Arms (SALT I)—marked the starting point of the history of actual strategic arms control, that is, of limits affecting the quantity and quality of delivery vehicles and warheads. This dialogue has lasted for over forty years and resulted in eight major agreements.²⁶ Starting from the enormous nuclear arsenals accumulated during the Cold War,²⁷ the two and a half decades since 1991 have seen an almost tenfold reduction in nuclear arsenals—both as a result of treaties between Russia and the United States and unilateral reductions by these countries (as well as by the United Kingdom and France). Over the same period, the number of nuclear-weapon states went up from seven to nine. Specifically, India, Pakistan, and North Korea joined the United States, Russia, the United Kingdom, France, China, Israel, and South Africa as nuclear weapon possessors; by 1992, South Africa had abandoned its nuclear weapons.

Based on this trend, some experts have concluded that nuclear disarmament is unrelated to nuclear nonproliferation or that it even encourages the expansion of the “nuclear club.” However, the facts on the ground suggest otherwise. In the forty years of the Cold War, six or seven nuclear-armed states emerged (depending on whether India is taken to be a nuclear-armed state on the basis of a single test in 1974). In the quarter century since the Cold War, only two or three states—Pakistan, North Korea, and arguably India—have acquired nuclear weapons. Thus, the pace of nuclear proliferation has actually decreased significantly (see figure 2).

The greatest breakthroughs in both disarmament and the strengthening of the nonproliferation regime occurred in the years from 1987 to 1998. During this period, the INF Treaty, START I, START II, the START III framework agreement, and the CTBT were signed, and the United States and the Soviet Union/Russia took parallel, unilateral initiatives to reduce tactical nuclear weapons. There was also significant progress in non-nuclear but related areas, including the conclusions of the Treaty on Conventional Armed Forces in Europe and the Chemical Weapons Convention.

At the same time, over 40 states joined the NPT, including two nuclear powers (China and France). Seven countries abandoned nuclear-weapon programs, voluntarily or otherwise (Iraq, South Africa, Ukraine, Kazakhstan, Belarus, Brazil, and Argentina). The 1994 Agreed Framework froze North Korea's nuclear program. In 1995, the NPT was extended indefinitely, and in 1997, the IAEA Additional Protocol, which significantly strengthens nuclear safeguards in non-nuclear-weapon states, was introduced. The NPT became the most universal international agreement, aside from the United Nations (UN) Charter; just three states—India, Israel, and Pakistan—have not joined it.

The negative developments in the years following this period also point to a link between a lack of disarmament and proliferation. The Agreed Framework with North Korea collapsed in the early 2000s. It is possible to speculate that U.S. withdrawal from the Anti-Ballistic Missile Treaty in 2002 made it easier for North Korea to abandon the NPT in 2003. The 2005 NPT Review Conference ended in a complete fiasco. An attempt to negotiate with Iran on limiting its nuclear efforts (after the discovery of suspicious elements of its program in 2003) also ended in failure the following year.

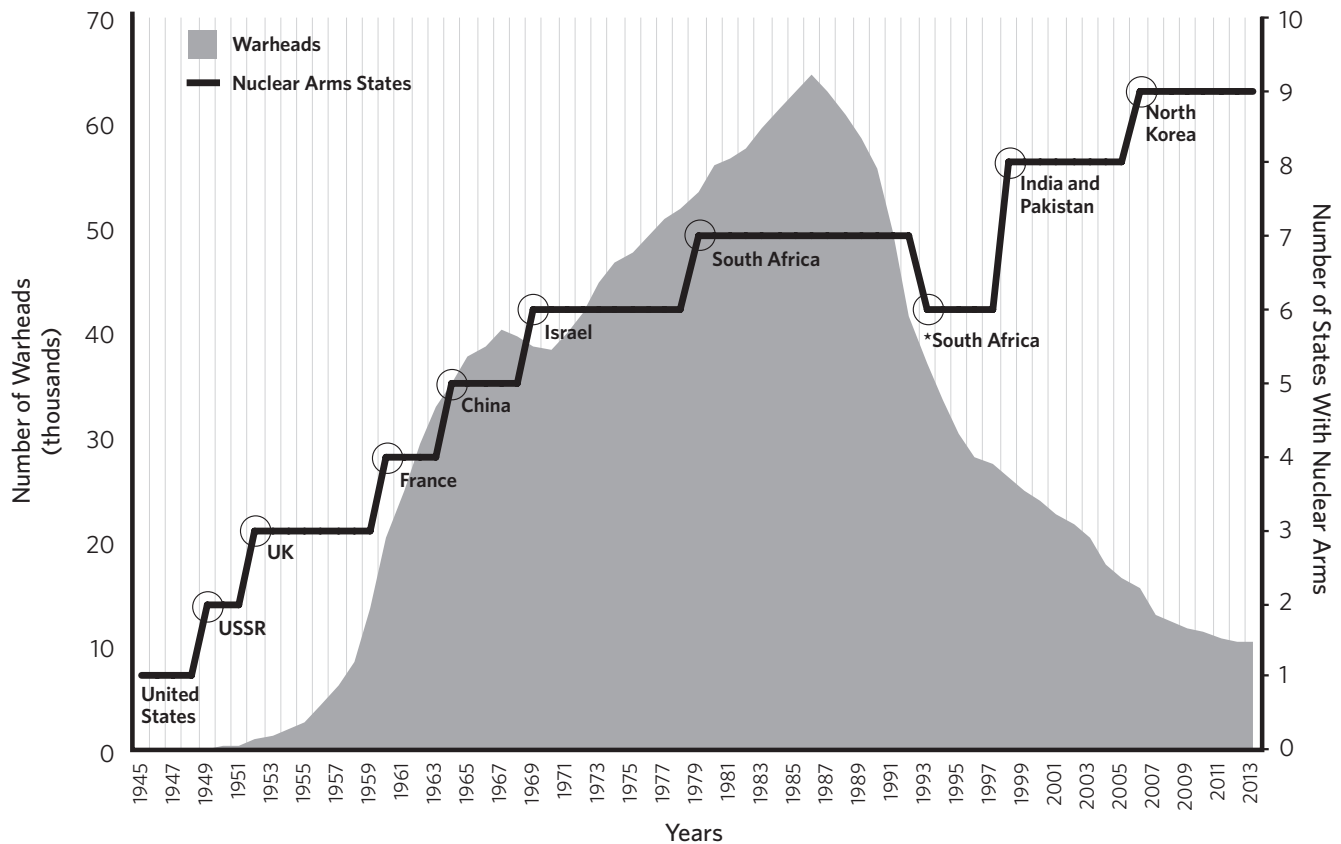
Subsequently, after New START was signed, there was some progress on non-proliferation: the NPT Review Conference of 2010 succeeded in adopting a final document.

Most recently, the standstill in the disarmament process since 2011 has negatively affected the nonproliferation regime. North Korea has continued to enhance its nuclear capability, and negotiations with it remain deadlocked. After the 2013 interim agreement with Iran, a comprehensive agreement, which was initially expected by November 2014, has yet to be signed. As mentioned above, the NPT Review Conference in 2015 failed to adopt the final document.

The many instances of correlation between disarmament and nonproliferation—or a lack of disarmament and proliferation—rule out a purely coincidental link; the relationship must be causal. But, of course, the dependence is not direct and straightforward, as the new wave of post-1998 proliferation demonstrates.

The dialectics seem to be as follows: progress on disarmament creates favorable conditions for strengthening the nonproliferation regime, but it does not automatically guarantee success; progress on nonproliferation requires many additional specific steps and agreements. However, stagnation of the disarmament process does guarantee the weakening or even the unraveling of the nonproliferation regime.

Figure 2. The Growth of Nuclear Arsenals and Nuclear Arms States



*South Africa gave up its weapon program.

Sources: Hans M. Kristensen and Robert S. Norris, "Global nuclear weapons inventories, 1945–2013," *Bulletin of the Atomic Scientists*, 2013, No. 69(5), p. 76, <http://bos.sagepub.com/content/69/5/75.full.pdf+html>; Alexei Arbatov, "The New START Treaty (Historic and Strategic Perspectives)," 2011, International School on Disarmament and Research on Conflicts, accessed May 13, 2015, http://www.isodarco.it/courses/andalo11/paper/ISO11_Arbatov_START.pdf; "Nuclear weapons timeline," International Campaign to Abolish Nuclear Weapons, accessed May 13, 2015, <http://www.icanw.org/the-facts/the-nuclear-age/>.

The Erosion of Nuclear Nonproliferation Norms

Even if the political climate improves, and Russia and the United States find a way to adapt the concept of strategic stability to missile defense expansion and agree how to limit high-precision conventional offensive weapons in a bilateral format, the arms control process would still be complicated by the proliferation of these technologies to third countries.

The development of missile defense systems has historically been monopolized by the United States and the Soviet Union/Russia. Today, however, national and/or multilateral missile defense programs are being pursued by China, India, Israel, Japan, NATO, and South Korea. This is clearly a long-term and global military-technological trend; the rapid proliferation of offensive missiles and

missile technologies creates demand for missile, air, and space defense systems, while the technologies are erasing the traditional delineations between them. Long-range ballistic and cruise missiles are being actively developed and deployed in Iran and Saudi Arabia, as well as in the nuclear-weapon countries of China, India, Israel, North Korea, and Pakistan.

Moreover, the United States and Russia are not the only countries that are developing high-precision long-range hypersonic conventional weapons. China is working on this project at an accelerated pace, and other countries are likely to follow suit. Therefore, a possible bilateral Russian-American effort to limit these systems would probably encounter growing difficulties.

The proliferation of missile technologies is especially dangerous because it is accompanied by the proliferation of nuclear materials and technologies for manufacturing nuclear materials. Climate change and the prestige considerations of a number of states are likely to drive significant growth of the nuclear power industry for the foreseeable future.²⁸ The largest expansion is expected in the Asia-Pacific and in several of the world's most unstable regions, including North Africa and the Middle East. The spread of nuclear power blurs the line between peaceful and military use of this energy source, primarily because of the inherently dual-use nature of nuclear fuel cycle technologies (uranium enrichment and plutonium separation). The decline in hydrocarbon prices that began in late 2014 may slow the growth of the nuclear power industry somewhat, but it will not fundamentally alter the trend.

These developments threaten to undermine the nonproliferation regime and its institutions, especially because many of its norms are no longer suited to the emerging political and technological environment.

The nonproliferation regime, with the NPT as its cornerstone, was originally based on two key principles: non-nuclear-weapon states agreed not to acquire nuclear weapons in exchange for assistance in developing peaceful atomic energy, and, for their part, nuclear-weapon states promised to work toward nuclear disarmament, thus eventually eliminating the “nuclear discrimination” inherent in the NPT. (Although the NPT's Article VI applies to all states regarding the achievement of “general and complete disarmament,” it is primarily associated with the commitment of nuclear-weapon states.)

The first principle is now frequently inverted: for some countries, peaceful atomic energy projects are a channel or pretext for acquiring either nuclear weapons or the technological means to develop them rapidly. North Korea set the example for such behavior, and Iran has been suspected of following suit. It is possible that other African, Asian, and Latin American countries, many of which suffer from internal instability and regional threats, will adopt a similar approach.

The various components of the NPT regime—including the IAEA, the Nuclear Suppliers Group (NSG), and the Additional Protocol—do not constitute an adequate response to this challenge because the NPT does not

prohibit either the development of dual-use technologies or the accumulation of nuclear materials for peaceful purposes. The result is a series of weaknesses in the treaty. For instance, withdrawal from the NPT is quite legal pursuant to Article X, point 1. As a result, a state can acquire peaceful technologies and materials, in keeping with the treaty's provisions on international cooperation in Article IV, point 2, and then use them for military purposes upon withdrawal from the treaty, as North Korea did in 2003 (even if such behavior is not actually encouraged by the treaty). In theory, these articles could be strengthened (just like other treaty provisions), but this would require the agreement of all states that are party to the agreement, including potential proliferators.

Another possible solution to this problem would be the introduction of a standard clause in all nuclear cooperation contracts that compels states to return all dual-use nuclear technologies and materials purchased within the framework of the treaty in the event they withdraw from it. However, this step would require the agreement of all 45 NSG members, some of which compete for business in the international nuclear marketplace, where the terms of their contracts are protected as commercial secrets.

Many other NPT provisions need to be updated. Even very basic terms that appear in the treaty, most notably “nuclear weapons,” as well as fundamental injunctions, such as not to “transfer” or “acquire” nuclear weapons, still do not have agreed definitions, resulting in many gray areas. For instance, can a large stockpile of highly-enriched uranium be equated to a nuclear-weapon capability if the state can provide a legitimate justification for the stockpile (for instance, its use in naval propulsion reactors)? Can a state that has just a few nuclear power plants be reasonably suspected of military goals if it expands its uranium enrichment capability and increases its low-enriched uranium stockpile to the level needed to quickly produce weapons-grade materials? What peaceful purposes can justify the secret construction of uranium enrichment plants deep underground in hardened facilities (as in Iran and North Korea)? None of these activities is explicitly prohibited by the treaty, and many non-nuclear-weapon states interpret that as permission to proceed.

Last but not least, what constitutes the unquestionable fact of a state's acquiring a nuclear weapon (which is prohibited by Article II) is also unclear. Is it a nuclear explosion, as stipulated by the NPT's Article IX, point 3? This defines a nuclear-weapon state if the date of the nuclear explosion was before January 1, 1967. However, India exploded a nuclear device in 1974 but was only considered a nuclear-armed state after its tests in 1998. Israel and South Africa acquired nuclear weapons without any tests (although there was a suspected explosion in the South Atlantic in 1979 that some theorize was the result of a joint effort between the two countries). North Korea's first test in 2003 was not accepted by many experts as proof of a nuclear capability. Iran's expanding nuclear program was not recognized as a military one by many states and specialists—as if to imply that only a nuclear test would provide clear evidence (when it would also be too late to take countermeasures). No doubt,

lack of certainty and states' disagreements on such important points provide gaping loopholes in the NPT and its regime.

The second basic principle underlying the NPT—the nonproliferation for disarmament *quid pro quo*—also causes many complications. According to Article VI, nuclear-weapon states “undertake 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.” This sequence looked quite logical when the treaty was being negotiated. At that time, in 1968, the United States had just completed a crash ballistic missile buildup. The Soviet Union had to play catch-up until 1972, also at an accelerated pace. It was, therefore, commonly assumed that the arms race had to stop first for the arms reduction process to begin.

Reality turned out to be far more complicated. In the 1970s, the Soviet Union and the United States started increasing warhead numbers, after imposing restrictions on strategic delivery vehicles. During the 1980s and 1990s, they modernized their SNFs by introducing new weapon types while reducing the quantities they held.

In 2015, neither the United States nor Russia (nor any other nuclear-weapon state recognized by the NPT) competes in an arms race. Indeed, in the last twenty-five years the number of nuclear weapons has decreased almost by an order of magnitude thanks to Russian-American agreements and unilateral steps. Nevertheless, as Russian SNFs are being reduced, they are also being actively modernized; the United States will do the same after 2020. So, in a sense, the nuclear-weapon states have complied with Article VI: the arms race has ceased, and nuclear forces have been drastically reduced through a disarmament process. But paradoxically, with the development and deployment of new nuclear-weapon systems, the NPT objective of complete nuclear disarmament seems as distant as ever.

Developing new understandings of contentious nonproliferation issues (without revising the treaty's provisions, but through adopting more stringent interpretations and additional protocols) requires a consensus among all NPT member states, which is hard to come by in the current international climate. It has become even less realistic in light of the collision between Russia and the United States, the two key powers needed to enhance the nonproliferation regime.

Untangling the Knot

It is obvious that the world is presently facing the most serious and comprehensive crisis in the fifty-year history of nuclear arms control. This crisis may quite possibly result in the total disintegration of the existing framework of treaties and regimes. In this event, the arms race will probably resume—with the most dire military, political, and economic consequences for mankind.

Further proliferation of nuclear weapons and the technologies for manufacturing them to unstable countries involved in regional conflicts may lead

to the deliberate or accidental use of nuclear weapons in local wars, which could also involve great powers. Moreover, terrorist organizations might be able to obtain nuclear explosive devices, should nuclear materials proliferate to unstable or radical regimes. As some well-known experts point out: “Any use of nuclear weapons, the most indiscriminately inhumane ever devised, would have a catastrophic human and environmental impact, beyond the capacity of any state’s emergency systems to address.”²⁹

Only political unity among the major global powers and alliances, coupled with urgent and effective action, can reverse this trend of disintegration and help to avoid the “end of history” of nuclear arms control. All of the strategic and technical problems can be resolved if politicians are willing to work them out, and if experts approach them creatively. If and when the current crisis in the Russian-U.S. relationship de-escalates, the parties should start untangling the tight knot of military and technical questions that have so far blocked any progress in nuclear arms control.

In the 1980s, the Soviet Union and the United States were able to resolve their differences in nuclear and space negotiations after separating discussions on intermediate-range missiles, strategic offensive weapons, and space weapons (especially space-based missile defense) into separate strands. Subsequently, the INF and START I agreements were signed, and the United States abandoned its space-based missile defense program, which did not resurface in the ensuing twenty-five years and will not be developed in the foreseeable future.

Russia and the United States could make use of this experience by separating further SNF reductions from limitations and confidence-building measures related to new missile defense systems. They could also discuss existing and future long-range high-precision conventional weapons separately. At the same time, but on a separate track, negotiations over nonstrategic nuclear arms could start. Forums and methods for involving third states in the arms control process should be elaborated on their own as well.

Because total nuclear disarmament is a distant aim, the parties’ immediate goals should be less ambitious and more suited to the existing—and far from ideal—world order. Besides preserving New START and the INF Treaty, these objectives may be: achieving the next step in reducing the U.S. and Russian nuclear arsenals on a bilateral basis after 2020 (that is, down to around 1,000 deployed strategic warheads, including future long-range ballistic or boost-glide conventional systems), unconditionally committing to a no-first-use policy for nuclear weapons, lowering the alert levels of all legs of strategic forces mutually and in a verifiable manner, and transforming the arms control process from a bilateral into a multilateral one (at least through third states’ voluntary transparency and confidence-building measures).

This framework would also help strengthen the nuclear nonproliferation regime and stop the spread of dangerous materials, technology, and know-how across the globe. It is obvious that there is a political link between disarmament

and nonproliferation, and progress in the former would stimulate positive developments in the latter.

Ensuring unity among Russia and the United States and their allies is a much more difficult undertaking. In this respect, the political rift between Russia and the United States poses the greatest threat. This rift will not resurrect the old bipolarity, because the world has fundamentally changed since the second half of the twentieth century. However, in many respects, today's confrontation could prove even more dangerous than the Cold War standoff, especially in terms of nuclear arms control. As bad as the Cold War was, at least it did not turn into a global hot war. There are no guarantees that this risk will be averted in the future.

How to change the existing world order for the better is a huge topic, which lies well beyond the scope of this paper. It is clear, however, that Russian, American, and European politicians should first of all achieve a reliable ceasefire and de-escalation in Ukraine, which must be not just monitored but also enforced with the help of the Organization for Security and Cooperation in Europe and the UN.

Simultaneously, the parties must stop excessive propaganda warfare, analyze candidly the reasons behind the current confrontation, and draw practical conclusions. All this and much more should be done in order to create a safer world order—an indispensable element of which would be a salvaged nuclear arms control regime, adapted to new political and technological realities.

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