Proliferation Papers

Russia's Nuclear Forces: Between Disarmament and Modernization

In collaboration with the Atomic Energy Commission (CEA)

Pavel Podvig

Spring 2011

ifri Security Studies Center

The Institut Français des Relations Internationales (Ifri) is a research center and a forum for debate on major international political and economic issues. Headed by Thierry de Montbrial since its founding in 1979, Ifri is a non-governmental, non-profit organization.

As an independent think tank, Ifri sets its own research agenda, publishing its findings regularly for a global audience.

Using an interdisciplinary approach, Ifri brings together political and economic decision-makers, researchers and internationally renowned experts to animate its debate and research activities.

With offices in Paris and Brussels, Ifri stands out as one of the rare French think tanks to have positioned itself at the very heart of European debate.

The opinions expressed in this text are the responsibility of the author alone.

ISBN : 978-2-86592-890-3

Ifri
27 rue de la Procession
75740 Paris Cedex 15 – FRANCE
Tel : 33 (0)1 40 61 60 00
Fax : 33 (0)1 40 61 60 60
Email : ifri@ifri.org

Ifri-Bruxelles
Rue Marie-Thérèse, 21
1000 – Brussels – BELGIUM
Tel : 32 (0)2 238 51 10
Fax : 32 (0)2 238 51 15
Email : info.bruxelles@ifri.org

Website : http://www.ifri.org/

Spring 2011

Russia's Nuclear Forces: Between Disarmament and Modernization

Pavel Podvig

Proliferation Papers

Though it has long been a concern for security experts, proliferation has truly become an important political issue with the last decade, marked simultaneously by the nuclearization of South Asia, the weakening of international regimes and the discovery of frauds and traffics, the number and gravity of which have surprised observers and analysts alike (Iraq in 1991, Libya until 2004, North Korean and Iranian programs or the A. Q. Khan networks today).

To further the debate on complex issues that involve technical, regional, and strategic aspects, Ifri's Security Studies Center organizes each year, in collaboration with the Atomic Energy Commission (CEA), a series of closed seminars dealing with WMD proliferation, disarmament, and nonproliferation. Generally held in English, these seminars are structured around the presentation of an international expert.

Proliferation Papers is a collection, in the original version, of selected texts from these presentations. An anonymous peer-review procedure ensures the high academic quality of the contributions. Download notifications are sent to an audience of several hundred international subscribers upon publication.

How to cite this publication

Pavel Podvig, "Russia's Nuclear Forces: Between Disarmament and Modernization", *Proliferation Papers*, No. 37, Spring 2011.

About the Author

Pavel Podvig is an independent analyst based in Geneva, where he runs his research project, "Russian Nuclear Forces." He started his work on arms control at the Center for Arms Control Studies at the Moscow Institute of Physics and Technology (MIPT), which was the first independent research organization in Russia dedicated to analysis of technical issues of disarmament and nonproliferation. Pavel Podvig led the Center for Arms Control Studies project that produced the book, Russian Strategic Nuclear Forces (MIT Press, 2001). In recognition of his work in Russia, the American Physical Society awarded Podvig the Leo Szilard Lectureship Award of 2008 (with Anatoli Diakov). Podvig worked with the Program on Science and Global Security at Princeton University, the Security Studies Program at MIT, and the Center for International Security and Cooperation at Stanford University. His current research focuses on the Russian strategic forces and nuclear weapons complex, as well as technical and political aspects of nuclear nonproliferation, disarmament, missile defense, and U.S.-Russian arms control process. Pavel Podvig is a member of the International Panel on Fissile Materials. He has a physics degree from MIPT and PhD in political science from the Moscow Institute of World Economy and International Relations.

Pavel Podvig maintains a website, “Russian Strategic Nuclear Forces,” which includes a blog at http://russianforces.org/blog/.

Contents

Introduction

Nuclear weapons have traditionally occupied an important place in Russia's national security strategy. This tradition goes back to the Soviet times, when the country invested considerable efforts into building its nuclear arsenal and achieving strategic parity with the United States. As Russia and the United States have been reducing their nuclear arsenals since the end of the Cold War, their relationship has undergone a complex transformation toward cooperation and partnership mixed with suspicion and rivalry. The focus of Russia's nuclear policy, however, has remained essentially unchanged – it still considers strategic balance with the United States to be an important element of national security and pays considerable attention to maintaining the deterrent potential of its strategic forces.

Russia does recognize the emergence of new threats – it cannot ignore the threats related to regional instabilities and conflicts on its own territory and in bordering states, such as the tensions in the Caucasus or the war in Afghanistan, the terrorist activity that is associated with these conflicts, as well as the problems that stem from nuclear and missile proliferation. These, however, are not given a high priority in Russia's security policy. For example, the new military doctrine adopted in February 2010, opens the list of military threats with the expansion of geographical and political reach of NATO, which is followed by the threat to strategic stability and then by deployment of missile defense. Nuclear proliferation, terrorism, and destabilizing local conflicts are placed much further down the list.[1] Even when it comes to confronting the issues of local instabilities and terrorism, Russia's leadership tends to see these issues through the prism of its strategic strength, alleging that terrorist attacks are a reaction to Russia's perceived weakness.[2] This way of looking at the issues effectively redefines national security problems to conform to the traditional view that relies on strategic nuclear deterrent as a central element of security strategy, regardless of whether nuclear deterrence has any actual role in addressing those problems.

The emphasis on strategic stability in the bilateral relationship with the United States was evident in the important role that Russia assigned to the U.S.-Russian arms control negotiations. Resumption of the legally binding arms control process was one of the key elements of the largely successful "reset" policy pursued by the Obama Administration in its

[1] "Voyennaya doktrina Rossiiskoi Federatsii" [Military doctrine of the Russian Federation], February 5, 2010.
[2] "Address by President Vladimir Putin," Moscow, September 4, 2004.

relationships with Russia. Also, during the negotiations Russia strongly emphasized its interest in those issues that it believed might directly affect its deterrent potential – missile defense and conventional strategic launchers. Russia's extremely cautious approach to the next round of nuclear disarmament talks suggests that these issues did not lose their importance after New START – looking at nuclear disarmament in the context of strategic stability, Russia expressed concerns that deep reductions could undermine its nuclear deterrent if, for example, the United States proceeds with deployment of its missile defense system.

Whether or not these concerns are justified, they do play an important role in how Russia looks at the future of nuclear disarmament. However, the opposite is true as well – the nuclear disarmament process can change Russia's security policy in a variety of ways by addressing some of its concerns or failing to address others. After the successful conclusion of the New START negotiations, the direction of change in Russia's nuclear policy will depend on how the subsequent dialogue addresses a number of key issues. First, the arms control process will have to reconcile the U.S. and Russian strategic modernization programs with deeper nuclear reductions. In Russia's case this would critically depend on whether the two countries could resolve their differences on missile defense. They would also have to address the issue of tactical nuclear weapons, which have not been included in arms control efforts so far. Each of these problems presents a serious challenge to Russia and the United States, especially if they maintain the emphasis on traditional Cold War notions of strategic stability and parity. However, as this analysis suggests, recent progress in nuclear disarmament and the willingness of both countries to engage in a dialogue on a range of issues give the two countries an opportunity to reduce the importance of nuclear weapons in their relationship.

The paper begins with an overview of the current status of the Russian strategic nuclear forces and the strategic modernization program that is undertaken by Russia. It then considers the role that missile defense and tactical nuclear weapons could play during the next round of nuclear arms control negotiations.

Strategic Nuclear Forces

Russia inherited most of the Soviet industrial and military infrastructure that supported operations of strategic nuclear forces during the Cold War. It also invested significant resources into maintaining the basic structure of the strategic forces – the nuclear triad consisting of land-based intercontinental ballistic missiles (ICBMs), strategic submarines with sea-launched ballistic missiles (SLBMs), and strategic bombers. Elements that support operations of strategic forces – the early-warning system, military communication network, and the command and control system – have also received some attention, as will be described later. The main directions of the strategic modernization program were determined during the 1990s, when the economic situation in Russia did not favor significant investment into military industry. In the 2000s, with the economic environment substantially improved, the government tried to expand some of the key modernization programs and accelerate their implementation, but that effort was only partially successful. In 2010, the government renewed its commitment to military modernization, pledging to spend about 20 trillion rubles over the next ten years on various military programs.[3] It remains to be seen, however, if the new round of modernization will be more successful than the current one.

Strategic Rocket Forces and ICBMs

Land-based intercontinental ballistic missiles have traditionally been the core component of the Soviet strategic nuclear force. At the height of the Cold War, the Strategic Rocket Forces had about 6600 warheads on about 1400 intercontinental ballistic missiles (ICBMs). These accounted for about two thirds of all warheads in the Soviet strategic arsenal. This ratio has changed since then, but it is still significant – in 2010 about 1300 warheads deployed on about 370 ICBMs constituted about half of all Russia's strategic warheads. Most of the changes in the Strategic Rocket Forces have been focused on preserving their role as the key component of the strategic triad. As described below, this consideration is one of the main arguments that determine the current ICBM modernization and development programs.

Most of the reductions in the Strategic Rocket Forces are the result of withdrawal from service of older missiles, most of which carry multiple warheads (MIRVs, Multiple Independently targeted Reentry Vehicles). In

[3] It is about $700 billion at current exchange rate. Prime Minister Vladimir Putin, "Opening remarks at the meeting in Severodvinsk on drafting the state arms program for 2011–2020," Severodvinsk, December 13, 2010.

2010, old MIRVed missiles – UR-100NUTTH (SS-19) and R-36M2 (SS-18), which carry six and ten warheads respectively – accounted for 80 percent of all ICBM warheads (1000 out of 1250 warheads). The UR-100NUTTH missiles are the oldest in the current arsenal – they were deployed in 1978-1984. Even though their service lives were extended to 33 years, these missiles are being withdrawn from service. The R-36M2 missiles were deployed in 1988-1992, so assuming that their service life is extended to 33 years, they could stay in service until about 2025.[4] Another missile system that is being removed from service is the *Topol* (SS-25) single-warhead road-mobile ICBM. Deployed in 1985-1992, these missiles will reach end of their service lives in about 2012-2017.

To replace the aging missiles, in 1997 Russia began deployment of a new missile system – *Topol-M* (SS-27) ICBM, which could be deployed in silos and as part of a road-mobile system. However, *Topol-M*, being a single-warhead missile, could not provide an adequate replacement for MIRVed UR-100NUTTH and R-36M2 in terms of number of warheads. When the Soviet Union began development of the *Topol-M* missiles in the 1980s, it believed that it needed a single-warhead solid propellant missile that would replace *Topol* and some of the silo-based missiles. Later, the START II Treaty that the United States and Russia signed in 1993 banned land-based multiple-warhead missiles. Even though the treaty never entered into force, in the 1990s Russia assumed that the strategic forces will be constrained by its provisions. As a result, *Topol-M* was deployed as a single-warhead missile – in silos since 1997 and on road-mobile launchers since 2006.

While *Topol-M* apparently was a successful program, the Strategic Rocket Forces had some doubts about whether it could become the core missile of the ICBM force. Despite the improved economic conditions in the 2000s, the rate of production of *Topol-M* missiles remained relatively low – only 68 missiles of this type have been deployed by 2010.[5] To prevent the number of ICBM warheads from falling significantly below that of the other two components of the triad, the Strategic Rocket Forces needed to build a multiple-warhead version of the missile. These considerations resulted in development of a MIRVed version of the *Topol-M* missile, which became known as RS-24. This missile was first flight tested in May 2007, and in 2010 the Strategic Rocket Forces received the first regiment of three road-mobile RS-24 missiles. From 2011 all new road-mobile missiles will be deployed with multiple warheads – RS-24 is reported to carry four warheads. This measure will allow the Strategic Rocket Forces to increase the number of warheads without deploying additional missiles. If the missile production rate is maintained at the current levels, by 2020 Russia could

[4] For liquid fuel missiles like UR-100NUTTH or R-36M2 the life extension program does not require any substantial investment beyond regular flight tests of the missiles that provide data on their reliability. "Rocket Forces will keep R-36M2 missiles until 2026," *RussianForces.org*, December 17, 2010. Available at: http://russianforces.org/blog/2010/12/rocket_forces_will_keep_r-36m2.shtml.

[5] "*Topol-M* and RS-24 missiles in 2010," *RussianForces.org*, December 17, 2010. Available at: http://russianforces.org/blog/2010/12/topol-m_and_rs-24_missiles_in.shtml

deploy about 90 single-warhead *Topol-M* and about 85 MIRVed RS-24 missiles, which together would carry more than 400 warheads. The MIRVed R-36M2 missiles that would still be in service at that time would add another about 200 warheads to the ICBM force.

Even though deployment of the multiple-warhead version of the *Topol-M* missile, RS-24, would preserve the relative size of the ICBM force, the Strategic Rocket Forces and the industry have been considering additional steps that would, in their view, provide long-term viability of the land-based missile component of the strategic triad. In 2009, the Ministry of Defense issued a call for proposals for a new MIRVed silo-based ICBM.[6] This project was heavily promoted by the design bureau that produced the UR-100NUTTH missile, so it is likely that the new missile would be comparable in size and capability to the UR-100NUTTH missile – a liquid fuel silo-based ICBM that could carry from six to ten warheads. If this project is approved, the Strategic Rocket Forces could receive a new missile at some time after 2016 – in time to replace the R-36M2 when it reaches the end of its operational life. Advocates of the new missile also point out that a new missile with large throw-weight would be more effective in penetrating missile defenses than the currently deployed *Topol-M*, since it could carry a large number of decoys and other penetration aids.[7]

Whether or not this project will be implemented would depend to a large extent on whether Russia and the United States continue the New START arms reduction process and whether they could reconcile their differences regarding the U.S. missile defense program. Without progress in these areas, the new ICBM program will likely get an approval in the next few years, which would probably further complicate arms control negotiations process and would make future reductions of strategic arsenals more difficult. In particular, a new MIRVed ICBM program in Russia would raise questions in the United States, which is moving toward de-MIRVing of its land-based ballistic missiles. The United States would probably see the new Russian missile as a destabilizing development in the strategic relationship. In Russia, however, it is de-MIRVing that is often seen as a threat to stability, since it gives the United States the capability to quickly increase the number of warheads carried by its ballistic missiles (this capability is often referred to as "upload potential).

Strategic Submarines and SLBMs

Another large scale modernization effort undertaken by Russia is the program to build a fleet of new generation strategic submarines equipped with sea-launched ballistic missiles (SLBMs) of a new type. This program is also driven by the need to replace aging submarines and their missiles, as most strategic submarines entered service during the 1980s. The key directions of the strategic fleet modernization program were outlined in a decision made in 1998 that it would concentrate on extending the lifetime of

[6] A. Zubtsov, "Russia to develop new heavy ICBM by 2020," *RIA-Novosti*, December 20, 2010. Available at: http://en.rian.ru/russia/20101220/161856876.html

[7], "Izgnaniye 'Satany' iz armii" [Removal of the Satan missile from the armed forces], *Izvestiya*, April 20, 2011.

six strategic submarines of the Project 667BDRM class (*Delta IV*) and on building a fleet of eight new submarines of the Project 955 class.

As part of the Project 667BDRM life extension program, Russia restarted production of R-29RM SLBMs (these newly produced missiles are also known as *Sineva*). By 2011 five of six submarines of this class underwent an overhaul that included equipping them with new missiles. Submarines of this class carry 16 missiles each, with four warheads on a missile. After the overhaul, the submarines could stay in service until about 2020 or potentially somewhat longer, carrying a total of 384 nuclear warheads.

To replace the Project 667BDRM boats as they retire, Russia is building a fleet of submarines of a new Project 955 class. These ships are also known as *Borey* or *Yuri Dolgorukiy* class, after the first boat in the series. These submarines will also carry a new sea-launched ballistic missile, which is known as *Bulava*. When development of *Bulava* began in the late 1990s, it was thought that the first submarine with the new SLBM will enter service in late 2000s. However, the missile development program encountered some technical problems – the missile failed in eight of the first 12 flight tests, conducted in 2005-2009, and only one flight test was considered "fully successful." In 2010, following the series of failures, the military and the defense industry conducted a thorough examination of the missile manufacturing process, which allowed the program to claim success in two launches conducted in 2010. It appears that the primary reason for the failures was the lack of proper quality control at various stages of the manufacturing progress and now that these issues have been addressed the program is back on track. Still, several more test launches are needed before the missile can be accepted for service.[8]

In retrospect, the decision to restart production of the R-29RM missiles helped Russia to preserve its strategic submarine fleet despite the delay with the *Bulava* missile. Without the new production Project 667BDRM submarines would have to carry old missiles that may not have the reliability that is required to support combat patrol operations.[9]

In 2011 the flight test program will continue with launches conducted from the lead submarine of the Project 955 class, *Yuri Dolgorukiy*, which has now completed sea trials and will be ready for the mission in the summer of 2011. Assuming that the flight tests are successful, the first submarine with *Bulava* missiles is likely to enter service in 2012. The current plan envisions that Russia will eventually build eight submarines of this class, which will carry 128 missiles with 768 warheads (at six warheads per missile). Taking into account that the older Project 667BDRM

[8] Yuri Solomonov, "V 2011 predpolagayetsya vypolnit 4-5 puskov BRPL Bulava-Yuri Solomonov" [In 2001 there will be 4-5 Bulava SLBM launches], *ARMS-TASS*, December 20, 2010.

[9] A number of old R-29RM missiles failed during flight tests. "History of missile launches and reliability," *RussianForces.org*, January 6, 2005. Available at: http://russianforces.org/blog/2005/01/history_of_missile_launches_an.shtml.

submarines will likely be withdrawn from service as the new ones are built and that some ships will be in overhaul at any given time, we can estimate that the total number of SLBM warheads in the strategic fleet will not exceed 600, putting it on par with the ICBM force.

Strategic Bombers

Unlike the first two legs of the traditional strategic triad, the long-range aviation will not receive any new systems. Modernization of the strategic bomber fleet is limited to an overhaul of the Tu-160 bombers, which are being equipped with new avionics, and extending service life of the Tu-95MS bombers. Most of these aircraft were built in the 1980s, so with adequate maintenance they could stay in service for more than a decade. As of 2010, Russia's bomber fleet included 13 aircraft of Tu-160 type and 63 Tu-95MS bombers. Nominally, these bombers can carry more than 800 nuclear weapons (air-launched cruise missiles and bombs), but the actual combat load is most certainly smaller. There is virtually no information about service life of the bomber weapons. Since bombers do not normally carry nuclear weapons on board, the New START treaty counts each bomber as carrying a single operationally deployed warhead. This means that the future nuclear reductions are unlikely to affect the composition of the bomber force.

Early Warning and Command and Control

The modernization program is not limited to the offensive strategic triad. Russia is also carrying out a number of programs that would strengthen the infrastructure that supports operations of its nuclear forces. As part of this effort, Russia is undertaking a major upgrade of its network of early-warning radars, which suffered substantial losses as a result of the breakup of the Soviet Union. In 2002 it brought into operation a radar in Baranovichi, Belarus, and in subsequent years it completed construction of two new-generation radars – in Lekhtusi, near St-Petersburg and in Armavir. These radars are expected to begin combat service in the near future. Two more new-generation radars are being built in the Kaliningrad region and near Irkutsk, and one more is planned in Barnaul. The Space Forces, which operate the early-warning system, announced the plan to eventually replace all early-warning radars built in the Soviet Union by radars of new generations.

Russia is also working on replacing its constellation of legacy early-warning satellites with a new system that would provide a comprehensive coverage of key potential missile launch areas. The current space-based early-warning system has been maintained at the level that provides only a limited warning against a potential missile attack, since the satellites cannot maintain 24-hour coverage of the U.S. ICBM launch areas and do not have the capability to detect SLBM launches. The command and control of the strategic forces is also undergoing an upgrade – the Strategic Rocket

Forces are building a "third-generation" system that would expand the capabilities of the current system to include adaptive targeting options.[10]

Although most parameters of the strategic force modernization program have been already set, Russia will have some flexibility in determining the future composition of its strategic nuclear forces. To a large extent, the decisions in this area will depend on whether Russia and the United States manage to maintain the momentum of the nuclear disarmament process and the strategic dialogue that was initiated by the New START treaty. The data released during the New START data exchange showed that Russia is already below the key treaty limits – it has 521 deployed launcher and declared 1537 operationally deployed warheads. The treaty itself does not constrain the Russian modernization – as the estimates above demonstrate, Russia is unlikely to reach the New START limit of 1550 operationally deployed warheads – by the end of the decade it would have about 600 warheads deployed on ICBMs, about 600 warheads on SLBMs, and what would account for 76 warheads assigned to bombers. According to an estimate of the ministry of defense, even if Russia made a deliberate effort to reach the New START ceiling, it would not be able to do so before 2018.[11] As far as strategic launchers are concerned, the New START provisions are even less restrictive. The treaty allows each side to have 700 operationally deployed launchers. In 2020 Russia would have about 200 ICBMs, less than 150 SLBMs, and no more than 76 bombers – for the total of less than 450 launchers. It is unlikely that Russia would try to increase the number of launchers to the New START limit, but should it decide to do so, it would not be able to reach that number until about 2028, primarily because of the constrains on the ability of the industry to produce new launchers.[12]

Depending on the trajectory of the nuclear arms control process, Russia could make several different decisions regarding its strategic forces. If the United States and Russia reach an understanding about the next round of nuclear reductions, Russia could forgo development of the new MIRVed land-based ballistic missile. Combining this with other steps, such as accelerated withdrawal of older missiles and submarines, Russia could easily bring the number of operationally deployed strategic warheads below about 1000 without having to make difficult decisions about the structure of its strategic forces. Alternatively, if the U.S.-Russian relations turn to the worse, whether as a result of a disagreement over U.S. missile defense program or issues related to the New START implementation, the new ICBM program would likely get support of the political and military leadership, since it would be seen as a measure that gives Russia some leverage in negotiations with the United States.

---

[10] "'Third-generation' command and control system," *RussianForces.org*, June 21, 2008. Available at: http://russianforces.org/blog/2008/06/third-generation_command_and_c.shtml

[11] "Serdyukov: RF vyidet na opredlennoe dogovorom SNV chislo raket k 2018 g." [Serdyukov: Russia will reach the New START missile limit by 2018], *RIA-Novosti*, January 14, 2011.

[12] *Ibid*.

Missile Defense

Missile defense has a long history in the U.S.-Soviet and U.S.-Russian relationship. The current controversy can be traced back to the U.S. Strategic Defense Initiative program, also known as Star Wars, which played an important role in the U.S.-Soviet relationships in the last years of the Cold War. The way that the U.S. missile program is perceived in Russia was largely formed at that time, when this program was explicitly directed against the Soviet strategic forces. Although the scale and the goal of the U.S. missile defense program have changed dramatically since the Star Wars days, several key elements of the discussion held at that time still determine the way Russia views the U.S. missile defense developments.

First of all, Russia invariably considers the U.S. missile defense program to be an effort to undermine the deterrent capability of Russian strategic forces. Although the United States emphasizes that its current missile defense system is directed against limited threats from third countries and would not be able to intercept Russian ballistic missiles, most Russian officials and experts treat these assurances with considerable skepticism. Partly this is explained by a different view of emerging missile threats and of the way proliferation of ballistic missile technologies affects the security environment. Russia has consistently argued that third countries are not yet capable of building intercontinental ballistic missiles that could pose a realistic threat to the United States and therefore the U.S. efforts to build a missile defense system are in fact directed against Russian ICBMs. As far as ICBM capabilities of third countries are concerned, Russia's point of view has considerable merit, although it tends to dismiss the U.S. argument that it needs to have an efficient missile defense before the missile threat materializes. This partly explains why the United States and Russia differ in their view of the current U.S. missile defense effort.

Another important element of Russia's position on missile defense is the emphasis on the destabilizing potential of the U.S. program. According to this line of arguments, deployment of U.S. missile defense system would undermine the strategic balance that exists between the offensive forces of the two countries. This means that to preserve the balance, both sides should agree to limit capabilities of their missile defenses. It was the logic behind the ABM treaty that limited missile defenses after 1972 and Russia has always insisted that the treaty was an essential element of the strategic relationship in which it played the role of a "cornerstone of strategic stability." When the United States withdrew from the ABM treaty in 2002, Russia considered this step as a sign of U.S. determination to gain a

unilateral strategic advantage by escaping the limits on missile defense deployment.

Finally, despite the overall negative attitude toward the U.S. missile defense effort, Russia has always been open to the idea of cooperation with the United States in this area. Most advocates of cooperation argued that since a joint missile defense would require unprecedented exchange of technologies and data, it would help move the U.S.-Russian relationship from the cold-war style mutual deterrence to a partnership. Russia also believed that if missile defense is implemented as a cooperative project, Russian defense industry could make a significant contribution in the form of technologies and infrastructure. A more realistic view of cooperation on missile defense assumes that by taking part in the U.S.-led program Russia could have better understanding of the scale and direction of U.S. missile defense effort and could have some influence over the U.S. plans. The idea of missile defense cooperation has been supported by the political leadership in both countries as well as by NATO countries. It remains to be seen, however, whether that political support will be translated into practical steps and whether it could improve relations between Russia, the United States, and NATO.

All these considerations played a very important role in shaping the Russian strategic modernization program and in determining Russia's position during the New START negotiations. The future of arms control process will also depend on whether the United States and Russia find a way to deal with the issue of missile defense in a manner that would reconcile the U.S. intent to continue development of the defensive systems and Russia's concerns about it. In the past several years both sides made significant progress in addressing their differences, but major disagreements remain.

At the center of the current disagreement is the U.S. plan to deploy a missile defense system in Europe. This plan was originally developed by the Bush administration, which considered it an essential element of the national defense that was supposed to protect the U.S. territory from an intercontinental ballistic missile attack from Iran. The European missile defense site was known as the "Third site," since it was supposed to augment the first two that were created on the U.S. territory – in California and Alaska.[13] The plan called for deployment of a battery of ten ground-based interceptors in Poland and of an X-band radar in Czech Republic. As the United States began negotiations with the host countries, Russia registered its strong opposition to the plan, arguing that no threat of an ICBM attack from the Middle East existed and that the true goal of the

[13] "Global Ballistic Missile Defense. A Layered Integrated Defense," BMDS Booklet, Fourth Edition, U.S. Missile Defense Agency, April 2006.

system was to undermine the deterrence potential of the Russian strategic forces.[14]

As a result of the strong reaction from Russia and some concerns expressed by NATO about the lack of consultation in the decision-making process regarding deployment of the Third site, the United States somewhat expanded the mission to include protection of some of the territory of Europe from a short- to intermediate-range missile attack. The Missile Defense Agency argued that Poland and Czech Republic "are the optimal locations for fielding U.S. missile defense assets in Europe [since this placement] maximizes defensive coverage of Europe from ballistic missiles launched from the Middle East."[15] This statement, however, was not technically correct, since the combination of the radar in Czech Republic and the Ground Based Interceptor in Poland, did not provide adequate protection of Europe from intermediate-range missiles from Iran.[16] This only added to the concerns expressed by Russia, which insisted that the system could upset the U.S.-Russian strategic balance. Russia openly disagreed with the U.S. threat assessment and pointed out that without agreed limits on missile defense the United States could use the infrastructure of the Third site to expand the system far beyond its initial capabilities. Russia also made an attempt to suggest a cooperative approach to missile defense offering to contribute its early-warning radars to a common threat monitoring network.[17] The United States did not pursue this offer, arguing that it is aimed at slowing down its deployment plan. Eventually, since the U.S. approach to the European site did not take into account any of the Russian traditional concerns about missile defense, this issue became the focus of various disagreements between Russia and the United States, resulting in serious deterioration of the bilateral relationship by the end of the Bush administration term.

The Obama administration policies regarding missile defense and the U.S.-Russian relationships in general helped correct the situation, restoring a constructive dialogue. Very early on, the new administration committed itself to resuming arms control negotiations with Russia, thereby confirming the importance of strategic stability for the bilateral relationship. Furthermore, in September 2009 the administration cancelled the controversial plan to deploy the third missile defense site in Europe. Instead, the U.S. program in Europe was oriented toward countering the threat of shorter-range missiles against U.S. military assets in Europe.[18]

---

[14] General Yu. N. Baluyevsky and First Deputy Minister of Foreign Affairs S. I. Kislyak, Stenogramma brifinga [Transcript of a briefing], *RIA Novosti*, June 25, 2007.

[15] Lieutenant General Trey Obering, "Missile Defense For U.S. Allies And Friends," Missile Defense Agency, March 2007.

[16] Dean Wilkening, "A Phased Adaptive Missile Defense for Europe," Presentation at the Eleventh RUSI Missile Defense Conference: Refocusing European Missile Defense, Royal United Services Institute for Defence and Security Studies (RUSI), London, May 26-27, 2010.

[17] Edwin Chen and Brendan Murray, "Putin Offers Bush Azerbaijan Site for Missile Plan," *Bloomberg News*, June 7, 2007.

[18] The system would also provide defense of the U.S. allies in Europe. However, this would require that the U.S. system worked "in concert with [NATO allies]

Even though the United States emphasized that these changes were not made to placate Russia, it was clear that Russia's opposition played an important role in the decision. The United States also confirmed its interest in cooperating with Russia on threat assessment and missile defense and initiated high-level consultations on this issue. Also, NATO officially invited Russia to participate in its European missile defense program and Russia reacted positively to that invitation.[19]

In another important development, the United States agreed to consider the relationship between offensive and defensive forces in the New START treaty. Russia apparently wanted the treaty to include some limit on missile defenses, such as a ban on deployment of elements of missile defense outside national territories, but the United States strongly objected to any provisions of this kind.[20] The solution that satisfied Russia was to include in the treaty preamble a statement that recognized "the existence of the interrelationship between strategic offensive arms and strategic defensive arms, that this interrelationship will become more important as strategic nuclear arms are reduced."[21] Additionally, Russia made a unilateral statement in which it reserved the right to withdraw from the treaty if "a build-up in the missile defense system capabilities of the United States of America […] it would give rise to a threat to the strategic nuclear force potential of the Russian Federation."[22]

According to the U.S. interpretation of these provisions, none of them restricts the missile defense program in a legally binding way. From Russia's point of view, however, these measures restored a degree of control over future missile defense developments. Now that the New START treaty contains an agreed statement that recognizes the link between offense and defense, Russia would be able to appeal to that statement to justify decisions regarding its strategic forces, such as a decision to proceed with development of the new MIRVed ICBM. The relationship between offense and defense recognized in the New START treaty would also complicate further nuclear reductions. The New START ratification discussion in the United States demonstrated that the missile defense program ranks very high on the list of U.S. national security priorities and it is highly unlikely that the threat of Russia's withdrawal from

---

missile defense capabilities." "A 'Phased, Adaptive Approach' for Missile Defense in Europe," Fact Sheet on U.S. Missile Defense Policy, The White House, September 17, 2009.

[19] "Lisbon Summit Declaration. Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Lisbon," NATO Press Release (2010) 155, November 20, 2010. Dmitry Medvedev, "Presidential Address to the Federal Assembly of the Russian Federation," November 30, 2010.

[20] Anatoly Antonov, "Statement at the Third Session of the Preparatory Committee for the 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons," New York, May 4, 2009.

[21] Treaty Between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, Preamble, April 8, 2010. Available at: http://www.state.gov/documents/organization/140035.pdf.

[22] "Statement of the Russian Federation Concerning Missile Defense," April 8, 2010. Available at: http://www.state.gov/t/avc/rls/140187.htm.

New START or the need to support the next round of nuclear reductions would force U.S. leadership to reconsider its approach to missile defense.

The differences in approach to missile defense in Russia and the United States guarantee that it will remain a contentious issue in the bilateral relationship. One way of dealing with this controversy is to take advantage of the potential for cooperation that exists in the field. As discussed above, Russia has traditionally expressed significant interest in cooperation on various aspects of the problem – from threat assessment to direct participation in development of technology. The United States never formally rejected the idea, but its practical implementation has been difficult, primarily because of the differences in understanding of the substance and goals of cooperative programs. In addition, the two countries have never been able to find a proper institutional framework for missile defense cooperation.[23]

The recent decisions on the European defense system, in particular the change from the Third site to the Phased Adaptive Approach, may have changed this situation. First of all, the current U.S. administration clearly recognizes the value of consultations on threat assessment, which Russia always believed should be the first step in any joint missile defense work. Most importantly, the current round of consultations involved discussions of specific missile programs, the Iranian one in particular.[24] Then, the United States indicated that it would seriously consider the Russian proposal to use its early-warning radars as an element of a missile threat monitoring system. Finally, the new structure of the U.S. missile defense program provides NATO with a distinct role in creating a European missile defense.[25] The NATO-Russia institutions could therefore provide a mechanism of formal Russia's participation in the work on missile defense in Europe. At the November 2010 summit in Lisbon, NATO formally invited Russia to participate in the missile defense development. Russia accepted the invitation and the two sides committed to produce a document that would outline various cooperation options by June 2011.

Initial consultations demonstrated that there are serious disagreements about how the joint work on missile defense should be structured. Russia suggested a so-called "sector defense" in which each side is responsible for protecting its own territory – a proposal that is clearly aimed at limiting the capability of the U.S.-NATO system to reach missiles launched from the Russian territory. This proposal might not be compatible with the architecture developed by the United States and NATO, for it would require limiting the capability of the U.S.-NATO system in a way that it would not be able to reach missiles launched from Russia. Also, Russia wants closer control over operations of the defensive systems, while the

[23] Pavel Podvig, "U.S.-Russian Cooperation in Missile Defense: Is It Really Possible?" *PONARS Policy Memo Series*, no. 316, April 2003.
[24] William J. Broad, James Glanz and David E. Sanger, "Iran Fortifies Its Arsenal With the Aid of North Korea," *The New York Times*, November 28, 2010.
[25] James Miller, "Remarks at the 11th Royal United Services Institute for Defence and Security Studies (RUSI) Missile Defence Conference," London, May 27, 2010.

United States and NATO insist on preserving the autonomy of their systems.[26]

Even if Russia and the United States and NATO failed to build a joint missile defense, their cooperation in this area would still help advance the arms control dialogue and improve relations between the United States and its NATO allies and Russia. The true value of cooperative programs is in their ability to create institutions that help build confidence, advance mutual understanding, and strengthen trust between the participants. From this point of view, the success of the program does not critically depend on the details of the configuration of the missile defense system that it might produce. The cooperation will have achieved its goal if it allows the two sides to better understand the nature of missile threats and the limits of missile defense in addressing them. The New START preamble, in addition to the statement that recognizes the interrelationship between offense and defense, contains a statement in which the United States and Russia agreed that currently deployed defense systems do not pose a threat to offensive forces. Given the inherent limitations of missile defense, this statement would remain true even at very low levels of offensive forces. If Russia and the United States work together on various aspects of missile defenses they will be able to confirm that understanding again, opening the way toward deeper reductions of nuclear arsenal.

[26] Simone Baribeau and Henry Meyer, "Ivanov Says Russia Wants 'Red-Button' Rights on U.S. Missile-Defense Plan," *Bloomberg News*, April 8, 2011. "Obama urged to limit Russia missile shield sway," *AFP*, April 14, 2011.

Tactical Nuclear Weapons

By agreeing to reduce their strategic nuclear arsenals to the level of 1550 operationally deployed warheads, the United States and Russia reached the point where they could no longer ignore non-strategic nuclear weapons, which are not covered by the New START treaty. The U.S. tactical nuclear arsenal is relatively small – it is estimated that the United States has about 500 warheads. About 150-200 of these warheads are deployed in Europe.[27] Russia maintains a larger non-strategic arsenal – it is believed to have about 2,000 nuclear weapons assigned to operational units and a significant number of warheads in reserve.[28] Given that disparity between the two arsenals and the size of the Russian force, it is clear that the next round of nuclear disarmament negotiations would have to address the issue. Indeed, the U.S. Nuclear Posture Review, completed in February 2010, stated that the United States would have to "address non-strategic nuclear weapons, together with the non-deployed nuclear weapons of both sides, in any post-New START negotiations with Russia."[29] Shortly after ratification of the New START treaty, the U.S. administration announced its intent to seek negotiations with Russia on tactical nuclear forces.[30]

Russia's reaction to the U.S. statements indicated that beginning of negotiations on tactical warheads, not to mention reaching an agreement that would limits this class of weapons, would be an extremely difficult task. In their statements, Russian officials stated that they see the issue of tactical nuclear weapon as part of a broader strategic stability agenda that should include negotiations on missile defense, weapons in space, nuclear forces of other countries, and disparity in conventional forces. Also, Russia confirmed its long-standing position of insisting on withdrawal of U.S. tactical nuclear weapons from Europe before initiating any discussions on the future of these weapons.[31]

Some of Russia's conditions reflect the difference in priorities in the arms control process – indeed, the U.S. arsenal of tactical nuclear weapons does not present a serious security threat for Russia, which is more

[27] Robert S. Norris and Hans M. Kristensen, "U.S. Nuclear Forces, 2010," *Bulletin of the Atomic Scientists*, vol. 66, no. 3, May 2010, pp. 57-71.
[28] Robert S. Norris and Hans M. Kristensen, "Russian Nuclear Forces, 2010," *Bulletin of the Atomic Scientists*, vol. 66, no. 1, January 2010, pp. 74-81.
[29] *Nuclear Posture* Review *Report*, Department of Defense, April 2010, p. xi.
[30] Rose Gottemoeller, "2011 Opening Statement to the Conference on Disarmament," Geneva, January 27, 2011.
[31] "Presentation and answers of the Minister of Foreign Affairs Sergei Lavrov at a press conference," Moscow, January 13, 2011.

concerned about broader strategic stability issues, whether it is missile defense or conventional balance. Also, they pose a significant challenge to NATO, whose members have different opinions on whether the U.S. nuclear weapons should stay in Europe. This issue has been debated during development of the new NATO strategic concept, but in the end the alliance confirmed its commitment to preserving the presence of U.S. nuclear weapons there.[32] Unless the alliance agrees to withdraw U.S. weapons from Europe unilaterally, Russia would be able to avoid any substantive discussion of the issue by insisting that withdrawal should precede any negotiations.

For Russia, tactical nuclear weapons seem to play a number of different roles. It is widely assumed that Russia needs its tactical nuclear weapons to compensate for the disparity in the capabilities of conventional forces between Russia and NATO or, as some would argue, between Russia and China.[33] However, there is virtually no reliable evidence that would suggest that Russia indeed relies on tactical nuclear weapons in its military planning. The military as well as civilian experts do not normally discuss any specific scenarios that would suggest that tactical nuclear weapons have some military utility, whether in the context of its relations with NATO or in the context of a potential conflict with China. Military exercises do indicate that Russia believes that nuclear weapons could play a role in terminating or de-escalating a conventional conflict in which Russian forces are overwhelmed by a superior adversary. However, the use of nuclear weapons in that case is clearly considered to be a means of sending a strategic signal rather than compensating for the inferiority of conventional forces. In fact, in one of the most prominent exercises that demonstrated this capability, *Zapad-99*, the de-escalatory strike was delivered by a Tu-95MS strategic bomber.[34]

Another role that these weapons appear to play is that of a political leverage in relationship with the United States and NATO. As indicated above, Russia is open to using this leverage in arms control negotiations. It has also demonstrated that it is willing to use the uncertainty that surrounds Russia's tactical nuclear arsenal to send signals to the West by redeploying or threatening to redeploy nuclear capable weapon systems in response to certain developments. For example, in 2008, Russia threatened to move its short-range *Iskander* missiles, which are believed to be nuclear capable, to the Kaliningrad region in response to the expected deployment of missile defense system in Europe.[35] The stated mission of these missiles was to

[32] North Atlantic Treaty Organization, *Active Engagement, Modern Defence. Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organization*, 2010.

[33] Fu Lai and Liu Yupeng, "Russian experts clash over 'China threat,'" *China.org.cn*, August 17, 2010. Available at: http://www.china.org.cn/opinion/2010-08/17/content_20728431.htm.

[34] Gunnar Arbman, Charles Thornton, "Russia's Tactical Nuclear Weapons, Part II: Technical Issues and Policy Recommendations," Swedish Defence Research Agency Report FOI-R—1588--SE, February 2005, p. 26.

[35] Dmitri Medvedev, President of Russia, Address to the Federal Assembly of Russian Federation, 5 November 2008.

hold the missile defense facilities at risk, which is a clearly political gesture with virtually no military value.

Finally, most of tactical nuclear weapon systems in Russia's arsenals are legacy weapons, built and deployed during the Cold War. Some of them may not have a clear mission today, even though they are still considered part of the active force. For example, out of the estimated 2,000 weapons in active arsenal, about 600 are believed to be assigned to air-defense units, the value of which in modern combat is highly questionable.

The lack of clear mission for tactical nuclear weapons was reflected in the new military doctrine, which was formally adopted in February 2010. Although the new document specifies that Russia could use nuclear weapons in response to a conventional attack, the range of circumstances in which they would be used is rather limited – the attack would have to be directed against Russia and it would have to "threaten the very existence of the state."[36] Previous doctrine, adopted in 2000, specified that nuclear weapons could be used in response to a conventional aggression "in situations critical to the national security of the Russian Federation."[37] The course of discussion of the new doctrine indicated that the changes that were introduced in the 2010 document were quite deliberate – earlier versions of the document apparently included regional and local conflicts in the range of scenarios in which Russia could consider using its nuclear weapons.[38] Doctrinal provisions notwithstanding, the notion that tactical nuclear weapons could compensate for the inferiority of Russia's conventional forces remains very popular in Russia. At the same time, the result of the discussion of the military doctrine shows that the role of tactical nuclear weapons may not be as pronounced as it is usually assumed.

The military modernization program also does not seem to have tactical nuclear systems among its priorities. Although details of the state armament program have not been disclosed, the information that is publicly available strongly suggests that the modernization effort is focused on conventional weapon systems and strategic nuclear forces.

The limited role of tactical nuclear weapons does not necessarily mean that Russia would be willing to consider significant reductions of this part of its nuclear arsenal. As noted above, there are no strong incentives for it to do so and in any event, Russia would probably try to use its arsenal of non-strategic warheads as a leverage in discussions on a range of security issues – from conventional forces in Europe to missile defense.

---

[36] "Voyennaya doktrina Rossiiskoi Federatsii," [Military doctrine of the Russian Federation], February 5, 2010.
[37] "Voyennaya doktrina Rossiiskoi Federatsii," [Military doctrine of the Russian Federation], April 21, 2000.
[38] V. Mamontov, "Menyaetsya Rossiya, menyaetsya i ee voyennaya doktrina" [Russia is changing, its nuclear doctrine is changing too], *Izvestiya*, October 14, 2009.

This does not mean, however, that tactical arsenals cannot be included in the arms control process.

One proposal that has been widely discussed in the context of post-New START disarmament talks would establish a common ceiling for the total number of warheads, allowing each country to choose the appropriate mix of tactical and strategic warheads.[39] This proposal apparently assumes that Russia values its tactical nuclear arsenal and therefore would choose to preserve its advantage in this category of weapons over the United States. This assumption, however, seems to be incorrect – as discussed above, non-strategic nuclear weapons do not play a large role in Russia's military planning. So, instead of providing Russia with incentives to further decrease that role, this proposal would have an opposite effect, signaling to Russia that its tactical nuclear weapons have a legitimate military mission.

An alternative way of including tactical arsenals in nuclear reductions, the one that would seek to downplay the role of tactical weapons, would build on the commitments that were made by the United States and Russia as part of the unilateral presidential initiatives in 1991-1992. These initiatives removed most tactical nuclear warheads from operationally deployed units and eliminated a significant portion of these warheads.[40] One of the commitments made at the time was to consolidate all tactical nuclear weapons at centralized storage facilities. Russian officials have repeatedly stated that this has indeed been done and that no non-strategic warheads are operationally deployed with active units.[41] The United States and its NATO allies could offer Russia some reciprocal transparency measures that would allow all countries to verify consolidation of their tactical nuclear weapons at a small number of centralized storage facilities. This way, arms control process would help further decrease the role of tactical nuclear weapons in military planning.

[39] "Pursuing the Prague Agenda: An Interview With White House Coordinator Gary Samore," *Arms Control Today*, May 3, 2011, p. 8.
[40] Joshua Handler "The 1991-1992 PNIs and the Elimination, Storage, and Security of Tactical Nuclear Weapons," in Brian Alexander and Alistair Millar, eds., *Tactical Nuclear Weapons: Emergent Threats in an Evolving Security Environment*, Washington, Brassey's, 2003, pp. 20-41.
[41] "Interview with Sergei Ivanov at the Munich Security Conference," *Prime-TASS*, February 7, 2011.

Conclusion

It is too early to tell whether Russia and the United States could find a mutually acceptable approach to the issues outlined here. If Russia's modernization program proceeds as planned with deployment of multiple-warhead ICBMs, this will definitely raise questions and concerns in the United States. On the other hand, if the United States and NATO fail to engage Russia on missile defense, it would be Russia who would be expressing concerns and taking steps to strengthen its nuclear forces. The issues surrounding tactical nuclear weapons leave enough room for disagreement on both sides. At the same time, this stage of nuclear dialogue between Russia and the United States, marked by the success of the New START negotiations, is a very important milestone on the way toward reducing the role of nuclear weapons in their relationship and toward allowing deeper reductions of their nuclear arsenals.

The key achievement of the New START process was the development of a legal and institutional framework of nuclear relationships between Russia and the United States. By including the language on missile defense and some restrictions on conventionally armed strategic launchers, the treaty provides Russia with a degree of assurance that the United States does not seek to upset strategic stability.[42] If Russia and the United States would use the treaty framework to strengthen these assurances – whether on missile defense or other issues – this would allow Russia to critically evaluate the focus on the United States in its nuclear policy. This would further decrease the role of nuclear weapons in the U.S.-Russian bilateral relationship and would make deeper nuclear reductions possible. It could also reduce the salience of nuclear weapons in Russia's security policy by facilitating a change that would de-emphasize traditional Cold War-type threats and turn the attention of Russia's leadership toward the more urgent emerging threats to national security, which cannot be countered with nuclear weapons.

The nuclear arms control framework that is created by the U.S.-Russian disarmament process could also help address Russia's longer term concerns about China's growing military power. It provides an opportunity to bring China (as well as other nuclear weapon states) into the nuclear disarmament process at the early stage and to prevent militarization of the relationship between the two countries. Given the obvious disparities in their economic potentials, this course of action would benefit Russia in the long term.

---

[42] Pavel Podvig, "Instrumental Influences -- Russia and the 2010 Nuclear Posture Review," *The Nonproliferation Review*, vol. 18, no. 1, March 2011, pp. 39-50.

Information

All published issues of the Proliferation Papers series can be downloaded from the Ifri website.

www.ifri.org

The latest contributions include :

- David S. Yost, “Strategic Stability in the Cold War: Lessons for Continuing Challenges”, *Proliferation Papers*, No. 36, Winter 2011. http://www.ifri.org/downloads/pp36yost.pdf

- Charles D. Ferguson, “Potential Strategic Consequences of the Nuclear Energy Revival”, *Proliferation Papers*, No. 35, Summer 2010. http://www.ifri.org/downloads/pp35ferguson.pdf

- Jing-dong Yuan, “Chinese Perceptions of the Utility of Nuclear Weapons: Prospects and Potential Problems in Disarmament”, *Proliferation Papers*, No. 34, Spring 2010. http://www.ifri.org/downloads/pp34yuan.pdf

- Jonathan D. Pollack, “North Korea’s Nuclear Weapons Development: Implications for Future Policy”, *Proliferation Papers*, No. 33, Spring 2010. http://www.ifri.org/downloads/pp33pollack.pdf

- Bobo Lo, “Russia, China and the United States: From Strategic Triangularism to the Post-modern Triangle”, *Proliferation Papers*, No. 32, Winter 2010. http://www.ifri.org/downloads/pp32bobolo_1.pdf

- William C. Potter, “In Search of the Nuclear Taboo: Past, Present, and Future”, *Proliferation Papers*, No. 31, Winter 2010. http://www.ifri.org/downloads/pp31potter.pdf

For further information on the *Proliferation Papers* collection, please feel free to contact Ifri’s Security Studies Center: strategie@ifri.org.