A Russian Perspective on Cooperation Threat Reduction

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I. Introduction: Russia as a Key Actor in International Threat Reduction Cooperation

The international community shares the common belief that terrorists' use of weapons or materials of mass destruction is one of the gravest threats to global security. This perspective was first formally acknowledged in United Nations Security Council resolution 1540 in April 2004 and has since been followed by the February 2005 U.S.-Russian Bratislava agreement and the April 2005 U.N. International Convention on the Suppression of Acts of Nuclear Terrorism. These initiatives were adopted as a result of joint efforts by the world's leading nations, particularly the United States and Russia.[1] U.N. resolution 1540, which calls for securing nuclear weapons, materials, and technologies, requires all states to criminalize proliferation, enact strict export controls, and secure sensitive materials within their borders. The Bratislava agreement calls for increased cooperation to secure nuclear stockpiles in Russia, and for joint U.S.-Russian leadership to secure nuclear weapons and materials elsewhere around the world. Finally, the Russian-proposed U.N. Convention on the Suppression of Acts of Nuclear Terrorism obliges governments to punish those who illegally possess atomic devices or radioactive materials.

Both the United States and Russia have suffered from terrorist attacks. The tragic events of September 11, 2001, changed the United States and cast terrorists' intentions and capabilities in a different light. Russia has a long history of experience with terrorism, which has become more violent in recent years. When more than 1,000 civilians were taken hostage in September 2004 in Beslan—which resulted in the death of 331 people, 186 of whom were children—terrorism moved to the top of Russia's security agenda. Both the scale of these events and the

1. United Nations Security Council resolution 1540, April 2004, http://daccessdds.un.org/doc/UNDOC/GEN/N04/328/43/PDF/N0432843.pdf?OpenElement; and United Nations International Convention for the Suppression of Acts of Nuclear Terrorism, April 2005, http://untreaty.un.org/English/Terrorism/English_18_15.pdf.

statements made by terrorist ring leaders suggest that terrorists are increasing their readiness to employ weapons of mass destruction (WMD) to achieve their goals.

The dangerously low level of security of WMD materials in Russia exacerbates the threat of nuclear terrorism on Russian soil. Fortunately, terrorists have not yet carried out an attack using nuclear weapons or materials stolen from Russian stockpiles, or against Russian nuclear facilities. It would be a mistake, however, to take the security of weapons and materials of mass destruction in Russia for granted. In the early 1990s, the United States and Russia demonstrated their awareness of the danger posed by inadequately secured Russian weapons and materials by initiating bilateral cooperation for nuclear threat reduction. While significant success has been achieved and nuclear materials and weapons in Russia are much more secure than before, there is still a lot of work to do. The latest in a series of authoritative reports analyzing U.S. nuclear security assistance to Russia concluded that "the on-the-ground progress in securing, consolidating, and eliminating nuclear stockpiles in the last year remained slow, when compared to the urgency of the threat."[2]

Increases in the number of terrorist attacks in recent years underscore this urgency. Russian authorities clearly recognize the connection between terrorism and the threat to nuclear materials, weapons, and facilities. After two passenger airplanes were simultaneously blown up by terrorists in southern Russia in August 2004, protection at nuclear facilities across Russia increased.[3] Indeed, such an increase usually follows an act of terrorism in Russia or other crises (such as events in Iraq) outside Russia.

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2. Matthew Bunn and Anthony Wier, *Securing the Bomb 2005: The New Global Imperatives* (Cambridge, Mass., and Washington, D.C.: Project on Managing the Atom, Harvard University, and Nuclear Threat Initiative, May 2005), p. v.
3. "Rossiiskie Energoob'ekty Vzyaty pod Usilennuyu Okhranu" [Russian energy facilities are put under increased protection], *RIA Novosti*, September 1, 2004.

Since its inception, international assistance to Russia in the area of nuclear nonproliferation has always been subject to peer review from government analysts, academic communities, and nongovernmental organization (NGO) experts in both the United States and Russia, as well as in third countries involved in nonproliferation assistance (though to a lesser extent). A significant imbalance exists, however, in the coverage of cooperative efforts. Although many reports address the U.S. perspective on nuclear security in Russia and general problems of U.S.-Russian nonproliferation cooperation, little is known about Russia's own efforts in this area, including threat perception in Russia, Russia's interests in the threat reduction partnership, and Russia's attempts at raising the effectiveness of U.S.-Russian cooperation in this sphere.

The success of the whole range of nonproliferation efforts in Russia is highly dependent on Russia's own contribution to these efforts. Before the members of the G-8 established the Global Partnership against the Spread of Weapons and Materials of Mass Destruction action plan (henceforth the Global Partnership), one of Russia's main complaints with regard to nonproliferation assistance was the donor-recipient model of partnership that did not give proper attention to Russia's position. The "Guidelines for New or Expanded Cooperation Projects"—adopted by the G-8 in Kananaskis in June 2002 and subsequently supported by a number of other states—notes that Russia "maintains primary responsibility for implementing its obligations and requirements within the Partnership."[4] This marks, at least at a declaratory level, a long-anticipated shift from donor-recipient relations to joint partnership in global threat reduction efforts.

4. Statement by G-8 leaders, "The G-8 Global Partnership: Guidelines for New or Expanded Cooperation Projects," in *The G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction*, Kananaskis, Canada, June 27, 2002, http://www.g7.utoronto.ca/summit/2002kananaskis/arms.html.

In addition to the Global Partnership, a number of other factors determine the importance of active Russian participation in joint threat reduction efforts, and highlight the need for a thorough analysis of Russia's own efforts, including Russia's vision and influence on cooperative threat reduction (CTR), issues of domestic sustainability, and a model for threat reduction partnership worldwide. Among these issues, domestic sustainability is the most significant. Sustainability, which broadly denotes a state of sustainable long-term maintenance and the further development of joint U.S.-Russian cooperation to secure nuclear weapons, materials, and facilities, would be the most tangible result of U.S.-Russian threat reduction cooperation. To a large extent, this is affected by Russia's vision and influence on cooperative threat reduction and its desire to set an example for global efforts.

Goal of this Report

While the ultimate goal of cooperative threat reduction is sustainable nuclear security implemented through Russian domestic measures, it is important to note that the majority of nuclear security efforts will continue to be funded by foreign sources for the foreseeable future. From my point of view, however, equal partnership within the framework of international threat reduction efforts in Russia is in fact possible *without* equal financial contributions from Russia (though the Russian funding commitment within the Global Partnership is second only to what has been pledged by the United States). Moreover, diminishing the importance of foreign assistance (including the G-8 "10 plus 10 over 10" initiative) would contradict the very spirit of cooperative threat reduction efforts. True partnership implies equal appreciation of every

contribution made with the full understanding of its aim and the challenges to be resolved through the contribution.

Therefore, the main goal of this report is both to analyze the current status of Russian domestic nuclear security efforts as well as the Russian perception of the efforts, and to provide recommendations for the following two areas. First, Russia's efforts to most effectively use the foreign assistance provided within the framework of cooperative threat reduction efforts—including the Global Partnership—and bilateral assistance programs: the environment for cooperation (in a broad sense) is considered, including political attitudes, priorities, appropriate legislation and institutional structure, and personnel issues. Second, domestic measures to increase nuclear security in Russia: issues of threat perception, domestic funding, nuclear security related legislation and regulations, appropriate infrastructure, and security culture are considered.

While I distinguish between these two areas, it is necessary to bear in mind that they overlap and supplement each other. Most aspects of threat reduction efforts in this report are universally applicable to both of these areas.

Scope of this Report

This report avoids focusing in a systematic manner on specific programs within the framework of Russia's international nonproliferation cooperation. Instead, it analyzes major determinants of the current status of cooperative threat reduction in political, legal, organizational, and financial areas. While this report concentrates specifically on nuclear WMD in Russia, Russia's domestic approach to the problem of nuclear terrorism, and its position on the issue of nonproliferation

cooperation, most of the ideas presented here have broader applicability, including those that relate to chemical and biological WMD, as well as to potential other countries of concern.

Taking into account the sustainability components introduced above, the chapters of this report address the following issues, which are important to understanding Russia's role and contribution to threat reduction cooperation:

Threat Perception

Essentially, threat perception should find its realization in the declared goals of threat reduction cooperation. Knowledge of Russia's threat perception would yield a deeper understanding of the motives and constraints that form Russia's policy in the area of nuclear security cooperation and the attitude of personnel involved in practical activities. Understanding this issue is important to avoid tensions and for forming more effective cooperation.

Nuclear Security Culture

This chapter is intended to analyze the human resources involved in threat reduction efforts, ranging from the president and others involved in decisionmaking on the issues of concern, to employees of nuclear facilities involved in day-to-day work with nuclear materials. Major factors that determine the activity of individuals or groups involved in threat reduction efforts will be considered. These factors are relevant both to the effectiveness of international cooperation and to Russia's domestic programs to ensure nuclear security.

Questions of Sustainability

This chapter is devoted to two major groups of issues: the first being the tools and mechanisms necessary to ensure sustainable nuclear security, as well as effective implementation of international cooperative efforts; and the second being those issues pertinent to the implementation of international projects, such as issues of access, liability, and tax exemptions.

Constraints to International Threat Reduction Cooperation

This chapter analyzes five factors that impact the entire range of cooperative threat reduction programs: (1) the legal basis for international cooperation; (2) tax exemption of funding appropriated by foreign donors; (3) liability for nuclear damage; (4) access to sensitive facilities to verify appropriate use of foreign assistance; and (5) reciprocity.

This report is not complete or comprehensive. It represents an attempt to provide another perspective on cooperative threat reduction and Russia's role in it. This report also highlights other areas for possible cooperation that have been overlooked in the past and have the potential to significantly increase the effectiveness of threat reduction efforts.

Russia's Vision and Influence on Cooperative Threat Reduction

The Russian nuclear industry is at the center of international nonproliferation assistance to Russia. At the same time, this nuclear weapons complex is the main focus of Russia's own national security efforts. Therefore, it is impossible to successfully implement projects in the areas pertinent to Russian national security without extensive interaction with, and significant contributions from, the Russian government. Moreover, the success of the U.S.-Russian

partnership depends to a great extent on the existing environment in Russia and is largely defined by Russian authorities. This environment comprises a mix of political, legal, and organizational aspects relevant to threat reduction cooperation.

The Russian approach to cooperative threat reduction partnership is the sole authority of the Russian government, although foreign experience, advice, and support can significantly contribute to domestic efforts and pave the way toward this goal. The Russian government can also improve the environment for partnership and raise the effectiveness of the threat reduction partnership, even without an increase in funding.

Finally, it is necessary to take into account Russia's specific interests and concerns that prevent unrestrained cooperation in some areas. While the United States and Russia are pursuing the same goal of preventing proliferation and reducing the threat of WMD , both parties must still maintain their respective national security interests, such as the need to maintain both a reliable nuclear deterrence and commercially applicable technologies developed in the weapons industry. Knowledge and reasonable appreciation of such interests and concerns may help adjust threat reduction programs to avoid complications resulting from a misperception of the partner's intentions and the real aim of its activity.

Issues of Domestic Sustainability

To date, the lion's share of improvements in the area of nuclear security—such as upgrades of material protection, control, and accounting (MPC&A) systems at Russian nuclear facilities; the disposition of weapons-usable nuclear materials; and job creation in Russian closed cities—have been funded by the United States and other members of the international community. After the

G-8 Global Partnership was initiated in June 2002, Russia pledged $2 billion for these purposes. The actual sum of regular Russian budgetary and nonbudgetary expenditures, as well as in-kind contributions for nonproliferation-related activity, however, is unclear. Nonetheless, knowledge of Russia's contributions to its nuclear security—which include both financial and in-kind contributions—can assist researchers to better assess the scale of the problem and affirm Russia's commitment to nonproliferation goals.

The main issue, quite simply, is that international assistance will eventually cease. The primary concern, therefore, is whether Russia will be able to maintain the results achieved within the framework of internationally funded projects on its own. Will Russia be able to ensure reliable operation and maintenance of installed MPC&A equipment and its renovation, and also pay operators' salaries? To achieve sustainability, the following requirements are necessary: the goals of the effort should be clearly stated and realized; resources should be readily available to achieve these goals; and everyone involved in the effort should be held accountable for his/her actions.

At a December 2003 Russian Security Council meeting devoted to issues of nonproliferation, President Vladimir Putin noted that despite the presence of some vital elements of domestic nonproliferation infrastructure such as export control, Russia does not have a comprehensive system necessary to meet the above-mentioned challenges.[5] He drew particular attention to the need to adapt conceptual documents (first and foremost the National Security Concept), to, analyze domestic nonproliferation activity (including current programs existing in

5. Opening address at Security Council meeting, December 3, 2003, http://www.kremlin.ru/appears/2003/12/03/1821_type63378_56602.shtml (in Russian).

this area), to, ensure a clear interagency process in Russia to increase oversight and control, and to develop personnel training for relevant bodies.[6]

The importance of domestic sustainability issues was underestimated in the early stages of threat reduction cooperation in comparison to more tangible and measurable supplies of hardware and weapons elimination, among others. Both Russia and the United States came to realize that sustainable nuclear security could not be achieved without persistent work toward the increased effectiveness of Russia's domestic infrastructure—aimed at the operation and maintenance of joint achievements and the subsequent transfer of the nuclear security burden to Russia.[7]

In this regard, the overarching problem is that of nuclear culture—or the complex issue of awareness, threat perception, commitment, motivation, way of doing business, obedience to law, and the traditions that underlie the activity (or inactivity) of individuals involved in each level of threat reduction efforts (ranging from guards at nuclear facilities to the president). A properly cultivated nuclear security culture can provide significant momentum for domestic nonproliferation efforts in Russia. This will be explored in subsequent chapters.

A Model for Threat Reduction Partnership Worldwide

Although the current status of the Russian WMD complex is the highest priority on the Global Partnership's agenda, it is not the only danger threatening global security. There are states in the world with poorly controlled weapons of mass destruction, including unstable regions where

6. Ibid.
7. Irina Kupriyanova, "Otsenka Effectifnosti Amerikanskih Programm v Oblasti Ucheta, Kontrolya i Fizicheskoy Zashity Yadernyh Materialov v Rossii" [Assessment of the efficiency of U.S. programs in the field of nuclear materials protection, control, & accounting in Russia], *Yaderny Konntrol*, No. 2 (March–April 2002).

terrorism flourishes; there are places with usable nuclear weapons materials that are not properly safeguarded; and there are controversies among different countries on issues of disarmament and the peaceful use of sensitive nuclear technologies.

As one of the forefathers of the nuclear threat, a major actor on the world nuclear policy scene, and the main target of international nonproliferation cooperation, Russia is the subject of much attention in the international community. Russia's active participation in cooperative threat reduction, therefore, can encourage increased participation of other countries and provide momentum for the extension of the Global Partnership to include more donors and, more important, new recipient countries of concern regarding nuclear security. Sustainable nuclear security, if achieved within the framework of Russia's international cooperation, will serve as the best model for future global efforts.

International nonproliferation assistance to Russia can also serve as a model for similar programs with other countries of concern. Approaches developed under the aegis of a U.S.-Russian partnership may be applicable, though not fully so, to relations between India and Pakistan, for example, as well as to international assistance to these countries.

II. Russian National Interests, Threat Perception, and Implications for Cooperation

To analyze Russia's approach to foreign assistance in the sphere of nonproliferation and international cooperation, it is necessary to identify the interests that inform Russian policy in this area. Several of these interests slow down the pace of cooperation, render bilateral efforts useless, conflict with the goals and spirit of cooperation, and create tension between cooperating participants. Yet other interests, if carefully taken into account and implemented appropriately, can drastically improve the efficiency of threat reduction programs. These include an understanding of current global threats and the perception of such threats within the Russian leadership; Russian national interests as they pertain to politics, the economy, and the military; and several external constraints on international nonproliferation cooperation.

Many Russian experts draw attention to the fact that the pillar of *cooperation* in *cooperative* threat reduction is often overlooked, or at least underestimated by the donor side—in particular, by the United States. In other words, foreign partners do not take Russia's interests, concerns, and approaches into account, which is why many Russians view current CTR programs simply as a way for the United States to monitor and reduce threats to its own national security, with little benefit to Russia. Although this perception is largely inaccurate, because most of the problems addressed within the framework of international nonproliferation cooperation are of great concern to Russia, this notion is not completely misguided. More important, even in cases where such a perception is unjustified, it could still stymie cooperation efforts. This popular perception in Russia should therefore be considered and actively addressed by those who plan and implement CTR programs on both sides—via educational and

comprehensive information programs aimed at target audiences in both Russia and the United States.

On the other hand, Russia's partners reasonably claim that it could and should contribute and commit on a much larger scale to cooperative efforts in the areas of funding, human resources, and infrastructure. This can happen only if Russia makes issues of nuclear security, nonproliferation, and threat reduction a top priority. While asserting its rights and interests in international cooperation, Russia should find a place for common security interests in its policy and budget and make them a matter of public concern.

Threat Perception

Perception of the threat of nuclear terrorism, or the illegal transfer of nuclear materials to potential proliferators, is one of the major factors underlying the activity of those working in the nuclear security arena. Russian leaders' perception of this threat is of utmost importance, because they define and implement policy in this area.

Statements made by Russia's top leaders, as well as a number of official documents, provide examples of an official, formalized Russian perception of WMD proliferation and international terrorism. These statements demonstrate that Russia's position coincides with that of the United States, particularly with regard to terrorism, and with the international community as a whole. On the other hand, statements made by Russia's nuclear establishment are inconsistent: while acknowledging the threat of nuclear terrorism worldwide, they regularly make confusing assertions, claiming that Russia's nuclear facilities are completely reliable and secure.

Russian authorities have always been unwilling to discuss sensitive issues openly, and the poor security of Russian nuclear facilities is one such topic. Therefore, it is likely that a significant portion of the information relevant to threat perception, including possible ways of addressing this threat, may be classified—not because of the potential leakage of secret information, but because of Russia's unwillingness to accept blame for potential nuclear security problems.

In a December 2003 statement, President Putin stated, "Along with international terrorism, proliferation of weapons of mass destruction remains a major threat to the world in the 21st century. And it is a particularly dangerous situation, when weapons of mass destruction can fall within the reach of terrorists."[8] He also noted that the technological capability of a large number of countries to create weapons of mass destruction (WMD) is a major area of concern.[9] Putin's statement provides an initial indication of Russia's view of nonproliferation and international threat reduction cooperation, but a more formal and detailed threat assessment is necessary for decisionmakers, planners, and top management in the nuclear security sector to use as a baseline. Several documents, including concepts, legal acts, international treaties, official declarations, and statements made by top officials might serve as a starting point for this baseline.

Russia's *National Security Concept*, which was adopted in early 2000,[10] states that international terrorism, as well as the proliferation of weapons of mass destruction, represents a serious threat to Russia's security. The concept particularly notes the growing range of threats related to international terrorism, including the possible use of WMD by terrorists.

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8. Opening address at meeting of the Russian Security Council.
9. Ibid.
10. Vladimir Putin, Presidential Decree No. 24, January 10, 2000, http://www.scrf.gov.ru/Documents/Decree/2000/24-1.html (in Russian).

Since the increase of terrorist activity in Russia in the mid-1990s, securing nuclear and other critical facilities containing hazardous materials has gained significant attention. The deadly September 1999 explosions in residential apartment buildings in Moscow, Volgodonsk, and Buinaksk and the September 11, 2001, attacks in the United States provided extra momentum for antiterrorism efforts. Additional protective measures for nuclear facilities have been implemented during major crises in Russia and around the world. More recently, such an increase in protective measures took place after the start of the U.S.-led military operation in Iraq, and after hostage-takers seized School No. 1 in Beslan in September 2004.[11]

On December 4, 2003, President Putin adopted a document entitled "The Principles of State Policy for Nuclear Security and Radiation Safety and Security[12] in the Russian Federation for the Period through 2010 and Beyond" (henceforth referred to as the "Principles of State Policy"),[13] which "define the goals, priority directions, basic principles and tasks for state policy in the area of ensuring nuclear and radiological security" in Russia. According to this document, emergencies involving nuclear materials (including nuclear weapons and their components), radioactive substances and wastes, and ionizing radiation sources represent a serious threat to the national security and socioeconomic development of Russia.

These principles list a number of "factors"—which are essentially threats—that are meant to be decisive for state policy in the area of nuclear security, including the significant increase of nuclear materials subject to disposal and not used for military and economic purposes on Russian territory; the aggravated threat to nuclear facilities and materials posed by radical terrorist

11. "Regions Increase Security around Schools, Nuclear Power Plants," *RFE/RL Newsline*, September 2, 2004.
12. The English words "safety" and "security" share the same word in Russian (*bezopasnost'*). The document cited covers issues of both security and safety.
13. Office of the President, "Osnovy gosudarstvennoi politiki v oblasti obespecheniya yadernoi in radiatsionnoi besopasnosti Rossiiskoi Federatsii na period do 2010 roda in dal'neishuyu perspket," Presidential Directive, No. PR-2196, December 4, 2003, http://www.scrf.gov.ru/Documents/Decree/2003/2196.html (in Russian).

organizations; the deterioration of nuclear facilities, including their protection systems; increased international cooperation in the area of nuclear security and the need to make this more effective; and a shortage of funding to address problems of nuclear security and safety. This document serves as an official and formal recognition of the threats posed by nuclear materials and weapons.

Top Russian security officials have made numerous statements that demonstrate their concern about possible terrorist attacks against nuclear facilities. These officials have also found evidence of terrorists' intention to target nuclear and other facilities housing hazardous materials. Yet, statements made by the Russian nuclear establishment are confusing. The former head of Russia's Federal Atomic Energy Agency[14] Alexander Rumyantsev, speaking at a meeting of the joint Russian Security Council and State Council (Gossovet), claimed that all nuclear facilities on Russian territory are reliably protected. At the same time, however, he alluded to the emerging threat of suicide bombers and the need for further developments to address this threat.[15] Earlier in spring 2003, when speaking to the State Duma together with the head of Gosatomnadzor (the Russian state regulatory agency for nuclear and radiation security), Rumyantsev drew particular attention to the alarming trend of decreasing the number of interior troops deployed to protect nuclear facilities as a result of a lack of funding. He also noted that the funding currently available for the purposes of MPC&A is four to five times less than what is required.[16]

14. In March 2004, the Russian Ministry of Atomic Energy (Minatom) was restructured into the Federal Atomic Energy Agency and placed under the Ministry of Industry and Energy. Alexander Rumyantsev remains head of the organization.
15. "Yadernye Ob'ekty na Territorii Rossii Nadezhno Zashisheny – Glava Minatoma" [Nuclear facilities on the territory of Russia are reliably protected – Head of Minatom], *Interfax*, November 13, 2003.
16. Transcript of the Russian State Duma Session, March 5, 2003 (in Russian).

An acknowledgement of the threat of nuclear terrorism by declaration alone is insufficient. It is crucial that this threat perception guide the day-to-day work of people involved in ensuring the security of nuclear materials. In this regard, the "Design-Basis Threat" (DBT) concept is regularly used to turn threat perception into concrete action. According to the IAEA's recommendations outlined in INFCIRC/225/Rev.4 (corrected), "The Physical Protection of Nuclear Material and Nuclear Facilities," DBT is defined as "the attributes and characteristics of potential insider and/or external adversaries, who might attempt unauthorized removal of nuclear material or sabotage, against which a physical protection system is designed and evaluated." The development of DBT, which began several years ago but has not yet been completed, is considered one of the most significant tasks for Russian domestic regulations in the sphere of physical protection. Government plans for implementing "Principles of State Policy"[17] required that suggestions for the development of the list of the main threats to nuclear facilities and intruder profiles (major components of DBT) be submitted to the government by the end of 2005, but there are still no new developments on this front. The FSB, Rosatom, the Ministry of Internal Affairs (MVD), MOD, Rostekhnadzor, the Ministry of Industry and Energy, and the Russian Academy of Sciences were assigned to this task.

The Global Partnership may be considered the "showcase" of global CTR efforts, and may help to identify the priorities of participating nations—Russia in particular—for implementing these efforts. Specific issues of physical protection, material control, and accounting are thus far not top priorities for Russia within the framework of the Global Partnership. As a senior official at the Russian Ministry of Foreign Affairs who is involved in

17. Approved by Government Order No. 117-r, February 3, 2005.

Global Partnership implementation noted, however, the Russian leadership considers MPC&A an area for further development in future cooperation under the aegis of the Global Partnership.[18]

Unfortunately, considering the dearth of activity among signatories since 2002, at this stage the Global Partnership seems like an underutilized opportunity. Country pledges still fall short of the promised $20 billion (at $17 billion), and the bulk of these funds have yet to be allocated to specific projects. There have been a number of small advances, including agreements between Russia and Canada on submarine dismantlement and chemical weapons destruction, but for the most part, bureaucratic obstacles surrounding access and liability issues still impede projects from going forward.[19]

The relatively low priority given to issues of security at nuclear facilities can be explained in part by the fact that members of the Russian elite consider the threats posed by decommissioned submarines (including security and disposition of unloaded highly enriched spent nuclear fuel) and chemical weapons to be much more serious than overall concerns about materials protection and control. In particular, special attention is paid to submarines because a large amount of unloaded HEU fuel is stored at poorly secured coastal bases. A significant share of this fuel was unloaded a long time ago and lacks a radiation barrier, which can prevent theft.[20] Thus, these potential threats top Russia's list of priorities within the Global Partnership.

The Russian leadership has taken a number of steps to respond to the increasing terrorist threat on Russian soil, such as intensifying both U.S.-Russian cooperation in the area of nuclear MPC&A, which Russia initiated, as well as a number of domestic measures that include the

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18. Mikhail Lysenko, "The G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction," presentation to the International Conference, Moscow, April 23–24, 2004.
19. For more information on the progress of the G-8 Global Partnership, see http://www.sgpproject.org/publications/GPUpdates. Updates are published two to three times annually. The last update was from June 2005 (http://www.sgpproject.org/publications/GPUpdates/GPUpdate%20June2005.pdf).
20. Dmitry Kovchegin, "Pererabotka OYaT v kontekste programmy Global'nogo partnerstva" [SNF reprocessing in the context of the Global Partnership action plan], *Yaderny Kontrol*, No. 2 (Summer 2005).

development of relevant legislation, increased law enforcement efforts, intensive training of and protective forces, among other activities.

In certain instances, the Russian leadership's acknowledgement of the threat has stimulated real action, though this has not yet become common practice. For example, a number of legislative acts were approved immediately following the explosions in Russia in September 1999. On September 15, 1999, just two days after the second blast in Moscow, the government signed the decree "On Measures of Counterterrorism," which, in particular, ordered law enforcement agencies to increase protection of nuclear facilities and enterprises handling radioactive materials. Currently, this decree serves as the legal basis for counterterrorism activity, including protection of nuclear facilities.

Adequate threat perception is one main aspect that determines good nuclear security culture. In addition to all existing doctrines, concepts, and other documents, there should be enough public perception of this threat to motivate personnel at facilities to perform their duties in a way consistent with nonproliferation and nuclear security principles.

Public opinion is an important vehicle driving threat perception. A poll conducted in late 1999 and early 2000—at the dawn of the sharp increase in terrorist activity in Russia—shows that 66 percent of respondents believed that terrorists could get access to a Russian nuclear weapon; 54 percent believed terrorists could transport a nuclear weapon abroad; and an overwhelming 86 percent believed that terrorists would use a nuclear weapon once they acquired it. Moreover, 90 percent believed that Russian nuclear facilities might become a target for terrorist attacks.[21]

21. "Rossiyane o Yadernom Oruzhii I Yadernyh Ugrozah" [The Russians on nuclear weapons and nuclear threats], PIR Center, 2001, http://www.pircenter.org/data/publications/poll.pdf

While this poll, conducted among average Russian citizens, would surely differ from a survey conducted among those who are more familiar with specific issues related to nuclear security, these results are still indicative of threat perception in Russia. According to the IAEA's report from eighteen countries in October 2005, entitled "Global Public Opinion on Nuclear Issues," 63 percent of the Russian public considered the risk of nuclear terrorism to be very high.[22] On the other hand, the majority of the Russian public sees terrorism as resulting from continuing instability in Chechnya and other neighboring regions. In Russia, terrorism has been most visible in the kidnapping of hostages, as in Beslan in September 2004 and the Dubrovka theater in Moscow in October 2002, as well as in suicide bombings and other explosions in major cities. But while the threat of terrorists using nuclear or radioactive materials or attacking nuclear facilities is clear, it has not yet found its way into public discussion and perceptions of terrorism. Therefore, Russian society does not yet see cooperative threat reduction programs as a means to mitigate the threat of terrorism.

Strategic Issues: Deterrence, Strategic Nuclear Forces, and Russia's Role in the World

The whole spectrum of cooperative threat reduction efforts in Russia originated from U.S.-Russian cooperation in reducing strategic offensive arsenals. Besides being unreasonable and dangerous from a security perspective, Russia's excess supply of strategic arms and the corresponding arms race contributed to the collapse of the Soviet Union and subsequent economic crises in Russia and other former Soviet states. For Russia, reducing the number of

22. GlobeScan, "Global Public Opinion on Nuclear Issues and the IAEA," October 2005, http://www.iaea.org/Publications/Reports/gponi_report2005.pdf.

strategic arms has not only benefited its national security, but has also contributed to a more balanced economy by removing the excess burden from the industry.

While being part and parcel of the bilateral disarmament process, foreign assistance to Russia for eliminating strategic offensive arms differs from what was implemented in accordance with past bilateral strategic arms reduction agreements. In these agreements, the United States and the Soviet Union were equal partners with mutual obligations and did not carry the respective "donor" and "recipient" labels. CTR programs, on the other hand, introduced this distinction, thereby establishing significant inequality in terms of the bilateral relationship. This split has become one of the major reasons for obstacles and logjams in international nonproliferation cooperation.

Notably, Russia's number one rival throughout the Cold War has become a major partner and sponsor of threat reduction efforts. Despite a significant shift from Cold War–era opposition, however, both countries still view one another as a threat to their own national security. Because both countries still keep an unreasonably large number of their weapons on hair-trigger alert status, Cold War nuclear posture persists and will continue to serve as one of the main determinants of U.S.-Russian bilateral relations in the near future. Both Russian and U.S. nuclear forces still point to each other as the primary target of ballistic missiles and are ready to attack each other without any significant delay. As Russia's Minister of Defense Sergei Ivanov stated, "The new age must not necessarily be accompanied by dismantlement of the military and political legacy of the past…Russia regards nuclear weapons and nuclear deterrence as the basis

for global stability."[23] Therefore, "Russian leaders regard the maintenance of fighting ability and readiness of strategic nuclear forces as their top priority task."[24]

Even though this explains why Russia may feel the need to maintain a reliable deterrent, it nevertheless contradicts the essence of cooperative threat reduction efforts. Some opponents of U.S.-Russian nonproliferation cooperation argue that U.S. funding of threat reduction efforts allows Russia to set additional resources aside for programs devoted to the maintenance of its nuclear weapons arsenal. However, it would be unreasonable to think that, in the absence of foreign funding for nonproliferation projects, Russia would scrap significant money from nuclear weapons programs. The contradiction between national security interests and nonproliferation cooperation is apparent from the problems of access, selection of priorities in different areas of cooperation, and other factors that impede U.S.-Russian cooperation.

Such controversy can impair the very spirit of cooperation, because the Cold War mentality is still present on both sides. Many personnel involved in the implementation of cooperative nonproliferation programs on every level—from specialists and experts to top leaders—grew up and formed their political views during the open ideological and military confrontation of the Cold War. Setbacks and delays that occur during the implementation of joint programs often result from and confirm the psychological difficulties and negative stereotypes of the participants.[25] Many participants in cooperative programs cannot get accustomed to the reality of bilateral cooperation aimed at common goals. As some Russian experts note, the lack of mutual confidence is a major problem for cooperation.

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23. Minister of Defense of the Russian Federation Sergei Ivanov, "Russia-NATO: Strategic Partners in Response to Emergent Threats," speech at London's International Institute for Strategic Studies, July 13, 2004, http://www.ln.mid.ru/brp_4.nsf/sps/F82029E68267BAF5C3256ED100348EF2.
24. Ibid.
25. "Overcoming Impediments to U.S.-Russian Cooperation on Nuclear Nonproliferation," Report of a Joint Workshop, U.S. National Academies Committee on U.S.-Russian Cooperation on Nuclear Nonproliferation, Russian Academy of Sciences, Committee on U.S.-Russian Cooperation on Nuclear Nonproliferation, September 22–23, 2003, http://www.nap.edu/books/0309091772/html/.

To conclude, it is necessary to mention a number of crosscutting factors that characterize the existing situation of Russia's threat perception and its impact on joint U.S.-Russian threat reduction efforts. First, while a number of policy documents have been adopted and numerous statements have highlighted the threat of nuclear terrorism, Russian authorities have thus far failed to project high-level threat perception to those involved in nuclear security related activities—including nuclear facility managers, employees, and guards. Official statements and formal documents have not yet resulted in clear guidelines and directions for personnel to work and cope with the threat of nuclear terrorism in their day-to-day activity. Second, the Russian public is still unaware of the necessity for cooperative threat reduction efforts. Russian citizens' awareness of the threat of nuclear terrorism is based mostly on inconsistent and often unreliable mass-media coverage, rather than regular outreach efforts from those directly involved in shaping Russia's policy in this area. Therefore, the Russian general public is not a strong advocate of nuclear threat reduction efforts, as I explain in more detail in the next chapter. Finally, despite the end of the Cold War, both the United States and Russia still view each other as a threat to their own national security. Since the Russian nuclear complex—which is the main focus of threat reduction cooperation—is also crucial for the maintenance of deterrence capability, controversies between Russia, the United States, and other countries participating in cooperative efforts are unavoidable. Therefore, it is necessary to strike a balance between the goals of cooperation and the sensitive issues of nuclear security. Russia's partners should avoid creating the perception of "buying concessions for assistance," while Russia should appreciate concerns and restrictions relevant to cooperation on the donor side.

III. Russian Nuclear Security Culture and Its Impact on Cooperative Threat Reduction

In the sensitive area of nuclear threat reduction cooperation between the United States and Russia, the personal commitment of those involved in its implementation is a crucial factor for success. The most notable success story of U.S.-Russian cooperation—MPC&A upgrades at Russian Navy sites—has been possible to a large extent through the personal commitment of the senior officials involved in the program's implementation.[26] In another instance, former Russian Prime Minister Mikhail Kasyanov's personal involvement significantly contributed to the successful conclusion of the Multilateral Nuclear Environmental Program in the Russian Federation (MNEPR) agreement.[27]

Personal attitudes and commitment are split according to two major levels. The first level, political leadership and decisionmaking, is defined by the political environment for cooperation. The attitudes of the political leadership, including the president, cabinet, and parliament, are crucial, since they are the highest authorities involved in decision-making on issues of nuclear security and foreign policy. The second level, direct management and practical implementation, important for two reasons: it is intended to ensure the transition of policy statements into real activities; and the people working at this level who are involved in the day-to-day handling of nuclear materials and ensuring their security are the most important link in the nuclear security chain. Unless the right attitude is cultivated at this level, no other measures would be able to ensure nuclear security. This chapter reviews the attitudes of those involved in

26. Morten Bremer Maerli, "Sovmestnoe s SShA ukreplenie sistem bezopasnosti na voenno-morskom flote Rossii: izvlechennye uroki I dal'neishie mery" [U.S.-Russian naval security upgrades: Lessons learned and future steps], *Yaderny Kontrol*, No. 4 (July-August 2002).
27. Anatoly Anin, "Global'noe partnerstvo na rasput'e" [The global partnership at a crossroads], *Yaderny Kontrol*, No. 4 (Winter 2003).

nuclear threat reduction efforts at every level—from the president to those involved in day-to-day work with nuclear materials.

Political Leadership and Decisionmaking

International threat reduction cooperation deals for the most part with Russia's defense nuclear complex, which is the centerpiece of Russian national security. Any interference with this complex attracts the attention of Russia's leadership and security services. It is also vulnerable to any drastic changes in relations between partners, which has been particularly true for Russia and the United States. In the early years of cooperation, some representatives of the Russian political elite believed that the main goal of the United States in nonproliferation cooperation was to thwart Russia's defense capability, thereby prompting tough Russian opposition to cooperative efforts of the Russian political elite.

EXECUTIVE LEADERSHIP

Despite the aforementioned sensitivity, U.S.-Russian nonproliferation cooperation has always enjoyed support from the highest level of Russia's leadership: the president, prime minister, and other senior government members. The most notable example of Russia's top leaders' commitment to cooperation is the CTR umbrella agreement regulating U.S.-Russian nonproliferation cooperation, which was originally signed on June 17, 1992[28] and was extended in June 1999 during the Kosovo crisis—one of the most significant periods of deterioration in U.S.-Russian relations following the collapse of the Soviet Union.

28. "Agreement between the Russian Federation and the United States of America concerning the Safe and Secure Transportation, Storage and Destruction of Weapons and the Prevention of Weapons Proliferation," June 17, 1992.

President Putin clearly supports U.S.-Russian nonproliferation cooperation. At a Kremlin press conference in December 2004 Putin stated, "The United States is one of our priority partners. We have implemented a great deal of joint projects in the economic sphere. We are, undoubtedly, partners in addressing a series of pressing modern-day issues, above all in countering terrorism. I would even say we are more than partners, we are allies in this sphere. The United States and Russia are the biggest nuclear powers, and therefore, we bear a particular responsibility in terms of arms control and the non-proliferation of the weapons of mass destruction."[29]

The September 11 attacks gave significant impetus to U.S.-Russian nonproliferation and threat reduction cooperation at the highest level—it has since become one of the major agenda items during bilateral meetings. More recently, in the joint statement by President Bush and President Putin on nuclear security cooperation that resulted from the bilateral meeting in Bratislava in February 2005, U.S. and Russian leaders pledged to "enhance cooperation to counter one of the gravest threats our two countries face, nuclear terrorism," and they further initiated a number of measures to contribute to the achievement of enhanced nuclear security.[30]

In recent years, the direct influence of the Russian president and his administration has increased in this sphere, which has affected policymaking since the agenda of the Russian parliament and government is to a large extent defined by the presidential administration. If presidential priority is given to issues of international cooperation in the areas of nonproliferation and preventing WMD terrorism, then this will increase domestic commitment to these issues at all levels of authority. Political declarations, however, are not enough. Significant efforts are necessary to put these declarations into practice and to control both their implementation as well

29 "Remarks by Russian President Putin," Moscow, Russia, December 23, 2004, http://www.kremlin.ru.
30. Joint Statement by President Bush and President Putin on Nuclear Security Cooperation, February 24, 2005, http://www.whitehouse.gov/news/releases/2005/02/20050224-8.html.

as adherence to human and material resource commitments. Based on open sources Russian authorities have thus far failed to ensure these essential elements. While paying significant attention to the fight against terrorism, the Russian leadership primarily conceives of this fight as offensive actions against terrorists, while protecting critical facilities, including nuclear facilities, takes lower priority.[31]

PARLIAMENTARY AUTHORITY

In the 1990s, the Russian parliament paid no systematic attention to issues of nonproliferation cooperation and nuclear security, and major Russian political parties never addressed these issues during parliamentary campaigns.[32] The foreign policy agenda was always defined and determined by the president and his ministers.

Therefore, serious disagreements between the legislative and executive branches over nuclear security priorities have occurred. The 1990s were characterized by the longstanding opposition of the State Duma, which was dominated by the Communist Party, to the president and his cabinet. In general though, threat reduction cooperation remained the prerogative of the executive branch and thus was not seriously affected by disagreements between the Duma and the president. Due to the anti-American tone of the Duma majority at that time, this can be considered a positive result for the cooperative threat reduction agenda.

After the legislative and executive political outlooks became more synchronized following the parliamentary elections of 1999 and the presidential election of 2000, the two branches began to see eye-to-eye on nuclear security issues. This change was due in part to the

31. I am grateful to Matthew Bunn for this note on priorities in the fight against terrorism.
32. Dmitry Evstafiev and Dmitry Kovchegin, "Obnovlenie rossiiskoi vlasti i problemy kontrolya nad vooruzheniyami" [Renovation of the Russian power and arms control problems], *Yaderny Kontrol*, No. 2 (March-April 2000 (in Russian)).

rise of terrorism in the same period. An immediate result of this renewed cooperation was that the Duma successfully and expeditiously ratified the Strategic Arms Reduction Treaty (START) and the Comprehensive Test Ban Treaty (CTBT). A major debate on nuclear security took place in 2000–01, when the president and government persuaded the Duma to approve legislation allowing the import of foreign spent fuel to Russia for temporary storage.

The 2002 Global Partnership was another impetus for Duma activity in the area of cooperative threat reduction. It is noteworthy that the Global Partnership enjoys much greater attention in top-level political circles in Russia than any other nonproliferation cooperation program initiated since the early 1990s.

In 2002–03 an attempt was made in the Duma to develop a new integrated law covering the whole range of issues related to the Global Partnership, including taxation, access, and liability, which assumed that if other laws contradicted this new integrated law, the new law would prevail.[33] [The current status of this law remains unclear, however, since Alexei Arbatov, formerly of the Yabloko party and one of the main advocates of this law, was not reelected to the Duma in December 2003**.**

While the Duma's perspective on cooperative threat reduction can generally be characterized as positive, it does not use its authority effectively to contribute to a better implementation of threat reduction efforts. The Duma has authority in the areas of domestic funding, parliamentary oversight, and appropriate legislative development conducive to international cooperation. But because the high profile of the Global Partnership issue in the Duma stems largely from the president's attention, as opposed to wide public understanding of the threat of WMD terrorism, it remains a low-level priority for Duma members. The general

33. Alexey Arbatov, "Parliamentary Perspectives on the Global Partnership," remarks at press conference, Paris, France, May 28, 2003, http://www.sgpproject.org/events/2003_may28_paris.html#arbatovrussia.

public in Russia has been aware of the threat of terrorism and nuclear terrorism since before the rise in terrorist attacks that began to occur in Russia in 2000;[34] however, it has yet to become a "real constituency" for authorities' action on threat reduction.

Despite the generally positive attitude of the Russian political elite towards nonproliferation cooperation with the United States and other countries, some experts note that the "strategic direction of Russian foreign policy is not irreversible. Thus, in the beginning of 2004 there was a caesura, or possibly even a retreat, with respect to Russia's relations with the leading democratic states."[35] Recent developments in Iraq, NATO expansion, U.S. withdrawal from the Antiballistic Missile (ABM) treaty, and changes in policy regarding the use of nuclear weapons has resulted in a situation where U.S.-Russian relations are characterized by what some experts call a new arms race and a revival of the Cold War.[36] It is unlikely that this situation will result in a complete cessation of U.S.-Russian cooperation, but it can hinder cooperation on the most sensitive issues. In particular, cooperation will not likely include security improvements at the most vulnerable sensitive nuclear fuel cycle facilities that hold significant quantities of nuclear weapons and their materials.

Nuclear Security Culture

In addition to national policies, funding concerns, and other issues, a culture of nuclear security is crucial for the success of U.S.-Russian MPC&A cooperation and the long-term sustainability of nuclear security in Russia. As the IAEA emphasized in its September 2001 "Measures to

34. "Rossiyane o Yadernom Oruzhii I Yadernyh Ugrozah" [The Russians on nuclear weapons and nuclear threats], PIR Center, 2001, http://www.pircenter.org/data/publications/poll.pdf.
35. Yuri Fedorov, "Trebuetsya li reforma vneshnei politiki Rossii?" [Does Russia's foreign policy need reforming?], *Yaderny Kontrol*, No. 2 (Summer 2004).
36. Scott Peterson, "Back to the Future: New U.S.-Russia Arms Race," *Christian Science Monitor*, June 16, 2004.

Improve the Security of Nuclear Materials and Other Radioactive Materials," security culture is a necessary component of the physical protection of nuclear materials and facilities.[37]

Nuclear security culture has to do with the "human factor" of protection and concerns the activity of every individual involved at every level of nuclear security—from guards and machine operators to the Russian president. A properly cultivated nuclear security culture, which involves a combination of threat awareness and perception, commitment, motivation, ways of doing business, obedience to rules and regulations, and traditions, can provide significant momentum for domestic nonproliferation efforts in Russia.

When U.S.-Russian cooperative threat reduction programs began in the early 1990s, priority was given to the physical components of protection: the supply of equipment, site upgrades, and the consolidation and conversion of radioactive and hazardous materials. It was only in the late 1990s that experts in the field began to realize that sustainable nuclear security depends not only on technology and hardware, but also on the very people operating this hardware. Accordingly, nuclear security culture emerged on the agenda of U.S.-Russian nonproliferation cooperation.[38]

Issues specific to the relationship between nuclear security and nuclear security culture in Russia can be identified as follows: approaches to nuclear materials security in the Soviet Union; specifics of mentality, culture, and business practices; and lack of modern MPC&A structure.

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37. International Atomic Energy Agency, "Measures to Improve the Security of Nuclear Materials and Other Radioactive Materials," GC(45)/INF/14, September 14, 2001, http://www.iaea.org/About/Policy/GC/GC45/Documents/gc45inf-14.pdf.
38. Kate Garner, Carrie Smarto, W.J. Toth, Nicole Nelson, Michael Haase, and Kathleen McCann, "MPC&A Sustainability: A Policy Overview," in *Proceedings of the 2nd International Conference on Material Protection, Control Accounting*, May 22–26, 2000.

Changes in Nuclear Materials Security

In the Soviet Union, nuclear materials security was based on a specific system of measures that were dependent on the human factor. This human aspect of security relied on a combination of incentives and state control over workers in the nuclear complex. Employees of nuclear complexes were part of a very privileged and highly respected class that enjoyed a higher standard of living, which served as a trade-off for an environment in which their work and lives were tightly controlled by the state.

The collapse of the Soviet Union was followed by the deterioration of this security system. Indeed, the Soviet legacy of secrecy and closed nuclear cities may even have provided a short-term deterrent to nuclear thefts and/or a complete breakdown of nuclear security in Russia. When employees of the nuclear complex lost the majority of their material benefits together with their privileged status, therefore, this created significant risks of abuse, neglect, and theft. Thus, in the early 1990s, the need for more technology-based approaches emerged.

Links between Terrorism, Proliferation, and Nuclear Security Culture

The combined threat of WMD proliferation and nuclear terrorism has yet to become a motivating factor for the day-to-day activity of nuclear security personnel, particularly those involved in MPC&A activity. As one of the senior Rostekhnadzor officials responsible for nuclear materials' physical protection, control, and accounting noted, there is no convincing model that demonstrates the dangerous consequences should MPC&A duties be inappropriately carried out. Unfortunately, perception and awareness of this threat takes a back seat to nuclear energy development, economics, and labor relations in public discourse among nuclear industry employees. Even those involved in the direct implementation of U.S.-Russian nonproliferation

cooperation do not always have a clear understanding of the problem. Most of the people involved in day-to-day MPC&A activity see it as an additional opportunity for income or an interesting and challenging technical task, but not as a way to cope with the threat of nuclear terrorism and proliferation. Therefore, self-motivation is not as high as it could be.[39]

Fortunately, there are some positive trends in this area. First, due to the rise of terrorism, the situation in Iraq, and increased concern over the North Korean and Iranian nuclear programs, the threat of WMD proliferation and nuclear terrorism has been addressed and debated among politicians and in the media more so than ever before. These developments inevitably impact the Russian public—particularly those working in nuclear security–related fields. Second, increasing awareness of nonproliferation and WMD terrorism has been incorporated in a number of education programs for employees at nuclear facilities. The range of these efforts varies from more comprehensive courses prepared specifically for this purpose[40] to MPC&A training courses, which include basic coverage of nonproliferation issues.[41]

MENTALITY, CULTURE, AND BUSINESS PRACTICES

One of the major obstacles to introducing modern MPC&A systems to Russian nuclear facilities concerns certain particularities of Russian culture and mentality, especially with regard to management and business practices.[42] When modern MPC&A systems are installed, their optimal operation requires following certain procedures that are not in line with the professional

39. Observations by author during the third Russian International Conference on Nuclear Materials Protection, Control, and Accounting, Obninsk, Russia, May 16–20, 2005.
40. Pir Center, http://www.pircenter.org/eng/edu/index.html.
41. Russian Methodological and Training Center, Overview, http://www.rmtc.obninsk.ru/about_eng.html.
42. Igor Khripunov and James Holmes, eds, *Nuclear Security Culture: The Case of Russia* (Athens, Ga.: Center for International Trade and Security, University of Georgia, December 2004), http://www.uga.edu/cits/documents/pdf/Securitypercent20Culturepercent20Reportpercent2020041118.pdf.

culture particular to those facilities.[43] In particular, the Soviet command economy neither provided real incentives (material benefits as opposed to "honorary diplomas") nor encouraged initiatives and activities to develop problem-solving skills. All enterprises, including nuclear facilities, were run according to the same central system of governance.

Accounting procedures are also different in Western and Russian practice.[44] Russia has no culture of establishing and adhering to a standard operating procedure for a specific facility.[45] Western-style accounting practices and similar activities (establishing costs, planning, and forecasting) were not developed in the Soviet Union. With regard to nuclear materials, the existing accounting system allowed for deliberate data garbling. In the Soviet era, however, enterprise managers took advantage of the lack of transparent accounting to put resources aside for a rainy day, rather than to account for thefts and diversions. The total and complete change of internal control that has resulted with the collapse of the Soviet Union, compounded with both the real material challenges of workers in the nuclear complex and terrorist groups and possibly states of concern striving for nuclear materials, has changed both the likelihood and feasibility of concealing nuclear material theft and diversion through nontransparent accounting.

A gradual improvement of overall business practices in Russia would advance nuclear security culture, and steps in this direction are currently underway. But a long wait for significant and needed improvements in the nuclear sphere is not an option. Therefore, positive changes in this direction should be promoted and encouraged in Russia within the framework of international cooperative threat reduction initiatives.

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43. Galya Balatsky, *Sustainability Issues: Russian Aspects,* Report LA-UR-01-1683 (Los Alamos, N.Mex.: Los Alamos National Laboratory, 2001).
44. Irina Kupriyanova, "The Assessment of Efficiency of US Programs in the Field of Nuclear Materials Protection, Control, & Accounting in Russia," *Yaderny Kontrol*, No. 2 (March-April 2002 (in Russian)).
45. Galya Balatsky, Op. cit.

LACK OF MODERN MPC&A STRUCTURE

Improving MPC&A is not viewed as a high priority issue in Russia, which is ultimately detrimental to promoting nuclear security culture. According to a survey conducted in March 2001 among the top managers of nuclear facilities, over 80 percent of respondents did not consider security culture and control of nuclear materials to be their primary responsibility.[46]

MPC&A activity does not generate profits; instead, it requires that additional resources be spent. An appropriate amount of financial and labor resources have not been allocated to MPC&A. In addition, because no one person is given exclusive MPC&A responsibilities, several employees have to spend part of their work time on this activity. MPC&A activity is thus often perceived as a burden, which can lead to poor implementation. Another important factor is the lack of a professional tradition of working under an independent agency responsible for regulatory oversight and control. Gosatomnadzor (currently part of Rostekhnadzor) fulfills this function, but is often not perceived as an important actor for nuclear security by Rosatom employees. Furthermore, it was common practice for individuals who worked with nuclear materials to also be responsible for their accounting—without supervision from another party. It is likely that this persists today at those Russian facilities with less-developed control and accounting procedures. Such a situation obviously creates both a security risk and a conflict of interest for employees.

Nuclear security culture has been changing for the better within the framework of U.S.-Russian MPC&A cooperation. However, priority must also be given to human resource development as well as technological advances.

46. See Khripunov and Holmes, *Nuclear Security Culture*.

IV. Major Players, Legislation, and the Question of Sustainability in Russian Threat Reduction Cooperation

To achieve the goals set by Russia's political leadership, it is necessary to have the resources in place that will ensure the sustainability of nuclear security measures introduced by threat reduction programs. Organizational structure, national policies, legal framework, and domestic funding are key elements that influence this process.

The Major Players

Specific measures in the area of nuclear security and joint threat reduction programs are implemented by various enterprises that report to a number of different Russian federal bodies. To achieve success, it is necessary to ensure: (1) effective interaction between the federal bodies involved; (2) their timely response to emerging challenges and obstacles; and (3) undistorted feedback from the governing authorities and decisionmaking leadership.

Because threat reduction cooperation involves numerous Russian agencies and often requires their interaction on specific projects, special attention must be paid to the coordinating mechanisms, the sharing of responsibilities, and the interests of specific participants.

ROSATOM

The key players involved in threat reduction programs are defined by the authority warranted to them in Russian legislation. Authority and responsibility in the area of atomic energy use,

including issues of nuclear materials security, are defined by the Russian Federal Law "On Atomic Energy Use," which calls for the Federal Atomic Energy Agency (Rosatom) to take the lead in most areas relevant to nuclear security. With regard to MPC&A, Rosatom has been assigned the role of implementing state policy, coordinating the activities of the other federal bodies involved, and managing the nuclear facilities under its control.

Rosatom has been designated as Russia's "executive agent" under the major U.S.-Russian nonproliferation cooperation agreements, and is responsible for the lion's share of work on cooperative threat reduction programs devoted to preventing nuclear terrorism and nuclear weapons proliferation. This means it is responsible for coordinating other agencies in Russia involved in cooperative threat reduction activities. According to its statute,[47] Rosatom is also the central authority ensuring Russia's compliance with the IAEA and other international organizations' nuclear security regulations.

Several internal Rosatom departments lead the practical implementation of joint programs. For example, the nuclear material industry department is in charge of nuclear weapons and materials disposition programs; the department of strategic planning, economy, and investments is in charge of materials control and accounting cooperation; and the department for nuclear materials and facilities protection is in charge of physical protection cooperation.

ROSTEKHNADZOR

Rostekhnadzor (the Federal Environmental, Technological, and Atomic Supervision Service) also plays a major role: it regulates safety and security at nuclear energy facilities, and is responsible for MPC&A oversight at these sites. Rostekhnadzor is the agency primarily responsible for coordinating MPC&A cooperation with Russian research facilities and

47. Approved by Government Decree No. 316, June 28, 2004.

universities handling nuclear materials. It does not report to Rosatom. One of Rostekhnadzor's significant duties regarding international threat reduction cooperation is to strengthen its MPC&A oversight capabilities. An important exception is made for defense nuclear facilities, which are overseen by the Ministry of Defense (MoD). The MoD is responsible for physical protection of naval sites and warhead storage facilities.

OTHER EXECUTIVE BODIES

Other executive bodies involved in nonproliferation cooperation include the Federal Agency of Industry (including the former Russian Munitions Agency and Russian Shipbuilding Agency), the Ministry of Economic Development and Trade (including the Federal Customs Service), the Federal Space Agency, and the Russian Space Agency. Additional bodies may be involved as participants in specific programs. For example, the Ministry of Internal Affairs (MVD) is responsible for dispatching guard forces to protect nuclear facilities involved in a number of projects under the aegis of MPC&A programs. Other relevant bodies are the Ministry of Foreign Affairs (MID) and the Federal Security Service (FSB). MID participates in the negotiation of international agreements, which provide the legal basis for cooperation. FSB controls foreigners' access to Russian nuclear facilities and personnel and information flows.[48] The FSB also plays a significant role in preventing terrorism and protecting nuclear facilities.

48. For the overview of the role of the FSB, see Oleg Bukharin, "The FSB and the U.S.-Russian Nuclear Security Partnership," *Nonproliferation Review*, Volume 10, No. 1 (Spring 2003).

Implementation

Russia's cooperation within the framework of the Global Partnership enjoys the most support from top-level Russian authorities and results in the most effective interagency cooperation. For example, under the aegis of the Global Partnership, submarine dismantlement programs have been carried out quickly and efficiently. Unfortunately, the opposite is also true: disagreements between Rosatom and MVD on approaches to the physical protection of nuclear facilities have led to decreased efficiency of the installed physical protection equipment.[49]

The connection between the above-mentioned federal agencies and the people actually working in facilities is important. Due to the legacy of a centralized administration, and the sensitivity of the issue, employees involved in day-to-day, hands-on work can do little to improve security without more frequent coordination with senior Rosatom officials. While laboratory-to-laboratory cooperation has proven effective in the past, it is now uncommon. In addition, insufficient communication and procedures for feedback between nuclear facility employees and senior level Rosatom officials negatively affects everyone's ability to address emerging challenges and better management of programs.

Another issue stemming from the current state of organizations involved in threat reduction efforts is that differences in management practices, financial planning, task formulation, and compliance procedures between Russia and its Western partners directly affects the implementation of programs. Russian participants are often unfamiliar with the Western-style project management approach; the same is true on the donor side. This ultimately results in a slower implementation of programs and decreased effectiveness.

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49. Igor Goloskokov, "Reformirovanie Voisk MVD po Ohrane Yadernyh Ob'ektov Rossii" [The reform of the Ministry of Internal Affairs detachments guarding Russian nuclear facilities], *Yaderny Kontrol*, No. 4 (Winter 2004).

National Policies

On numerous occasions, Russian authorities have acknowledged the security threat posed by nuclear terrorism, specifically terrorists' ability to attack nuclear facilities on site or construct a crude nuclear device using nuclear materials. The deteriorating physical protection systems at nuclear facilities demands special attention and commitment at the national level in order to make the necessary improvements to these systems and to take other measures to prevent terrorist activity.[50] While Russian authorities currently pay substantial attention to nuclear security, their general approaches differ from those used in the United States**.**

Russian authorities regard the protection of nuclear facilities as part of broader counterterrorism efforts. Law enforcement agencies are primarily responsible for implementing most counterterrorism measures, including those aimed at preventing terrorist attacks on nuclear facilities. The number of possible terrorist targets greatly exceeds the number of nuclear facilities. These targets include chemical and other hazardous sites, public infrastructure sites, and information systems, which, if attacked, would result in damage comparable to a terrorist act against a nuclear facility. The majority of these targets have less protection than nuclear facilities, but unfortunately, spot protection of every possible terrorist target is prohibitively expensive.[51]

To a certain extent, an inadequate level of physical protection at nuclear facilities is compensated by increasing the number of protective security forces on alert at these sites. Troops

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50. "Principles of the State Policy in the Area of Ensuring Nuclear and Radiological Safety/Security in the Russian Federation for the Period until the Year 2010 and for Further Prospective," http://www.scrf.gov.ru/Documents/Decree/2003/2196.html.

51. Dmitry Kovchegin, "Approaches to Design Basis Threat in Russia in the Context of Significant Increase of Terrorist Activity," in *Proceedings of the 44th Annual Meeting of the Institute for Nuclear Materials Management*, Phoenix, Arizona, July 13–17, 2003 (Northbrook, Ill.: INMM, 2003).

are regularly dispatched when there is an upsurge of terrorist activity in Russia, as well as in other countries. More recently, Interior Ministry troops were sent as reinforcements to guard nuclear power plants during the wave of terrorist attacks in Russia in August–September 2004.[52]

These measures, however, do not solve the problem of providing on-site physical protection systems with more advanced technological means to counter current threats. In fact, technological means can significantly increase the cost-effectiveness of physical protection efforts[53] and address the flaws inherent in systems with a heavy reliance on the human factor. The need for adequate physical protection systems was acknowledged upon the adoption of the presidential decree in December 2003 approving the "Foundations of Government Policy in the Area of Nuclear Safety and Radiation Protection within the Russian Federation for the Period to 2010 and beyond."[54] This decree specifically highlights the need for "improvement of the systems and means of physical protection for objects of atomic energy use, and increases in their anti-sabotage and anti-terrorist capabilities" to ensure nuclear security.

Although the full list of measures in the decree covers a broad range of activities intended to guarantee reliable nuclear security, it fails to propose one measure that can greatly increase the chances of desired results: minimizing the number of facilities where nuclear and other hazardous materials are stored, and destroying a significant number of these materials. In addition, although the goals are clearly stated, efforts to put these words into action have been inadequate.

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52. "Rossiiskie energoob'ekty vzyaty pod usilennuyu orhranu" [Russian power facilities are put under increased protection], *RIA Novosti*, September 1, 2004.
53. Igor Goloskokov, "Reformirovanie Voisk MVD po Ohrane Yadernyh Ob'ektov Rossii" [The reform of Ministry of Internal Affairs detachments guarding Russian nuclear facilities], *Yaderny Kontrol*, No. 4 (Winter 2003).
54. Boris Yeltsin, "On the Fight against Terrorism," Russian Federal Law No. 130-FZ (Moscow, Russia: Kremlin, July 25, 1998), http://fas.org/irp/world/russia/docs/law_980725.htm.

Legal Framework

The legal framework governing Russian nuclear security consists of federal laws, presidential decrees, and specific articles in the Russian criminal code, among other documents. Broadly speaking, relevant legislation falls into two categories: (1) terrorism prevention; and (2) specific actions regulating atomic energy use and the physical protection of nuclear materials.

Terrorism Prevention

As was already discussed, Russian authorities employ more general methods for fighting terrorism in place of spot protection of nuclear facilities. The federal law "On the Fight against Terrorism," which was adopted on July 25, 1998, defines a broad range of strategies for preventing terrorism and addresses the possibility that terrorists could acquire and use nuclear, radiological, chemical, biological, and other hazardous materials. In addition, this law identifies the Federal Security Service (FSB), Interior Ministry, Foreign Intelligence Service (SVR), Federal Guard Service, and the Ministry of Defense as agencies directly involved in counterterrorism. A government decree in June 1999 also identified both the Ministry of Atomic Energy and Gosatomnadzor as participating agencies in counterterrorism in certain instances.

The fight against terrorism is coordinated and directed by the Federal Antiterrorism Commission (FAC), which was established in 1998. Heads of executive bodies engaged in counterterrorism activities comprise the majority of the FAC. All decisions made by the FAC are obligatory at the national, regional, and local levels.

The Russian Criminal Code contains a number of articles that cover the smuggling of WMD materials and technologies subject to export control; terrorism against nuclear facilities or using nuclear materials; illicit handling and theft of nuclear materials; and a number of other crimes relevant to nuclear security and WMD proliferation. It is worth noting that the punishment for nuclear terrorism recently became more severe in response to the upsurge of terrorist activity in Russia and around the world—it now calls for life imprisonment.[55] Punishment for nuclear materials smuggling, however, still remains inadequate.

In September 1999, immediately following the explosions in Moscow residential buildings, the Russian government issued the decree "On Measures of Counterterrorism." This decree ordered law enforcement agencies to increase the protection of nuclear facilities and enterprises handling radioactive materials. Currently, this decree serves as a basis for counterterrorism activity, including the protection of nuclear facilities.

Physical Protection of Nuclear Materials and Facilities

The federal law "On Atomic Energy Use" establishes the basic rules of the game with regard to civilian applications of nuclear technology in Russia. In addition, it defines the authority and responsibility of the different actors and institutions involved in nuclear activities. The "Rules of Physical Protection of Nuclear Materials, Nuclear Facilities, and Nuclear Materials Storage Sites"[56] establishes specific requirements for the physical protection of nuclear materials, nuclear facilities, and nuclear materials storage sites, and applies to all military and civilian enterprises that work in the field. It is worth noting that a new version of the "Rules of Physical Protection"

55. "Putin Podpisal Izmeneniya v UK RF ob Uzhestochenii Nakazaniya za Terrorizm" [Putin signed amendments to the Russian criminal code on toughening punishment for terrorism], *RIA Novosti*, July 26, 2004.
56. Approved by Government Decree No. 264, March 7, 1997.

is currently being developed, in which the Russian state's role in supervising physical protection will be increased.[57] The updated rules will also allow for greater flexibility among organizations responsible for a facility's activities to ensure the necessary level of security.[58] Thus, instead of prescribing specific procedures to ensure nuclear security, it will only require that a certain level of security be achieved by the organization. The organization itself will then define methods to achieve the prescribed security level.

Provisions of the existing "Rules of Physical Protection" are detailed in the "Requirements of the Systems of Physical Protection of Nuclear Materials, Nuclear Facilities and Nuclear Materials' Storage Sites." On October 18, 2005, the Russian Ministry of Industry and Energy held its first hearings for technical regulations "On Nuclear and Radiation Safety and Security." The regulations were developed jointly by Rosatom, Rostekhnadzor, and the Federal Oversight Service of Consumers' Rights Protection. This document has been developed taking into account recommendations of the IAEA document INFCIRC/225/Rev.4, "The Physical Protection of Nuclear Material and Nuclear Facilities," and will be applicable to all peaceful nuclear activity. In particular, the documents call for the creation and upgrade of physical protection systems on the basis of a vulnerability assessment, which would be carried out according to *accepted threats* and *adversary models*. While the concept of design-basis threat, (which is used worldwide) is not specifically defined in this document, the combination of "accepted threats" and "adversary model" effectively constitutes a DBT. Unfortunately, DBT has yet to be formally approved at the federal level in Russia.

57. Vladimir Koutsenko, Alexander Izmaylov, Vladimir Babkin, Egor Sokolov, James Griggs, Don Wentz, Paul Rexroth, and Alexander Piskarev, "The Role of Regulatory Documents in the Further Improvement of Physical Protection of Nuclear Materials," in *Proceedings of the Institute of Nuclear Materials Management*, 2003.
58. Ibid.

Another important procedure prescribed in the "Requirements of the Systems of Physical Protection" is to assess physical protection system effectiveness. Ideally, this should be carried out regularly using drills and/or other analytical or modeling methods on each level pertinent to the physical protection system, both upon its inception as well as during day-to-day operation. The frequency of these assessments is to be defined by the government body in charge of specific sites.

Enforcement

Unfortunately, while a significant number of regulatory and legislative documents have been developed and implemented, there are still significant breaches in regulations. This is particularly evident with regard to both transporting nuclear materials and issues governing the activity of facility guards. Enforcement of the existing legislative framework is also insufficient.

Furthermore, current systems of physical protection are based on scientific approaches and use a significant amount of high-tech equipment. Accordingly, the rules and requirements regulating physical protection have been developed to fit this situation. Yet, in addition to the "nuclear" authorities—Rosatom and Rostekhnadzor—there is another major player in the nuclear field—the Ministry of Internal Affairs (MVD). The MVD is responsible for guarding nuclear facilities, but regulations governing MVD activity in this sphere are outdated and do not account for physical protection systems currently in place or for the changing approaches to protection of nuclear facilities. This in turn leads to disputes between the MVD and the nuclear authorities and results in decreased effectiveness of protective measures.[59]

59. Igor Goloskokov, "Reformirovanie Voisk MVD po Ohrane Yadernyh Ob'ektov Rossii" [The reform of Ministry of Internal Affairs detachments guarding Russian nuclear facilities], *Yaderny Kontrol*, No. 4 (Winter 2003).

Finally, it is important to note that the bulk of the above-mentioned legislation was developed under the auspices of U.S.-Russian MPC&A cooperation and with U.S. funding. From the perspective of sustainability, this aspect of U.S.-Russian cooperation can be considered highly cost-effective and valuable over the long-term, although there are no tangible measurements of the amount of nuclear materials secured or upgrades completed.

Domestic Funding

Domestic funding is a vital component of the nuclear security sustainability problem. The key issue will be whether or not Russia will be able to finance the sustainable operation of installed MPC&A equipment and upgrades and to maintain reliable physical protection systems once international assistance ends. To address this question, it is necessary both to analyze Russia's current domestic capabilities in this area and prospects for the future, and to consider possible ways of encouraging increased Russian domestic funding for programs related to nuclear security.

Russian Funding Abilities

It is first necessary to provide a benchmark to measure current appropriated funds against Russia's actual domestic capacity. Within the framework of MPC&A programs in 2003–05, the United States budgeted between 194 and 330 million dollars. The National Infrastructure and Sustainability Office, which falls under the umbrella of MPC&A programs, mobilizes national and regional resources in Russia to establish and sustain effective operation of upgraded

MPC&A systems, and develops strategies for soliciting full state financial support for the operation and maintenance of MPC&A systems.[60] The National Infrastructure and Sustainability program allocated $44.4 million in 2003, $28 million in 2004, and $27 million in 2005 for Russia.[61] Existing Russian budget figures do not distinguish those expenditures devoted solely to sustainability.

The table below summarizes planned budget appropriations for measures specified under subprograms devoted to MPC&A—under the auspices of the special federal program "Nuclear and Radiation Security/Safety" for the years 2000–06.[62]

Table 1. Planned Budget Appropriations (in millions of rubles)[63]

	2000	2001	2002–03	2004–06	Total
Modernization of MPC&A practices	1.050	1.260	4.330	9.400	39.170
Creation of a state MPC&A system	0.500	0.600	2.090	4.510	18.810
Production of MPC&A equipment	1.750	2.100	10.250	20.210	84.980
Physical protection improvement	0.680	0.810	8.990	15.360	65.550
Personnel training	0.900	1.080	2.850	6.770	27.990
Total	4.880	5.850	28.510	56.250	236.51

Due to the lack of transparency of the Russian budget and different approaches to nuclear facilities and materials, the figures presented in the table above are likely significantly higher than the real sum appropriated for nuclear security. Regular underpayments of approved budget

60. The projects implemented by this office include MPC&A regulations development, Rostekhnadzor and Rosatom inspections, the Federal Information System (FIS) for tracking nuclear material inventories, training personnel for physical protection and MPC&A operations, the MPC&A Operations Monitoring (MOM) system, equipment certification and vendor support, operations and sustainability support, transportation security, and protective force enhancement. Please see http://www.nnsa.doe.gov/na-20/onis.shtml.
61. Defense Nuclear Nonproliferation 2005 Budget Request, http://www.mbe.doe.gov/budget/05budget/content/defnn/nn.pdf.
62. http://www.programs-gov.ru/cgi-bin/fcp_actions.cgi?mod=action&prg=88.
63. U.S. dollar to Russian ruble exchange rate between January 1, 2000, and the present has varied between 27 and 32 RUR/USD.

figures are common in Russia. Speaking to the State Duma in March 2003, then Russian Minister of Atomic Energy Alexander Rumyantsev noted that the amount of funding necessary to secure nuclear materials adequately is four to five times higher than what was being spent at that time.[64]

In terms of Russia's own ability to finance nuclear security measures, it is worth noting several points about its overall economic development. First, since recovering from the 1998 economic crisis, the Russian budget has increased threefold. Russia regularly pays its foreign creditors, and, as a result, its internal debts have decreased significantly. Second, employees of the nuclear complex are regularly paid**,** and in most cases salaries at nuclear facilities are higher than those in other sectors. The Russian government has managed a budgetary surplus for the last several years mainly due to revenues generated from high oil prices on the world market.

Budget appropriations in the sphere of nuclear security also depend on the priorities of the Russian government. Thus, programs geared toward chemical weapons destruction and submarine dismantlement, which are Russia's priorities within the Global Partnership, are better funded compared to other programs. In 2003, 15 billion rubles (or more than $500 million) was planned for the special federal program on chemical weapons destruction. Although this program was significantly underfunded in the end, with less than half of the funds actually appropriated, it still receives more funding than most other cooperative threat reduction programs. Russia also spends about $60–70[65] million annually for submarine dismantlement,[66] which covers 80 percent of the amount necessary, while only 20 percent comes from foreign assistance. In short, Russian

64. Presentation to the State Duma, March 5, 2004.
65. Dmitry Kovchegin, "Pererabotka OYaT v kontekste programmy Global'nogo partnerstva" [SNF reprocessing in the context of the global partnership program], *Yaderny Kontrol*, No. 2 (Summer 2005).
66. This figure covers only actual cutting of the submarine and unloading of the nuclear fuel from reactor. Fuel handling, waste treatment, and environment remediation are not covered by these funds.

domestic funding is generally available for threat reduction and nuclear security efforts that Russia deems priorities for its own national security.

Fortunately, significant growth in appropriations for national security and law enforcement can be seen in the 2005 budget, which was due primarily to the upsurge in terrorist activity in Russia in August–September 2004. As Minister of Finance Alexei Kudrin stated shortly after the tragic event in Beslan, funding for the MVD, FSB, Border Guard, and Foreign Intelligence would increase by 50 billion rubles (or almost $2 billion) in 2005.[67] Bearing in mind the recent increase in terrorist attacks on Russian soil, it is highly likely that a significant portion of this increase will be used to protect nuclear and other hazardous facilities.

Opportunities for Increased Effectiveness

In general, the international community has underestimated Russia's domestic funding contributions, as well as its economic capacity to commit additional funds for threat reduction programs. If Russia would make its expenditures transparent to foreign counterparts for review its commitment to fulfilling the goals of cooperative threat reduction would be confirmed.

Both Russia and the international community can take three steps to increase the effectiveness of each dollar spent on threat reduction in Russia. First, Russia should seek to optimize the balance between physical protection systems and guard forces. As mentioned above, deploying troops to nuclear facilities is common during serious domestic and

67. "Bor'ba s terrorizmom stanet odnim iz prioritetov federal'nogo byudzheta 2005 goda—glava Minfina Kudrin" [Fight against terrorism will become one of the priorities for the federal budget of the year 2005—Head of Minfin Kudrin], *RIA Novosti*, September 14, 2004.

international security crises. This action alone, however, does not necessarily ensure effective protection of nuclear facilities, particularly on a day-to-day basis.[68]

Second, budget expenditures for nuclear security should be subject to regular checks by the Russian Auditing Chamber, which has both been involved in threat reduction programs and served an important function in improving transparency in numerous other government accounting systems. Recently, the Auditing Chamber conducted a review of the funding for the Chemical Weapons Destruction program and nuclear submarine dismantlement. Such reviews should become routine for all other threat reduction programs.

Finally, Russia's foreign partners should encourage Russia to optimize the ways in which it allocates domestic funding to various threat reduction programs. To ensure the highest possible level of safety and security in Russia's nuclear arsenal, a plan for establishing the required Russian domestic funding for threat reduction needs to be completed before international assistance ends and Russia begins to bear the entirety of the expense. This should be accomplished by taking into account recent developments in physical protection tactics and technologies, as well as Russia's heavy reliance on guard forces. Finally, all expenditures in the nuclear security sphere should be subject to regular audits.

68. Igor Goloskokov, *Yaderny Kontrol*, No. 4 (Winter 2004).

V. Constraints to International Threat Reduction Cooperation

In terms of international nonproliferation cooperation specifically, it is necessary to remove the obstacles that significantly hinder implementation of joint efforts. While each program within the framework of Russia's international nonproliferation cooperation has specific features, a number of factors negatively impact the entire range of programs. This section analyzes Russia's approach to five major issues: (1) the legal basis for international cooperation, (2) tax exemption of funding appropriated by foreign donors, (3) liability for nuclear damage, (4) access to sensitive facilities to verify appropriate use of foreign assistance, and (5) reciprocity.

The Legal Basis for International Cooperation

Russia's cooperation with foreign countries on threat reduction is defined by a number of agreements and documents. Some general domestic legislation applies to threat reduction cooperation, as well as to specific legislation that was developed to support Russia's participation in these reduction efforts.

Since the very beginning of Russia's cooperation on threat reduction with foreign countries, no unified approach to formal arrangements or mechanisms for implementation has existed. Agreements covering different areas of cooperation lacked both a single, agreed-to terminology and model provisions. Such a situation often led to problems with program implementation, which became evident, in particular, through issues of tax exemption and liability for nuclear damage (see below).

The relationship between these agreements and the Russian legal system is also ambiguous. To be fully enforceable, most of these agreements require ratification by the Russian parliament, but the Russian government has not paid significant attention to the issue. Therefore, the agreements have been enforced only on a provisional basis and may have been implemented inappropriately.

Until recently, no comprehensive document covered the whole range of cooperative threat reduction issues that could provide a unified "rules of the game" for every area of cooperation. The G-8 Global Partnership is a start, but it is nonbinding and only declaratory in nature.

In May 2003 Belgium, Denmark, Finland, France, Germany, the Netherlands, Norway, the Russian Federation, Sweden, Great Britain, the United States, the European Community, and Euroatom signed the MNEPR. This agreement covers all major issues of concern for participants of cooperative threat reduction—taxation, access, appropriations verification, and liability—and sets guidelines for the mechanisms necessary for implementing and developing projects. It is not universal with respect to threat reduction cooperation, as it was initially intended to "establish a framework to facilitate cooperation in the area of safety of spent nuclear fuel and radioactive waste management in the Russian Federation," which is primarily relevant to submarine dismantlement projects.

This agreement has significant potential for extension. Russian authorities have already declared their intention to use MNEPR as a model for other areas of cooperation.[69] Another advantage of MNEPR is that, unlike Russia's other nonproliferation cooperation agreements, the Russian president supported it and the Duma quickly ratified it. This gives the agreement full

69. Anatoly Anin, "Global'noe partnerstvo na rasput'e" [The global partnership at a crossroads], *Yaderny Kontrol*, No. 4 (Winter 2003).

legitimacy and allows it to serve as a legal basis for cooperation without any reservations. The MNEPR agreement could serve as a model for implementation mechanisms. Nevertheless, the applicability of MNEPR with regard to liability issues is significantly restricted, particularly because the United States, contrary to the position of other parties, refused to sign the liability protocol, and insisted on following its own approach. In addition, smaller scale problems exist because Japan, which also provides some assistance to Russia, is not a signatory to the MNEPR.

Tax Exemption

The question of "tax exempt" status for international program assistance to Russia is still one of the obstacles impeding implementation of nonproliferation cooperation. To support implementation of international agreements, Russian government agencies issued numerous acts. These documents, however, were highly specific and often applied only to certain taxes, agreements, or contracts, and did not provide a tax exemption umbrella for the entire range of projects. In May 1999, the federal law "On Voluntary Aid (Assistance) to the Russian Federation" was adopted. The Russian government later issued a number of decrees to implement this law. This legislation primarily codified and introduced an orderly system for the process of taxation. Yet some problems still exist, and the process of obtaining tax exempt status is neither as easy nor as quick as is necessary for unimpeded project implementation.

Liability

Another issue on the U.S.-Russian threat reduction cooperation agenda concerns liability for damages that may be caused during the course of implementing joint projects. The unsettled

problem of liability resulted in the cessation of two major U.S.-Russian agreements in the areas of weapons-grade plutonium disposition and job creation for former weapons specialists.

In September 2000, the U.S. and Russian governments signed the Plutonium Management and Disposition agreement, obligating each state to destroy 34 tons of plutonium. No plutonium has been destroyed to date, however, because the commitment remained hopelessly bogged down in both governments' bureaucracies. The central stumbling block was competing demands about the liability of American contractors providing assistance to Russia in modifying the nuclear reactors that will be fueled by plutonium. The United States insisted on zero liability—even for damage caused by intentional sabotage by U.S. personnel. Russian negotiators argued that the agreement should be governed by normal business practices that would hold U.S. contractors accountable for accidents resulting from negligent behavior on their part.[70] In July 2005, Russia and the United States reportedly came to an agreement on the liability issue, which represents a major breakthrough in U.S.-Russian liability disputes. Unfortunately, however, no further action can be taken to destroy the plutonium until the agreement is ratified by the Duma.[71]

The essence of the problem is as follows: Russia does not want to be liable for U.S. sabotage; conversely, the United States is afraid of Russia making sabotage claims on every accident. This problem has resulted from the evolution of Russia's approach to the issue of liability since the very beginning of cooperation, and continues to this day. The liability provisions of nonproliferation cooperation agreements can be divided into three groups:[72] (1) Russia's agreements that unconditionally accept liability for nuclear and other damages (e.g., the

70. Graham Allison, "Small Steps Toward Nuclear Control," *Defense News*, September 19, 2005.
71. Wade Boese, "Plutonium Disposition Accord Reached," *Arms Control Today* (September 2005), http://www.armscontrol.org/act/2005_09/PlutoniumDisposition.asp.
72. Douglas Brubaker and Leonard Spector, "Liability and Western Nonproliferation Assistance to Russia," *Nonproliferation Review*, Spring 2003.

1992 CTR Umbrella agreement and subsequent agreements); (2) those agreements that apply various conditions relevant to the liability issue (e.g., MNEPR; the 1998 U.S.-Russian Nuclear Cities Initiative agreement; the 1998 U.S.-Russian Plutonium Science and Technology agreement; and Russia's agreements with the European Community, the European Bank for Reconstruction and Development, Germany, and France, among others); and (3) liability provisions that have yet to be defined (e.g., the liability protocol of the Plutonium Disposition agreement has not been concluded, and both the Nuclear Cities Initiative and the Plutonium Science and Technology agreements need to be renewed).

U.S.-Russian disagreements over the liability issue have arisen due to U.S. insistence on the application of fixed liability provisions written in the 1992 Umbrella agreement, which implies indemnification from any liability, including those arising from intentional sabotage by U.S. personnel. The Umbrella agreement and its derivatives represent the only cases of this approach to liability provisions. In subsequent agreements, the United States has been willing to accept conditional liability provisions. Therefore, current U.S. insistence on unconditional indemnification from any liabilities is surprising, inconsistent with other U.S. actions, and raises concerns among Russian policymakers.

So far, the unsettled status of the liability problem essentially prevented construction of the MOX-fuel fabrication facility within the framework of the Plutonium Disposition agreement. It also prevented the extension of the Nuclear Cities Initiative—a vital joint effort devoted to providing civilian jobs for former nuclear weapons–complex employees. All contracts signed under the Nuclear Cities Initiative and the Plutonium Science and Technology agreement, however, remained active. Unless this issue is resolved, long-term prospects for U.S.-Russian

cooperation will be hampered. To date, no new contracts have been signed since the expiration of the above two agreements.

Even if the "liability language" in agreements satisfied both parties, the lack of state capital for liability compensation prevents foreign partners from becoming involved in high-risk projects. Although liability provisions in the agreements between European countries and Russia have satisfied government partners, private suppliers of equipment and services require additional guarantees from the Russian government in the form of a confirmation letter of indemnity.[73]

Another factor relevant to the issue of liability in Russia's international cooperation involves compensation for nuclear damage.[74] None of the nuclear assistance agreements require that Russia provide financial security to meet its indemnification commitments, and no other means, such as pooling arrangements, are offered to cover nuclear damage. In addition, the Russian domestic insurance industry lacks sufficient capital to cover nuclear damages.

Access

The issue of access to nuclear sites and information to verify parties' obligations is one of the greatest impediments to U.S.-Russian cooperation. Access to sensitive facilities inevitably compromises confidentiality and requires high levels of trust. The Russian side is particularly sensitive to U.S. access demands that stem from its legal right as the donor to audit the intended use of appropriated funds. The United States, therefore, has firmer grounds for wanting access to Russian sites than vice versa. This situation arouses suspicion in Russia, because if it grants U.S. inspectors access to highly classified information, Russia believes it is making state secrets

73. Ibid.
74. Ibid.

vulnerable and thus compromising its national security. Moreover, according to the Russian *Doctrine of Information Security*, published in September 2000, extensive international cooperation is considered to contribute to spying against Russia. In the United States, Russian secrecy is considered exaggerated, thus raising suspicions that funds are being diverted from their intended purpose.

A number of factors explain Russia's sensitivity about granting access to nuclear facilities. First, the lack of transparency endemic in the Soviet Union was particularly true of the nuclear industry, which was the backbone of Soviet national security. Second, Soviet weapon and civilian nuclear complexes were deeply inseparable. The same production enterprises and research institutes worked on military as well as civilian projects. Thus, there are now a large number of closed "military-civilian" areas instead of a limited number of weapons research and production facilities. Third, a history of mutual mistrust over nuclear issues dates back to the post–World War II era when the Truman administration was unwilling to share any nuclear-related information with the Soviet Union.[75]

The legal aspects of "state secrets" are also underdeveloped. The Soviet Union had no (publicly available) legal basis for protecting state secrets, until the mid- to late 1990s, which started with the primary federal law "On State Secrets." Its main elements are, first, organizational structure: the Interagency Commission on Protection of State Secrets is the main advisory body, and its authority includes issues of classifying/declassifying, coordination, and drafting appropriate legislation. The Federal Service for Technical and Export Control (FSTEK, former State Technical Commission) is the main executive body for protecting state secrets. Oversight agencies include the Federal Security Service (FSB), Ministry of Defense (MoD),

75. Roland Timerbaev, "Mezhdunarodnyi Kontrol nad Atomnoi Energiei (International Control of Atomic Energy)," PIR Center, Moscow, 2003.

Foreign Intelligence Service (SVR), State Technical Commission, and the Office of the Prosecutor General. The relevant bodies with authority to work with secret information include the Federal Atomic Energy Agency (Rosatom). The second element of the legal foundation is a list of information with "state secret status," which extensively covers nuclear-related issues—from concepts to materials and from design to disposition. A third element is a list of officials, or the heads of executive bodies who have the right to assign "state secret status" and who are personally responsible for their decisions.

This legislation contains several gaps, however. First, "On State Secrets" defines principles that should be used to determine whether specific information should be classified or declassified. Procedures for classification and declassification are not defined in detail, however, because no necessary government decrees have been developed to implement appropriate provisions under the law. Together with the "personal responsibility" factor, this significantly aggravates this problem. For fear of mistakes, it is much easier for the primary person responsible to keep information secret than to open it. Second, the legislation regulating issues of intellectual property is poorly developed. The threat of "economic espionage" is now considered comparable to the threat of military espionage. Russia's WMD-related industry—the main focus of international cooperation—is the core of Russia's high-technology industry. Therefore, underdeveloped intellectual property regulation prevents greater openness out of fear that economically valuable technology could be stolen.

We must also take into account the general environment with regard to secrecy in Russia today. Some FSB representatives reasonably note that the early 1990s was a period during which secrecy was neglected and openness was exaggerated. When this euphoria passed, the existing

reality became clear, and according to the *Doctrine of Information Security*, the situation with the protection of state secrets has worsened.

Reciprocity

The extent of the access problem in Russia varies within cooperative threat reduction programs. The results range from very successful cooperation on MPC&A at Russian naval sites to the lack of any transparency in warhead dismantlement. There are a number of factors that are highly important for resolving this problem.

ECONOMIC INCENTIVES

Economic benefits have proven to be a major contributor to smoothly resolving an access problem. The U.S.-Russian HEU-LEU deal, through which Rosatom gains $500 million annually, is one of the most intrusive systems of inspections under the HEU transparency arrangements. It is necessary to keep the balance, however, between "buying willingness to cooperate" and "mutually beneficial cooperation" to avoid suspicion among Russian counterparts. Moreover, the "money-for-access" pattern is not universal—there are a number of extremely sensitive facilities, particularly those for warhead dismantlement, which are still inaccessible despite previous efforts**.**

STRATEGIC INCENTIVES

There are a number of specific issues of concern for each side: the U.S. hedge stockpile for Russia, Russian tactical weapons, and pit production breakdown capability for the U.S. [76] Through some concessions, it may be possible to reach an agreement on crucial issues—including access problems—and increase mutual confidence. However, the view that nonproliferation cooperation is a system of "selling secrets" for funding assistance is active within certain circles in Russia. In this case, increasing reciprocity can help build confidence, remove obstacles to access as well as other barriers emanating from Russian distrust of U.S. incentives, and encourage further cooperation. While unaddressed, these asymmetries—including stockpiles, organizational structures, and production complexes—can cause problems with reciprocity and slow cooperation. Some positive changes have taken place in this area recently. A group of Russian experts headed by the deputy head of Rosatom visited a number of sensitive U.S. sites in November 2004,[77] and President Bush endorsed equal reciprocal access for Russian experts to U.S. nuclear sites in December 2004.[78]

BUILDING MUTUAL TRUST AMONG PROJECT IMPLEMENTERS

Major successes in U.S.-Russian cooperation have resulted from close partnership leading to mutual trust between specialists from U.S. and Russian laboratories. This also significantly mitigates the problem of access. Such a relationship is not possible without stable team players on both sides. In fact, the lists of persons allowed access to Russian facilities, which must be approved annually, are an important element of existing agreements on access. That is why

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76. Oleg Bukharin and Kenneth Luongo, "U.S.-Russian Warhead Dismantlement Transparency: The Status, Problems, and Proposals," PU/CEES Report, No. 314, April 1999, http://www.ransac.org/Publications/Reports%20and%20Publications/Reports/transparency.html.
77. Jim Nesbitt, "Russian atomic officials tour Aiken, S.C.-area nuclear reservation," *Augusta Chronicle*, November 18, 2004.
78. George W. Bush, press conference, December 20, 2004, http://www.whitehouse.gov/news/releases/2004/12/20041220-3.html.

numerous Russian participants have cited the regular reshuffles of American teams as one of the main obstacles for successful resolution of the access problem**.**

VI. Conclusion

Russia's role in increasing nuclear security is crucial. Only Russia can foster an environment conducive to international cooperation and ensure sustainable nuclear security once foreign assistance ends. Moreover, Russia's position as a major international actor that bears responsibility for global nuclear security is subject to close scrutiny by the international community. Russia's commitment to nuclear security can encourage other states to become more actively involved in efforts devoted to increasing nuclear security, including preventing nuclear terrorism.

While international assistance to Russia has been thoroughly analyzed by government agencies, academic communities, and NGO experts, Russia's own contribution, both as a partner in international cooperation and the party solely responsible for nuclear security at home, remains largely unexamined. This report has sought to provide another perspective on cooperative threat reduction and Russia's role in it. It specifically analyzes the following areas pertinent to the issue: (1) Russia's threat perception with regard to nuclear security and terrorism; (2) Russia's efforts to provide a better environment for international assistance and joint projects; and (3) Russia's domestic efforts to ensure nuclear security and prevent nuclear terrorism. The following conclusions can be made on each of these specific areas under consideration.

Threat Perception

Russia's leadership clearly acknowledges the threat posed by the current storage conditions of nuclear and other WMD materials in Russia, as well as the threat of terrorists acquiring and using these materials. This acknowledgement is reflected formally in a number of official documents adopted at the highest level. Different degrees of threat perception in Russia and the United States, however, lead these countries to have different priorities for specific issues. For example, while the United States does not consider the environmental consequences of WMD program development in the former Soviet Union as a significant threat, Russia sees it as one of its greatest challenges. Thus, dismantlement of decommissioned nuclear submarines and chemical weapons destruction are a higher priority in Russia as compared to other issues.

In spite of high-level acknowledgement of the threat that insufficiently secured nuclear weapons and materials pose to Russia, government declarations have not yet been put into practice. The threat perception acknowledged by the Russian leadership, therefore, is not a motivating factor for the day-to-day activity at specific facilities involved in threat reduction cooperation. From a more practical perspective, a high-level threat assessment has yet to be reflected in a formalized design-basis threat, which must serve as the foundation for the development of protective measures.

Furthermore, strategic issues of bilateral U.S.-Russian relations do matter. Despite the end of the Cold War, both the United States and Russia still view each other as threats to their own national security. The legacy of the Cold War persists at the top level of both countries and on the level of individuals involved in joint program implementation at specific facilities. This

Cold War neuralgia is apparent when one considers the problems of access to sensitive facilities, selection of priorities in different areas of cooperation, and the attitudes of participants.

Russia's Environment for International Cooperation

To increase the effectiveness of nuclear security efforts with or without the appropriation of additional resources, certain mechanisms must be put in place to ensure that appropriated funds are used for projects that yield actual results. Evidence exists that appropriated funding is not spent on a level of effectiveness commensurate to the mission of cooperation. Improvements in this area could significantly benefit cooperation without increases in funding.

The political environment in Russia is conducive to threat reduction cooperation. The Russian president has always been a strong advocate of U.S.-Russian nuclear security cooperation. Since the Russian State Duma became more pro-Kremlin following the December 1999 elections, it has also adopted several measures and taken relevant legal actions to support cooperation. The Russian parliament, however, does not use all of its authority to leverage cooperation. Public opinion is subject to notable changes due to significant increases in terrorist activity, as well as to extensive mass-media coverage of nonproliferation and nuclear security efforts with regard to developments in Afghanistan, Iran, Iraq, and North Korea. Yet, the Russian public has not yet become a strong constituency for international cooperative efforts devoted to nuclear security, in part because of the lack of clear linkages between terrorism and issues of nuclear security.

Even in a supportive political environment, problems of access and liability remain the toughest obstacles to Russia's international nonproliferation cooperation. While both donor and

recipient each have their own reasons for insisting on particular arrangements, some compromise solution should be developed to allow for smoother cooperation. Specific tools are available to resolve these issues. The bottom line is that the United States and Russia should stop politicizing this problem. The common goal of achieving the highest possible level of nuclear security should guide resolutions to problems of access and liability.

The necessary organizational infrastructure exists for the implementation of joint programs in Russia. A broad range of executive bodies is involved; therefore, appropriate coordinating mechanisms are necessary. However, the level of interagency cooperation varies from program to program, depending on the priority given to specific programs by Russia's leadership. Communication between the decisionmaking and implementation levels is also vital for the success of cooperation: political decisions must be effectively and promptly transferred into real action, and feedback from bottom to top should also provide a timely response to emerging obstacles and new circumstances.

Domestic Efforts

Russian authorities realize the threat posed by terrorists to nuclear facilities and materials, but their approach to protecting the latter relies mostly on law enforcement activities, rather than on technical means of physical protection. While this is a reasonable policy given both Russia's large number of hazardous facilities and the recent upsurge in terrorist activity, the existing balance should be reevaluated to better employ modern technical approaches and solutions. These means can significantly increase the cost-effectiveness of protection efforts and address the flaws inherent in systems with a heavy reliance on the human factor.

A significant number of legal documents relevant to nuclear security have been developed in Russia, both within the framework of international cooperation and by Russian authorities on their own. The scope of these documents ranges from federal laws to regulations governing specific activities within executive bodies. Existing documents cover issues of terrorism prevention in general, as well as nuclear security issues specifically. Although the legislative work already accomplished is substantial, gaps still exist and additional work is required. Another important issue pertains to enforcement of existing regulations. Overall, this is poor because of a number of reasons ranging from Soviet cultural legacies to the lack of resources necessary to implement newly established regulations. Despite the existing problems, however, foreign assistance in this area may be one of the most valuable and cost-effective contributions to nuclear security in Russia.

Domestic funding is also a vital component of the nuclear security sustainability problem. Russian budget funding has mostly been overlooked in existing studies and the relevant capabilities of Russian funding sources remain unexamined. Due to recent economic growth, the Russian budget increased significantly, and funding for the Russian nuclear complex as a whole is at a much higher level than it was in the last decade. Russian budget appropriations for a number of high priority threat reduction programs, such as submarine dismantlement and chemical weapons destruction, are comparable to, or exceed, foreign assistance. Budget increases for law enforcement activity in 2005, which were announced after the terrorist attacks of August–September 2004, total almost $2 billion, but openly published figures for programs directly relevant to nuclear security are low. Due to the opacity of the Russian budget, it is likely that appropriations for protection of nuclear facilities and materials are hidden within more complete counterterrorism budget figures. Russia's Auditing Chamber has already raised

concerns about expenditures related to threat reduction programs by conducting a number of reviews of submarine dismantlement and chemical weapons destruction programs. However, such activities are not yet comprehensive.

Finally, a strong nuclear security culture is probably the most important element of sustainable nuclear security. In Russia, the following problems are of particular concern: (1) the collapse of the Soviet security system and the transition from a personnel- oriented system to a new one based on modern technology; (2) the lack of a clear link between the day-to-day duties of specific employees at nuclear facilities and nuclear proliferation and terrorism; (3) the nature of Russian business practices; and (4) that nuclear security activity is not the highest priority for the Russian nuclear establishment and facility managers, who consequently do not receive the appropriate material, human, and administrative resources for security upgrades. A significant number of people in the Russian nuclear complex still do not see threat reduction cooperation as beneficial for Russia.

In general, Russia's policy in the area of nuclear security and international cooperative threat reduction is in accordance with existing threat perceptions of the Russian authorities, and is consistent with Russia's stated priorities and historically adopted approaches to security issues and governance. A deeper understanding of Russia's priorities and the domestic environment in which it is implementing threat reduction programs will allow both Russian and its Western partners to take steps aimed at making nuclear security programs more efficient and ensuring their future sustainability.

VII. Recommendations

Increasing the funding for international threat reduction projects is important for their successful implementation. An authoritative study and revision of terrorist threat assessments by Howard Baker and Lloyd Cutler issued before the 9/11 attacks recommended spending $30 billion over a ten-year period to achieve reliable nuclear security in Russia—nearly three times as much as current expenditures for these efforts.

Bearing this in mind, two factors should be taken into account. First, the effectiveness of currently appropriated funding is far from ideal. A number of factors—including issues of bilateral U.S.-Russian relations, improper business practices on the Russian side, an imperfect legal framework in Russia, and neglect of Russia's concerns and environment by the United States—impede the efficient use of existing funding. Second, international assistance will eventually end. Russia itself will have to bear responsibility for the maintenance of reliable nuclear security at home.

Policy implementation that is based on a consideration of these two areas may significantly help to increase the level of nuclear security in Russia without a dramatic increase in funding. The conclusions of this report yield a number of recommendations for both the United States and Russia.

Work to Increase Confidence in Bilateral Relations

Implementation of this recommendation will have a tremendous effect on nuclear security cooperation in a number of ways. First, increased confidence will decrease the need for maintaining deterrence potential and, therefore, release a significant amount of funds currently

devoted to this effort. This money can be used for nuclear security needs. Second, increased confidence will alleviate—if not completely eliminate—the problem of access, which is currently one of the stumbling blocks in threat reduction cooperation. A sense of deepened confidence also can help to improve the attitudes of those involved in cooperation implementation.

Assign Priorities and Monitor Their Implementation through the Chain of Commands

American and Russian leaders have unambiguously stated that prevention of nuclear terrorism and other illegal acts involving nuclear materials are of the highest priority for both countries. These political declarations should be transformed into real actions on every level involved in cooperative threat reduction implementation. To achieve that goal, the presidents should clearly communicate priorities to their top officials; top officials should communicate to their subordinates and, further down, to individuals involved in daily handling of nuclear materials and their protection. The Bratislava agreement, which established a U.S.-Russian bilateral working group on this issue between the U.S. Department of Energy and Rosatom, is a good start. But to ensure the most effective implementation of this priority, a top official on the level of deputy head of the security councils of both countries should be appointed for daily oversight and management of the issue. This person in charge should also oversee interagency coordination in the area of nuclear security and relevant international cooperation, as well as maintain regular communications with foreign counterparts.

Consider Russia's Interests and Concerns More Closely

The donor-recipient relationship, which is based on the predominance of the interests and decisive authority of the donor side, is inherently unequal. Such a model cannot be sustained for successful cooperation in the highly sensitive area of nuclear security. Rather, it causes the recipient side to react defensively and skeptically, thus constraining any cooperative efforts. To ensure equal partnership, the United States should acknowledge Russia's interests and concerns and take them into account when implementing joint programs. For its part, Russia should acknowledge the interests and concerns of the United States and clearly demonstrate its commitment and willingness for cooperation and achievement of common security goals.

Invest in the Development of Domestic Sustainability

Within the framework of international cooperation, the two countries should focus on developing Russia's domestic capabilities for maintaining sustainable nuclear security. This includes the development of necessary regulations, efforts to ensure its enforcement, independent and strong oversight, and personnel training for MPC&A systems operation.

Encourage Domestic Funding Capabilities

Efforts should be made to ensure that Russian domestic funding for maintaining nuclear security will be available after foreign assistance ends. Options for generating additional revenue that can be spent on nuclear security must be explored. An excellent existing example is the U.S.-Russian HEU-LEU arrangement. Another possibility is the storage of foreign-origin spent nuclear fuel in Russia, which requires U.S. consent. Broader peaceful nuclear cooperation through the U.S.-Russian peaceful nuclear cooperation agreement is also possible. Specific facilities can be

encouraged by offering contracts for research or procurement of their production. The United States should call for a gradual increase in Russian domestic budget expenditures and transparency of appropriations as a condition for greater cooperation.

Develop a Timeline to Phase out Foreign Assistance

A timeline with clear milestones and a date of assistance termination should be developed together with Russia. To support implementation of this strategy, Western partners should consider defining planned funding for these efforts through their end, instead of on an annual basis.

Promote Modern Business Practices

Promotion of modern business practices—including project management, planning, accounting, motivation, and incentives—would help both sides to implement joint programs more effectively, as well as provide those involved in nuclear security activity with the skills and habits necessary for maintenance of modern MPC&A systems.

Raise Awareness within the Security Community and the Public

A clear understanding of the existing threats and the links between these threats and day-to-day work with nuclear materials is a crucial element of the motivation to work in a way most conducive for reliable nuclear security. To raise this awareness, issues of nonproliferation, international security, and cooperative threat reduction should become a vital part of personnel training and professional development, including for both facility managers and lower-level personnel involved in the day-to-day handling of nuclear materials. The general public should

also be more actively educated through consistent and competent coverage of issues of concern through mass media and NGO outreach, in order to create a strong constituency supportive of threat reduction efforts.

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