

## **US nonproliferation assistance: verification and transparency**

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The collapse of the Soviet Union in 1989 exacerbated fears that the vast Soviet arsenals of weapons of mass destruction (WMD) and associated materials and know-how might no longer be adequately safeguarded. This gave rise to a number of US government assistance programmes, known under the collective rubric of Cooperative Threat Reduction (CTR), intended to ensure the safety and security of WMD assets in former Soviet republics. The Soviet Nuclear Threat Reduction Act of 1991 set out the following goals: 'A) to facilitate on a priority basis the transportation, storage, safeguarding, and destruction of nuclear and other weapons in the Soviet Union, its republics, and any successor states; and B) to assist in the prevention of weapons proliferation'.<sup>1</sup> Since their inception these programmes, implemented by the departments of Defense, Energy, State and Commerce, have been allocated approximately US\$4 billion. In spite of some difficulties, significant progress has been made toward accomplishing their goals.

The Department of Defense (DoD) CTR programmes focus on helping the newly independent states of the former Soviet Union to meet their disarmament obligations under the 1991 Strategic Arms Reduction Treaty (START I), as well as improving the security of WMD storage and transport facilities. The Department of Energy (DoE), by comparison, is tasked with safeguarding nuclear materials in Russia and other former Soviet republics, stemming the 'brain drain' of nuclear scientists, and the disposition of excess nuclear materials. The nonproliferation assistance programmes of the departments of State and Commerce concentrate on providing export control assistance as well as training and equipment for customs and border guard organisations. Other key programmes funded by the State Department (in cooperation with other Western governments) include the International Science

and Technology Center (ISTC) in Russia and the Science and Technology Center in Ukraine (STCU), which were established to redirect WMD expertise in the newly independent states to other uses. The State Department's Nonproliferation and Disarmament Fund also participates in various DOE and DoD projects. These efforts, while of great significance, are not directly concerned with reducing or safeguarding WMD stockpiles or delivery vehicles, and are thus outside this chapter's scope.

### **Verification methods and challenges**

From its beginning, the CTR programme (also known, particularly in Russia, as the Nunn–Lugar Program after its two main authors)<sup>2</sup> has placed great emphasis on the verifiability of the activities it funds and ensuring the transparency of operations funded by CTR monies. There have been relatively few verification-related problems affecting the progress of CTR projects. By the estimate of former Senator Sam Nunn, one of the co-authors of the CTR programme and one of its staunchest supporters, in 2002 up to 90 percent of CTR projects were being successfully implemented.<sup>3</sup>

The verification activities that are performed within the framework of various CTR projects take a number of forms. In cases when projects involve performance criteria that are easily quantifiable (for example, the elimination of ballistic missiles and other weapon systems), verification is carried out in a relatively straightforward manner by physically confirming that the criteria have been met. In other cases such direct verification is impossible either because security considerations (for example, nuclear warhead security) preclude Western access to sites or because the nature of the activity does not lend itself to such straightforward methods. Moreover, in many instances the assistance takes the form of improving the capabilities of the Russian entities charged with nuclear safety and security. In such situations verification is performed by ensuring the accountability and proper use of equipment and/or services provided to Russian entities. Since in many situations Western access to Russian nuclear stockpiles is limited or impossible, such verification is an indirect method of ensuring the security, if not necessarily the transparency, of the Russian nuclear complex.

Western efforts to increase the security and transparency of Russia's nuclear stockpiles have encountered a number of difficulties. One of the biggest threats to these programmes is possible diversion of assistance. Because Russia's economic and

political institutions are still developing, the risk of diversion of assistance is high, and on-site auditing provisions are therefore a vital part of the overall CTR effort to make the Russian nuclear stockpiles both more secure and transparent. The opacity of the Russian financial system makes it difficult to ensure that nonproliferation assistance is applied correctly. A Russian parliamentary audit, conducted by the Audit Chamber, revealed that US\$270 million of foreign aid that was intended for nuclear disarmament was not accounted for.<sup>4</sup> Some Russian lawmakers reportedly suspect the military of diverting assistance to weapon programmes, although no reliable information is available.<sup>5</sup>

Another problem is secrecy. The Russian authorities have often been reticent about providing access to nuclear facilities. In part this is due to the understandably sensitive nature of these sites. However, other factors include lingering Cold War-era suspicions and resentments, which find their expression in the fears of some Russian officials that CTR-provided equipment may be used to gather intelligence information. Russian journalist Aleksandr Golts believes that, apart from concern about revealing military secrets, the Russian military resist intrusive nonproliferation assistance verification methods because they do not want outsiders to see how far the Russian armed forces have decayed. Golts also believes that the Russian military want to divert assistance to other uses, including financing the war in Chechnya.<sup>6</sup>

Considerations of prestige and status may also be factors. Many Russian officials wish to avoid a donor–recipient relationship and see this as incompatible with Russia's great-power status. The Russian government has been stung by American allegations that Russia is a 'WMD supermarket', its WMD stocks and technologies insufficiently safeguarded and posing a significant proliferation threat.<sup>7</sup> Even though Russia on occasion has acknowledged threats to its security, including from Chechen separatists, it has consistently and steadfastly denied that its nuclear weapons are in danger of being stolen.<sup>8</sup> Russian opposition may also be due to the fact that much of the CTR assistance is spent on American, rather than Russian, goods and services, although in this respect the situation has improved in recent years. Resentment is also caused by the implied suspicion of theft, exemplified by Pavel Felgengauer's comment in 2002 that, while the US administration is afraid that Russian government agencies and contractors will misappropriate CTR assistance, only US programme officials have ever been the object of a criminal investigation.<sup>9</sup>

Russian opponents of the assistance programmes appear to have had some success in slowing them down. According to some observers, the transparency problem has actually become worse in recent years.<sup>10</sup> The Russian security service, the Federal Security Service (Federal'naya Sluzhba Bezopasnosti, FSB), has become more active in combating the dissemination of information about Russia's WMD programmes. The imprisonment of the Russian researcher Igor Sutyagin, who is alleged to have disclosed classified information concerning Russian tactical nuclear weapons, is only the most prominent example of the more aggressive stance recently adopted by the FSB.<sup>11</sup> Although the Russian authorities have explained their increased emphasis on secrecy as being part of efforts to protect Russia against terrorism, this has had the net effect of reducing the public flow of information.

The overall attitude toward increasing nuclear transparency was exemplified by the tepid Russian response to the '10 + 10 Initiative' of the Group of Eight industrialised countries (G8),<sup>12</sup> launched at its summit meeting in Kananaskis, Canada, in June 2002. The G8 countries pledged up to US\$20 billion of new funding towards nonproliferation assistance projects, with particular emphasis on chemical weapons, the dismantling of nuclear submarines and fissile material disposition.<sup>13</sup> Russian observers noted that Russian officials were far from overjoyed by the prospect of this aid. In some cases this was due to their scepticism that the promised funds would ever materialise. At least in part, however, the lack of enthusiasm was due precisely to the fact that the opaqueness of the nuclear stockpiles would be more difficult to maintain if the aid programme was implemented.<sup>14</sup>

### **Department of Energy programmes**

The DOE has made considerable efforts to ensure improved transparency and security of Russian fissile materials. The ultimate goal of those efforts is to establish a high degree of transparency in regard to the Russian nuclear weapons and materials stockpiles, starting with deployed nuclear warheads, through the non-deployed warhead stockpile and weapon disassembly plants, and ending with excess component storage, conversion and blending activities, and the storage of excess high enriched uranium (HEU) and plutonium. The 2000 DOE Warhead and Fissile Material Transparency Program Strategic Plan does not include any provisions for monitoring the storage of strategic reserve components or weapon assembly plants.<sup>15</sup>

Key activities include the Materials Protection, Control and Accounting (MPC&A) Program, which improves the security of fissile materials in the newly independent states by providing security upgrades to selected nuclear facilities, promoting the consolidation of nuclear materials in central sites, and improving nuclear materials accounting procedures. The DOE also manages all Russian fissile material disposition projects, which are designed to convert weapons-grade material into nuclear fuel. In addition, DOE programmes include MPC&A upgrades to Russian facilities housing fresh and spent naval nuclear reactor fuel, as well as some facilities with naval nuclear weapons. DOE programmes also focus on ensuring the security of Russian nuclear materials, disposing of excess fissile materials, and preventing the brain drain of Russian nuclear scientists. The DOE Nuclear Cities Initiative (NCI) and the Initiative to Prevent Proliferation (IPP) seek to provide alternative employment opportunities for the employees of the Russian nuclear industrial complex, reducing the risk that individual scientists might transfer their weapon design know-how to countries of concern.

Efforts to increase the transparency of Russian nuclear stockpiles are being pursued through several different programmes in various stages of development. Deployed strategic nuclear warheads are already partially covered by the START I verification provisions, and the safeguarding of non-deployed nuclear warheads is the concern of the DoD. It was hoped that START III would eventually extend verification provisions to non-deployed warheads, disassembly activities and the storage of excess components. However, START III is now defunct, and the 2002 US-Russian Strategic Offensive Reductions Treaty (SORT) that superseded it is unlikely to incorporate such extensive verification provisions in the foreseeable future.<sup>16</sup> Nevertheless, the DOE has been pursuing the Russian Lab-to-Lab Warhead Dismantlement Transparency Program, whose purpose is to sustain an unclassified technical dialogue with Russian experts on warhead dismantlement transparency and foster support for transparency within the Russian nuclear weapons establishment. The goals of the programme include identifying the Russian nuclear weapons dismantlement programme, demonstrating transparency measures to confirm nuclear weapons dismantlement, and providing a 'chain of custody' of extracted nuclear material.<sup>17</sup> Only limited progress has been made in this programme. So far Russian experts have identified the main steps in the Russian warhead dismantlement process,

specified a number of technological approaches to verifying warhead dismantlement, and performed demonstrations of unclassified technologies. Further progress has been hindered by concerns about secrecy and access to sensitive facilities.<sup>18</sup>

By contrast, the conversion and downblending of weapons-grade materials from disassembled warheads is the most advanced portion of this effort. It also enjoys the most comprehensive transparency measures. It dates back to the US-Russian 1993 HEU Purchase Agreement, by which Russia is to sell to the US, over a period of 20 years, 500 metric tonnes of HEU extracted from dismantled nuclear warheads for conversion into reactor fuel. All the HEU-to-LEU (low enriched uranium) downblending operations are conducted at Russian nuclear facilities, while the conversion to reactor fuel is performed in the US. The United States Enrichment Corporation (USEC) transfers payments to the Russian company Tekhsnabexport.

The HEU Purchase Agreement includes what at present is the only formal large fissile material transparency regime. The Protocol on HEU Transparency Arrangements of March 1994 laid out procedures for ensuring transparency of operations at both the American and the Russian facilities involved in the project. The protocol permits reciprocal visits at a number of facilities in each country—six sites in the US where the LEU is transformed into nuclear fuel and four Russian facilities where HEU is downblended into LEU.<sup>19</sup> Monitoring at Russian facilities began in 1996. American monitors are entitled to observe the downblending process, put American tags on HEU and LEU containers, and review Russian nuclear material accounting documents.<sup>20</sup> In October 1996, in return for advance payment of US\$100 million, the Russian Ministry of Atomic Energy (Minatom) also agreed to enhanced transparency measures which include the use of US equipment for the verification of the presence of weapons-grade HEU and for continuous monitoring of the blending process.<sup>21</sup> The DOE has set up a permanent office in Novouralsk with four monitors who have continuous access to the Ural Electrochemical Combine.<sup>22</sup>

A report by the US General Accounting Office (GAO), issued on 22 September 2002, stated that most of the transparency provisions of the agreement have been put in place. Problems identified by the report included lack of access to weapons dismantlement facilities and delay in putting some of the verification measures into place. Continuous monitoring equipment was installed in only one facility

(the Ural Electrochemical Combine), and the issue of installing the equipment at two other facilities was unresolved. However, the GAO report found that the existing verification measures provided sufficient confidence that HEU is being downblended, even though these measures were deemed insufficient to guarantee that all LEU shipped to the US was the product of downblended HEU extracted from nuclear weapons. Furthermore, no progress has been made on additional transparency and the access measures proposed by the US administration in 1998 beyond the expression of interest by one Russian facility.<sup>23</sup>

Similar efforts are also being undertaken to account for, secure and eliminate surplus plutonium. In 1995, the US and Russia each declared 50 metric tonnes of weapons-grade plutonium from dismantled nuclear warheads as surplus. On 2 September 1998 US President Bill Clinton and Russian President Boris Yeltsin signed the Joint Statement of Principles for Management and Disposition of Plutonium Designated as No Longer Required for Defense Purposes.<sup>24</sup> Continued negotiations led to the 2000 Plutonium Disposition Agreement, signed by US Vice-President Al Gore and Russian Prime Minister Mikhail Kasyanov, which obliges both the US and Russia to eliminate 34 metric tonnes of the surplus plutonium each by using it as reactor fuel or blending it with radioactive waste. The Plutonium Disposition Agreement was the result of many years of negotiations.

A major role in the plutonium disposition verification effort will be played by the Trilateral Initiative, a joint effort launched in 1996 by the US, Russia and the International Atomic Energy Agency (IAEA). The Trilateral Initiative is an international monitoring regime whose purpose is to verify the permanent and irreversible removal of weapon materials from US and Russian nuclear weapon programmes and their subsequent storage.<sup>25</sup>

The Plutonium Management and Disposition Agreement signed by Russia and the US in September 2000 also contains provisions for the IAEA to be involved in verification activities, using techniques developed as part of the Trilateral Initiative. At the 2002 IAEA General Conference the Trilateral Initiative Working Group declared completed its task of investigating the legal, financial and technical aspects of creating a verification regime for classified and unclassified nuclear materials that would provide a high degree of confidence without revealing sensitive data. However, a number of crucial issues remained unresolved.<sup>26</sup>

In addition, the US is conducting an effort to reduce the amount of plutonium produced by the Russian reactors. Named Elimination of Weapons-Grade Plutonium Production, this programme is now managed by the DOE, although it was the responsibility of the DoD until December 2001.<sup>27</sup>

Excess weapons-grade materials will be stored under the Mayak Fissile Material Storage Facility (FMSF) transparency arrangements. The Mayak FMSF was conceived in 1992 as a storage facility for up to 50 tonnes of excess plutonium and 200 tonnes of uranium from dismantled nuclear warheads. Half of the funding for the project was to be provided by the US (through the DoD CTR programme) and half by Russia. However, Russia failed to provide its portion of the costs, and the US share of the project funding increased. Since the material to be stored at the Mayak FMSF must be of weapons origin, the DOE is developing technologies to confirm its origin by measuring a number of characteristics of the material, including the mass of fissile material components and the isotopic ratios and chemical composition of the material, while ensuring that no critical information is revealed. The US and Russia are also considering, under the Processing and Packaging Implementation Agreement (PPIA), how to support the processing and packaging of materials to be stored at the FMSF. The PPIA would entitle the US to conduct measurements to determine the weapons origin of the material prior to its reshaping and packaging, and to establish a chain of custody for the material. This aspect of the effort to ensure the transparency and security of Russian fissile materials is funded by the DoD, the main agency, through the CTR programme.<sup>28</sup>

Another crucial DOE programme is the MPC&A programme, which up until 1995 was implemented by the DoD. Its purpose is to safeguard the approximately 603 tonnes of weapons-grade material (not counting material in nuclear warheads) that Russia was estimated to possess at the time the Soviet Union broke up. MPC&A improvements include upgrading physical protection systems at sites where fissile materials are stored, incorporating control systems that would indicate theft or tampering, and modernising accounting systems to help keep track of fissile materials.<sup>29</sup> By the end of 2002 fewer than half of the 252 buildings at 40 sites where weapons-usable materials are stored had received such upgrades, but the process is continuing. The MPC&A effort also includes security upgrades to Russian naval nuclear warhead storage facilities through the installation of fences, strengthened

doors, security and monitoring systems, and radio communication systems. By 2002, the DOE was working on all but one of the 42 sites where an estimated 4,000 nuclear warheads are stored,<sup>30</sup> and had succeeded in implementing immediate upgrades to 91 percent of the sites and comprehensive upgrades to 17 percent.<sup>31</sup>

In late 1995 the DoD transferred the responsibility for the MPC&A projects to the DOE. The DOE has also developed its own procedures for verifying equipment accountability and usage. They include delivery and receipt verification, on-site visits by technical teams, videos, photographs and other documentation.<sup>32</sup>

### Department of Defense programmes

CTR projects that deal directly with nuclear weapons and delivery systems include the Strategic Offensive Arms Elimination (SOAE) projects, the construction of the FMSF which was discussed in greater detail above, and the Weapons Protection, Control and Accounting (WPC&A) project. In addition, the DoD is involved in defence conversion efforts, improving contacts between the US and Russian militaries, and the elimination of chemical weapons.

Since many of the activities are performed by Russian subcontractors, or cannot be verified directly, on-site verification of scheduled eliminations is supplemented by a comprehensive programme of on-site auditing and accounting for the goods and services provided. The 1992 CTR Umbrella Agreement negotiated with Russia and other recipients of CTR assistance in the Commonwealth of Independent States (CIS) includes provisions that require adherence to US laws and regulations, including the Federal Acquisitions and Regulations Act (FAR), which requires that all federally-funded activities be subject to verification. FAR adherence is a mandatory requirement for all enterprises, whether they are in the US or CIS countries, seeking CTR contracts.<sup>33</sup> Under the umbrella agreements, the DoD has established the right to examine the use of any equipment or goods supplied. The terms of the umbrella agreements vary from country to country.

The main verification tool used by the DoD is audits and examinations (A&ES) whose purpose is to ensure that the assistance is fully accounted for and is being used in accordance with the intended purpose. The DoD is obligated by the annual National Defense Authorization Act, authorising CTR funding, to provide an annual accounting to Congress of the results of its verification activities. Each year DoD

personnel conduct numerous on-site A&ES to ensure proper use and accountability of equipment and resources by entities in Russia and other recipient countries. A&ES are conducted at a rate of approximately one a month, with about half of A&E activities taking place in the Russian Federation, the largest recipient of CTR assistance. In addition to A&ES, on-site verification is performed by programme managers and by CTR logistics contractors who carry out maintenance. Furthermore, Western firms which were awarded CTR contracts maintain a continuous on-site presence. The close contacts between US and Russian firms has yielded benefits in terms of eliminating the risk of proliferation (for example, following reports of ballistic missile gyroscopes finding their way to Iraq, the accountability of such devices throughout the missile elimination cycle was strengthened) and has also resulted in Russian firms adopting more transparent Western-style business practices.<sup>34</sup>

Since the Defense Threat Reduction Agency (DTRA) does not have sufficient resources to perform annual audits of all CTR-provided equipment and services, it uses a number of selection criteria to identify CTR programmes that will be audited in a given year. These criteria include the value of assistance provided, the date of the most recent audit, the results of previous audits, and instructions from the Assistant Secretary of Defense for Strategy and Threat Evaluation. A GAO report released in December 2002 criticised the A&E methodology used by the DoD, although it did acknowledge that the DoD met the accountability requirements.<sup>35</sup>

SOAE projects lend themselves especially well to quantitative verification, since performance is measured in terms of number of ballistic missiles eliminated, numbers of missile silos and quantities of rocket fuel. By mid-2003 American inspectors had verified the deactivation of over 6,000 nuclear warheads (out of the total requirement of 13,000), the destruction of over 900 sea- and land-based strategic ballistic missiles (out of the total requirement of over 100 strategic bombers and over 2,400 strategic ballistic missiles), and other CTR successes. The process of elimination will continue at least up to 2012.<sup>36</sup>

The project that has experienced the greatest verification problems is the effort to improve the safety and security of Russian nuclear warhead storage facilities. Remarkably the DoD appears to have encountered considerably greater difficulties than the DoE did in its effort to secure naval nuclear warheads. Because of the sensitive nature of the warhead storage facilities, the Nuclear Warhead Storage

Security programme has been an exception to the established verification procedures. In 1997 the DoD and the Russian Ministry of Defence (MoD) concluded the so-called Special Arrangement in accordance with which assistance is subject to limited audits through alternative means, in the form of data on locations of equipment provided, photographs taken by MoD representatives, other documentation on equipment provided, MoD letters confirming that equipment is being put to the use intended, and examination of sample equipment.

In order to track CTR-supplied equipment on a site-by-site basis, the DoD and MoD have established a database which helps the DoD auditing process and helps them both in planning security improvements to the sites while reducing interference with the MoD nuclear warhead storage facility operations. During A&Es of security equipment provided as part of the 'Quick Fix' upgrade (for facilities deemed to be in the most urgent need of security improvements), audit teams were able to physically inspect equipment that had not yet been installed, but had to rely on photographs and other evidence provided by the MoD for security equipment that was installed. A&Es are conducted on a limited percentage of randomly selected items of equipment, based on a statistically significant sample. In some cases the equipment is brought for inspection to a training facility at Sergiev Posad, near Moscow, which enjoys a less stringent security environment and is therefore more accessible to US inspectors. The limited access has also led the DoD to rely on anecdotal data (provided by a variety of sources, both governmental and non-governmental) to assess programme effectiveness.<sup>37</sup>

The Special Arrangement does not extend to equipment provided as part of Nuclear Weapon Transportation System (NWTs) assistance. Such equipment is brought by the MoD for inspection to non-sensitive central locations where it is inspected by American personnel. As with other types of equipment, a statistically significant sample of equipment is provided. For example, an A&E of the security kits for railway wagons used to transport nuclear warheads selected 15 out of 100 converted railway wagons and 2 out of 15 guard force wagons for an audit, which included a visual inspection, a review of their logs maintained by the MoD, and a test of operational capabilities at the rail depot in Tver.

Nevertheless, the Special Arrangement proved inadequate to address the transparency problem fully. While the initial Quick Fix storage facility security upgrades

were installed at the Russian MOD's expense, the remainder will have to be installed by contractors paid by the CTR programme. Although the US has furnished the 12th Main Directorate of the MOD with security equipment for its nuclear warhead storage facilities, the equipment cannot be installed unless US funding is provided to pay the contractors. However, under the FAR requirements, the DOD cannot release the necessary funding unless the Russian government allows US representatives access to the facilities to verify that the security upgrade work has been completed, and the Russian government has unfortunately not given its permission. Although various compromise approaches to verification have been discussed (for example, verification through third parties using photographs), the US assistance programmes do not have the authority to ignore the FAR compliance requirement. As a result of the delays, only 20 percent of warhead storage facilities have received upgrades. SORT only added to the problem by promising to increase the number of non-deployed warheads, which will put greater strain on the storage facilities.<sup>38</sup>

While the efforts to achieve access to warhead storage facilities have so far been unsuccessful, other aspects of WPCA have not suffered such problems. The 12th Main Directorate received assistance for its personnel reliability programme, warhead inventory systems, and guard force training in the form of polygraph machines, drug detection kits, small arms training simulators and computers. Audits have verified that the equipment is being put to proper use.

### **The future of verification**

While US nonproliferation assistance has increased both the level of security of the Russian nuclear stockpile and, to a lesser extent, its transparency as well, some problems remain. Further progress in this area will depend in part on developments in the Russian political system and in part on the character of the relationship between the US (and Western countries in general) and Russia.

According to former Senator Nunn, the reason for Russian resistance to greater transparency lies in the lower echelons of the Russian government. Lugar believes that, although the US and Russian presidents understand the proliferation threat and what must be done to combat it, their understanding has not trickled down to the bureaucracy.<sup>39</sup> However, some Russian observers believe that the problem is caused not only by the US and Russian bureaucracies but is linked to the broader

relationship between the US and Russia. For example, Sergey Rogov, director of the US–Canada Institute, has said in reference to the difficulties experienced in gaining access to Russian nuclear warhead storage facilities that the situation was unlikely to change in the near future unless Russian inspectors were permitted similar access to US warhead storage facilities.<sup>40</sup> Here Rogov touched on the fact that the performance of the CTR programme has been linked not only to compliance with verification and transparency requirements but also to compliance in other areas of arms control. Such linkages have been made by both Russia and US. Whereas the US has made assistance conditional on Russia meeting a number of requirements that are not directly related to implementation of the CTR programme, Russia apparently has placed obstacles in the way of the US CTR verification effort in order to extract concessions from the US in arms control negotiations. As a result, the fate of the CTR programme has become intimately linked with the fortunes of the broader US–Russian arms control effort.

Moreover, the efforts to increase the transparency of Russian nuclear stockpiles have coincided with the reduced US emphasis on verification in strategic arms control and the decrease in interest in arms control treaties in general. Russian officials have frequently linked nonproliferation issues to major initiatives of President George W. Bush's administration, including its withdrawal from the 1972 Anti-Ballistic Missile (ABM) Treaty in 2001, the signing of SORT and the administration's 2001 Nuclear Posture Review. For example, the Russian Foreign Ministry's statement welcoming American willingness to continue cooperation with Russia on nonproliferation also asserted that the problem of proliferation had become more acute as a result of US withdrawal from the ABM Treaty.<sup>41</sup>

Russia was also irritated by a number of provisions in the Nuclear Posture Review, including the raising of the possibility that the US would develop a new generation of nuclear weapons and resume underground nuclear tests as part of the development programme. Such a move would be a grave setback to the 1996 Comprehensive Nuclear Test Ban Treaty (CTBT), which Russia has consistently supported.<sup>42</sup> The Nuclear Posture Review placed considerable emphasis on pre-emption while paying little attention to preventive measures, including nonproliferation assistance to other countries, Russia among them. The administration was determined to spend far more on ballistic missile defences and on the readiness to resume nuclear

tests than on nonproliferation. Nor did the US favour the inclusion of extensive verification measures in SORT. Whereas the Russian government preferred a fully-fledged arms control treaty akin to START I or II, the US opted for a text that preserved maximum flexibility for itself.<sup>43</sup> In spite of Russian concerns about verification, transparency and irreversibility, the Bush administration asserted that such provisions were unnecessary in the light of the new strategic relationship between the US and Russia.

Although the Bush administration appears to be interested in bolstering the transparency of the two countries' tactical nuclear weapon (TNW) holdings, its efforts have been interpreted by Russia as part of the US pursuit of unilateral advantage. Before the May 2002 summit meeting between presidents George W. Bush and Vladimir Putin, during which SORT was signed, officials announced that the US administration intended to raise the issue of Russian TNW transparency during the summit. Although the US was not interested in holding formal negotiations on the issue, it did want Russia to provide a detailed list of its TNW holdings and an explanation of what it intended to do with them in the future.<sup>44</sup> Testifying on 25 July 2002 before the Senate Armed Services Committee, Defense Secretary Donald Rumsfeld said that he wanted Russia to share more information about its TNW.<sup>45</sup> According to Rumsfeld, US intelligence did not have reliable figures on the Russian TNW arsenal and desired a better understanding. Rumsfeld had earlier stated that he was not interested in TNW reductions, only greater transparency.<sup>46</sup> However, the Russian government reacted negatively, stating that it was not bound by any treaty to provide such information—most likely a reference to the continued Russian desire for a verification regime for SORT.<sup>47</sup> Senator Joseph Biden has also supported greater TNW transparency but in conjunction with other measures: he advocates SORT verification and irreversibility provisions, and increased CTR assistance to eliminate the reduced warheads.<sup>48</sup>

These US moves and initiatives have not been effective in removing residual Russian suspicions concerning US intentions in Russia. However, some American officials have recognised the importance of transparency and verification to the continued success of nonproliferation assistance programmes and have advocated incorporating verification measures into SORT as a means of inducing Russia to improve its cooperation on other issues, including the CTR programme. During hearings following

the signing of SORT, Senator Biden pointed out the inconsistency of trusting Russia to abide by the SORT provisions without verification procedures while at the same time implying that Russia was not living up to other treaty obligations through the decertification process.<sup>49</sup> Likewise, former Senator Nunn recognised the problem of non-reciprocity and said that he would like to see a more reciprocal verification relationship.<sup>50</sup> Nunn and retired General Eugene Habiger (a former commander of the US strategic forces) have called on the administration to develop a coherent strategy for countering the threat of proliferation through reciprocal monitoring of US and Russian nuclear, biological and chemical (NBC) arsenals. Their plan also included provisions for ensuring transparency and irreversibility of weapons cuts under SORT and promoting verifiable de-alerting of strategic nuclear arsenals.<sup>51</sup>

## Conclusion

The experience of the CTR programme strongly suggests that verification of nonproliferation assistance programmes in Russia and other former Soviet republics is both possible and necessary. US nonproliferation assistance programmes have scored considerable successes in increasing both the security and transparency of the Russian nuclear complex. The emerging new strategic relationship between Russia and the West has not removed the need for greater WMD transparency. The improvement in Russia's relations with the West produced by President Putin's desire to portray his country as an ally in the 'war on terror' may actually reduce the West's willingness to press Russia on transparency and verification. Following the 11 September 2001 terrorist attacks on the US and the subsequent renewed concern about WMD proliferation from Russia, it is a distinct possibility that the temptation to sacrifice transparency in favour of expediency will win. To pursue such policies, however, would be a mistake. Sacrificing transparency under the guise of combating bureaucratisation would open the door to the possibility of major diversion and misuse of foreign assistance. Subsequent revelations of such abuse could deal a major blow to the CTR programme's reputation from which it might not recover.

Instead, it is necessary to press for greater transparency while at the same time addressing Russia's concerns. The CTR programme is, after all, an important component of the broader US-Russian strategic relationship, and it may not be possible to address its problems without also addressing other aspects of the broader relation-

ship. Although it may be tempting to think that the remaining verification problems can be addressed by applying political will, doing so might overestimate the extent of Putin's authority and/or his willingness to spend political capital on such an issue. Robust verification and transparency measures for SORT—a worthwhile endeavour in its own right—would be doubly useful if they also helped assuage Russian concerns about long-term US strategic plans and resulted in an improved WMD transparency environment.

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## Endnotes

- <sup>1</sup> Soviet Nuclear Threat Reduction Act of 1991 (title II of Public Law 102-228; 22 USC 2551).
- <sup>2</sup> Senators Sam Nunn and Richard Lugar, co-sponsors of the Soviet Nuclear Threat Reduction Act.
- <sup>3</sup> David Filipov, 'Cold War legacy slows terror fight', *Boston Globe*, 28 May 2002, p. A1, available on the Lexis-Nexis Academic Universe website, www.lexis-nexis.com.
- <sup>4</sup> Paul Webster, 'Weapons for sale?', *Macleans*, 16 December 2002, p. 35, available on the Lexis-Nexis Academic Universe website, www.lexis-nexis.com.
- <sup>5</sup> Filipov, 'Cold War legacy slows terror fight'.
- <sup>6</sup> Alksandr Golts, 'A \$20 billion payoff disguised as aid', *Russia Journal*, 8 July 2002, www.russiajournal.ru.
- <sup>7</sup> Charles Digges, 'Nunn takes private anti-nuclear effort', *Russia Journal*, 15 February 2002, www.therussiajournal.com.
- <sup>8</sup> Interfax, 'Russian Defense Ministry denies possibility of nuclear weapons theft', 4 September 2002.
- <sup>9</sup> Pavel Felgengauer, '\$20 billion for recycling', *Moskovskie Novosti*, 2 July 2002, in 'Russia's Felgengauer strikes cautionary note over Nunn-Lugar monies', Foreign Broadcast Information Service (FBIS) Document CEP20020703000375.
- <sup>10</sup> Webster, 'Weapons for sale?'.
- <sup>11</sup> Geoffrey York, 'Researcher must remain behind bars: Russian court rules spy charges too vague, but orders FSb to keep investigating', *Globe and Mail*, 28 December 2001, p. A14.
- <sup>12</sup> The G8 countries are Canada, France, Germany, Italy, Japan, Russia, UK and the US.
- <sup>13</sup> 'Statement by G8 leaders: The G8 Global Partnership against the Spread of Weapons and Materials of Mass Destruction', 27 June 2002.
- <sup>14</sup> Golts, 'A \$20 billion payoff'.
- <sup>15</sup> US Department of Energy, 'Warhead and Fissile Material Transparency Program Strategic Plan', February 2000, pp. 4–5.
- <sup>16</sup> The SORT text is available at [www.whitehouse.gov/news/releases/2002/05/20020524-3.html](http://www.whitehouse.gov/news/releases/2002/05/20020524-3.html). On START III, see Edward M. Ifft, 'Verifying nuclear arms control and disarmament', in Trevor Findlay and Oliver Meier (eds), *Verification Yearbook 2001*, The Verification Research, Training and Information Centre (VERTIC), London, 2001, pp. 30–31.
- <sup>17</sup> 'Chain of custody' refers here to transparency in handling of nuclear materials, from extraction from warheads through to conversion into reactor fuel or placement in long-term storage.
- <sup>18</sup> US Department of Energy, 'Warhead and Fissile Material Transparency Program Strategic Plan'.
- <sup>19</sup> The US facilities subject to monitoring are Siemens Power Corporation, Portsmouth Gaseous Diffusion Plant, ABB/Combustion Engineering, Inc., Westinghouse Nuclear, Framatome Cogema Fuels, and GE Nuclear Energy. Russian facilities subject to monitoring are the Siberian Chemical Combine, the Ural Electrochemical Combine, the Krasnoyarsk Electrochemical Plant, and the Mayak Production Association. Russian facilities involved in warhead dismantlement are not covered.
- <sup>20</sup> Matthew Bunn, 'The next wave: urgently needed new steps to control warheads and fissile material', Carnegie Endowment for International Peace and Harvard Project on Managing the Atom, Washington, DC, April 2000, p. 50.
- <sup>21</sup> US General Accounting Office (GAO), 'Nuclear nonproliferation: Status of transparency measures for US purchase of Russian highly enriched uranium', GAO/RCED-99-194, 22 September 1999.
- <sup>22</sup> US Department of Energy, 'Warhead and Fissile Material Transparency Program Strategic Plan', pp. 10–11.
- <sup>23</sup> US General Accounting Office (GAO), 'Nuclear nonproliferation: status of transparency measures for US purchase of Russian highly enriched uranium'.
- <sup>24</sup> Veronika Romanenkova, ITAR-TASS, 2 September 1998, in 'Yeltsin, Clinton sign statement on plutonium reduction', Foreign Broadcast Information Service, *Daily Report—Central Eurasia*, SOV-98-245, 2 September 1998.

<sup>25</sup> Thomas Shea, 'The Trilateral Initiative: getting ready', *Journal of Nuclear Materials Management*, vol. XXX, no. 4, summer 2002, pp. 28–33.

<sup>26</sup> 'IAEA verification of weapon-origin fissile material in the Russian Federation and the United States', 46th IAEA General Conference, 16 September 2002.

<sup>27</sup> 'Elimination of weapons-grade plutonium production', in 'Corporate context for National Nuclear Security Administration (NS) programs', pp. 177–81, [www.mbe.doe.gov/budget/03budget/content/defn/nucnonp.pdf](http://www.mbe.doe.gov/budget/03budget/content/defn/nucnonp.pdf).

<sup>28</sup> US Department of Energy, 'Warhead and Fissile Material Transparency Program Strategic Plan', pp. 11–13.

<sup>29</sup> US General Accounting Office (GAO), 'Nuclear nonproliferation: security of Russia's nuclear material improving: further enhancements needed', GAO-01-312, Washington, DC, February 2001, pp. 3–6, available at [www.gao.gov/new.items/do1312.pdf](http://www.gao.gov/new.items/do1312.pdf).

<sup>30</sup> GAO, 'Nuclear nonproliferation: security of Russia's nuclear material improving', pp. 7–8.

<sup>31</sup> US Department of Energy (DOE), *MPC&A Program Strategic Plan*, US DOE, Washington, DC, July 2001.

<sup>32</sup> US Department of Defense, *Cooperative Threat Reduction Program: Annual Report to Congress, Fiscal Year 2002*, DOE, Washington, DC, 2002.

<sup>33</sup> US Department of Defense, *Cooperative Threat Reduction Program: Annual Report to Congress, Fiscal Year 2002*.

<sup>34</sup> John Lepingwell and Nikolai Sokov, 'Strategic offensive arms elimination and weapons protection, control, and accounting', *Nonproliferation Review*, spring 2000, pp. 60–75.

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<sup>38</sup> Filipov, 'Cold War legacy slows terror fight'.

<sup>39</sup> Filipov, 'Cold War legacy slows terror fight'.

<sup>40</sup> Filipov, 'Cold War legacy slows terror fight'.

<sup>41</sup> Russian Ministry of Foreign Affairs, 'In connection with the White House statement on cooperation with Russia in the sphere of reducing the threat of proliferation of WMD', 29 December 2001, available on the Russian Ministry of Foreign Affairs website, [www.mid.ru](http://www.mid.ru).

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<sup>43</sup> Associated Press, 'Russia seeks new arms pact with us'.

<sup>44</sup> Associated Press, Tom Raum, 'Tactical weapons next topic', 20 May 2002.

<sup>45</sup> US Senate, Armed Services Committee Hearing, 25 July 2002, available on Lexis-Nexis Academic Universe, [www.lexis-nexis.com](http://www.lexis-nexis.com).

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<sup>50</sup> Filipov, 'Cold War legacy slows terror fight'.

<sup>51</sup> Sam Nunn, William Perry and Eugene Habiger, 'Still missing: a nuclear strategy', *Washington Post*, 21 May 2002, p. A17.