4. Transparency and security in Russian–US nuclear relations

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I. A historical overview

In the late 1940s, at the start of the cold war, the only means available to the Soviet Union and the United States for obtaining information about the other side's nuclear developments was intelligence activity. Throughout the 1950s the USSR used primarily human intelligence, while the USA increasingly used technical reconnaissance means, including U-2 high-altitude reconnaissance flights over Soviet territory and ground- and sea-based electronic surveillance. In retrospect, it is clear that the information acquired by these means provided an incomplete picture of both Soviet and US nuclear developments, which resulted in faulty perceptions and overestimations of the other side's nuclear capabilities. Most strikingly, US overestimations of Soviet bomber forces in the 1950s and of Soviet missile forces in the 1960s led to an expensive and unnecessary build-up of US capabilities.

By the early 1960s the USA and the USSR had developed important new technical tools for transparency[1]—satellites orbiting the earth. Along with the availability of technologies for remote monitoring, satellites enabled the two states to obtain much broader and more consistent information. Satellites became and still are the most important technical means for verifying the Soviet/Russian–US nuclear arms control agreements concluded from the 1970s to the 1990s.[2]

In the 1970s and 1980s, the USA and the USSR developed a more cooperative nuclear relationship. They negotiated several arms control agreements, the most important of which are the 1972 SALT I Interim Agreement, the 1979 Treaty on the Limitation of Strategic Offensive Arms (SALT II) and the 1972 Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty). These treaties imposed limits on further Soviet and US strategic nuclear build-ups and marked a significant change in both countries' attitudes towards transparency, since there was a need to verify compliance with them. While in the 1950s and 1960s obtaining information about another state's arsenal was regarded as espionage, in the early 1970s both countries realized that a certain level of transparency was necessary for verification purposes and that the ensu-

[1] In this chapter 'verification' refers to the monitoring of compliance with treaties and agreements. 'Transparency' is used in a broad sense, referring to information as well as to its accessibility and reliability.

[2] For a detailed analysis of verification measures see part II of this volume.

ing vulnerability was mutual. In negotiating the SALT and ABM treaties, the USA and the USSR tacitly agreed that compliance would be verified by national technical means (NTM) and that interfering with such activities was prohibited.

In addition to remote monitoring, the USA and the USSR began to use other verification and transparency measures—data exchanges and prior notifications. Data exchanges on the number of strategic nuclear delivery vehicles (SNDVs) took place in the context of the SALT negotiations, and prior notification of some missile launches and tests was required by a Soviet–US agreement.[3] These notifications were in essence transparency measures aimed at building confidence and reducing the risk of an accidental outbreak of nuclear war.

In the 1950s and 1960s, the USSR was not interested in transparency, in part because it was believed that it would reveal the Soviet nuclear inferiority vis-à-vis the USA. The more cooperative approach of the 1970s and 1980s became possible only after the USSR had reached strategic nuclear parity—an approximately equal level of deployed strategic nuclear forces—with the USA.[4] The effective end of asymmetry deprived the USA of the ability to launch a disarming first strike against the USSR. Consequently, the USSR's interest in maintaining a robust deterrent, *inter alia* through non-transparency, decreased. More importantly, with the ABM Treaty, the relative mutual vulnerability of comparable arsenals became a cornerstone of Soviet–US strategic stability. This vulnerability reduced both sides' motivation to launch a first strike because the potential damage from a retaliatory strike would have exceeded the advantage of an attack.

In the late 1980s—with the advent of Soviet President Mikhail Gorbachev's *perestroika* and *novoe myshlenie*—bilateral nuclear disarmament became a centrepiece of the efforts to overcome the mistrust of the cold war period. The new political environment opened the door for the unprecedented 1987 Treaty on the Elimination of Intermediate-Range and Shorter-Range Missiles (INF Treaty), which called for the complete elimination of an entire class of Soviet and US land-based ballistic and cruise missiles, those with a range of 500–5500 kilometres.[5]

The INF Treaty established an intrusive verification regime that went beyond the use of traditional NTM.[6] The major innovation was the acceptance of on-site inspections (OSIs). Soviet and US inspectors were allowed to monitor the com-

[3] The US–Soviet Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War was signed on 30 Sep. 1971 and entered into force the same day. The USA and the USSR agreed to notify each other in certain situations presenting a risk of nuclear war, including accidental or unauthorized launch of a nuclear weapon and the detection of unidentified objects by missile warning systems. The 2 nations pledged to notify each other of planned missile launches beyond the national territory. United Nations, *Treaty Series,* vol. 807 (UN: New York, 1972).

[4] Strictly speaking, quantitative parity in strategic nuclear force levels was reached in the late 1970s. However, the levels of the Soviet forces had become comparable to those of the USA by the late 1960s.

[5] For an account of the negotiations and the text of the INF Treaty see Dean, J., 'The INF Treaty negotiations', *SIPRI Yearbook 1988: World Armaments and Disarmament* (Oxford University Press: Oxford, 1988), pp. 375–489.

[6] The INF Treaty was fully implemented by the 2 parties before the deadline of 1 June 1991 and its inspection regime was discontinued on 31 May 2001.

plete life cycle of intermediate-range missiles—from the production facilities, bases and storage areas to the elimination sites. The INF Treaty provided for several types of inspection to facilitate verification, including continuous (or portal) monitoring and short-notice challenge inspections. This meant that remote monitoring by NTM was supplemented by monitoring at the perimeter of, or even inside, certain nuclear weapon facilities.

The verification procedures of the INF Treaty paved the way for negotiations on the 1991 Treaty on the Reduction and Limitation of Strategic Offensive Arms (START I Treaty). Under START I, the USA and the USSR undertook, for the first time, to reduce their arsenals of deployed strategic nuclear weapons rather than limit their growth.[7] Like the INF Treaty, the START I Treaty emphasizes cooperative verification measures, including various types of OSI. It also requires detailed exchanges of data every six months on SNDVs, including their performance, bases, production and dismantlement facilities, and status.

Several conclusions can be drawn from reviewing the history of transparency in Soviet–US nuclear relations from the 1950s to the early 1990s.

1. During this period, bilateral transparency in nuclear assets gradually increased and became more intrusive.
2. It was possible to negotiate cooperative transparency measures only after there was near-parity in the strategic nuclear arsenals of the two powers and when fears of a disarming first strike were alleviated.
3. The more substantial the strategic nuclear limitations and reductions agreed, the more intrusive and far-reaching was the transparency which accompanied them.
4. Positive developments in general bilateral political relations were essential preconditions for the breakthroughs in transparency of the late 1980s.

II. Post-cold war developments

The period immediately following the collapse of the USSR and the end of the cold war marked a further expansion of Russian–US cooperation in the nuclear field, including transparency measures. Despite the achievements of the late 1980s and early 1990s, the bilateral strategic arms control regime regulated only a segment of the nuclear arsenals of both powers. Strictly speaking, it imposed limits on strategic SNDVs and led only to the elimination of intermediate-range land-based missiles. While these restrictions indirectly affected the deployment and the number of nuclear warheads associated with those delivery vehicles, none of the agreements negotiated by the time of the Soviet collapse imposed specific limits on warheads—nor was any meaningful

[7] The reductions under the START I Treaty were successfully completed by 5 Dec. 2001. US Department of State, Bureau of Arms Control, 'Fact Sheet: START Treaty final reductions', 5 Dec. 2001, URL <http://www.state.gov/t/ac/rls/fs/2001/6669.htm>.

transparency scheme introduced for warheads or for weapon-grade fissile materials.

On 27 September and 6 October 1991, presidents George H. W. Bush and Mikhail Gorbachev, respectively, announced their intentions to carry out reciprocal, parallel withdrawals of tactical nuclear warheads from military units to storage sites. In January 1992 Russian President Boris Yeltsin further expanded the Gorbachev initiatives. Although the primary driving force behind the 1991–92 Bush–Gorbachev/Yeltsin initiatives, known as the Presidential Nuclear Initiatives (PNIs), was concern about the consolidation of the tactical nuclear arsenal of the increasingly unstable USSR into secure storage in Russia, they also helped to address the gap in nuclear disarmament left by negotiated strategic arms control.[8]

Under the Bush initiative, the USA decided to withdraw to its territory a major portion of its tactical nuclear weapons located abroad, including artillery shells, short-range missiles, gravity bombs and nuclear weapons aboard US surface naval vessels. An unspecified number of US gravity bombs remain stored in US military bases in Europe.[9]

In response, the USSR and later Russia agreed on a set of measures that were expected to be implemented by the end of 2000. These included: (*a*) the withdrawal of all nuclear weapons from the former USSR to Russian territory; (*b*) the withdrawal of all non-strategic nuclear warheads from naval vessels; (*c)* the complete elimination of warheads designated for tactical land-based missiles, artillery shells and landmines; (*d*) the partial elimination of warheads for naval aviation; (*e*) the elimination of half the number of warheads for tactical aircraft; (*f*) the elimination of one-third of the number of warheads removed from naval vessels; (*g*) the elimination of half the number of warheads designated for air defence missiles; and (*h*) the storage in central sites of two-thirds of the warheads removed from naval vessels, half of the warheads removed from anti-ballistic and anti-aircraft missiles, and all non-eliminated warheads removed from naval aviation.

When these measures are fully implemented, only half of the warheads designated for tactical aircraft will remain on military bases. All other warheads would be either eliminated or moved to central storage sites. However, these measures did not have to be verified by data exchanges or transparency measures, which makes the status of their implementation a subject of speculation. What is known is that, according to official statements, the withdrawal of former Soviet tactical nuclear warheads to Russian territory was completed by May 1992 and that of strategic warheads by November 1996. In April 2000, at the Review Conference for the 1968 Treaty on the Non-proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT), Russian Minister of Foreign Affairs

[8] Fieldhouse, R., 'Nuclear weapon developments and unilateral reduction initiatives', *SIPRI Yearbook 1992: World Armaments and Disarmament* (Oxford University Press: Oxford, 1992), pp. 67–84; excerpts from the PNIs are reproduced in appendix 2A, pp. 85–92.

[9] See, e.g., Zarimpas, N., 'Tactical nuclear weapons', *SIPRI Yearbook 2002: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2002), pp. 571–75.

Igor Ivanov stated that by that time Moscow had eliminated one-third of the warheads removed from naval vessels and half of the warheads removed from air defence missiles and gravity bombs, and was close to having completely eliminated all warheads from tactical land-based missiles, artillery shells and landmines.[10] In April 2002 Russia stated that the full implementation of the PNIs would be delayed until 2004 for financial reasons.[11]

Transparency in nuclear materials and warhead production

The collapse of the USSR focused international attention on the problem of the redundancy of its arsenals of nuclear warheads and materials and the danger that they could be diverted to unauthorized use. In the early 1990s the international media published numerous reports claiming that Russian nuclear assets had been diverted. Some of the cases involving nuclear material were later confirmed by Russia. In 1991, in order to pre-empt such diversion, the US Congress adopted a law which provided for the Cooperative Threat Reduction (CTR) programme, also called the Nunn–Lugar programme after the two senators who co-sponsored the original authorizing legislation. In December 1991 President Bush signed it into law. The CTR programme has three goals: (*a*) to assist the former Soviet states in destroying its non-conventional weapons, that is, nuclear, biological and chemical weapons and other sophisticated arms; (*b*) to assist in safely transporting, storing, disabling and safeguarding such weapons; and (*c*) to establish effective mechanisms against the proliferation of these weapons.[12]

Under the CTR programme, another set of bilateral initiatives was adopted and partially implemented in the 1990s. They attempted to introduce transparency in excess weapon-grade fissile materials, fresh and spent nuclear fuel for various nuclear-related systems, and, to some extent, in warhead dismantlement. Transparency was strengthened within the framework of numerous Russian–US efforts to reduce the risk of the proliferation of nuclear materials from Russia and other former Soviet states. Moreover, these measures were intended to facilitate Russia's fulfilment of obligations under formal strategic arms control agreements and the 1991–92 PNIs.[13]

In contrast to transparency measures negotiated during the cold war, the transparency programme set up by these initiatives is asymmetrical, giving

[10] Ivanov, I. S., 'Statement at the Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, New York, 25 Apr. 2000', available at the Carnegie Endowment for International Peace Internet site at URL <http://www.ceip.org/files/projects/npp/resources/npt2000ivanov.htm>.

[11] 'Statement of the Delegation of the Russian Federation at the First Session of the Preparatory Committee for the 2005 NPT Review Conference under Article VI of the Treaty, New York, 11 Apr. 2002', URL <http://www.ln.mid.ru/bl.nsf/arh/F8906FA2A4723ef843256ba300394EAE>.

[12] Wolfsthal, J. B., Chuen, C.-A. and Daughtry, E. E. (eds), *Nuclear Status Report: Nuclear Weapons, Fissile Materials, and Export Controls in the Former Soviet Union*, no. 6 (Carnegie Endowment for International Peace: Washington, DC, and Monterey Institute of International Studies: Monterey, Calif., June 2001), p. 47, available at URL <http://ceip.org/files/pdf/Status.pdf>.

[13] Zarimpas (note 9).

more rights to the USA since the US Government finances these projects and makes the provision of funds conditional on obtaining access to the facilities that receive assistance. The basic idea is that the USA provides funding for consolidating and enhancing the custodial security of Russian nuclear materials in exchange for greater openness in the Russian nuclear complex.

The 1993 Russian–US Highly Enriched Uranium (HEU) Agreement, which has an important transparency dimension, might be considered the most significant achievement among such efforts.[14] Under the agreement, HEU from dismantled Russian warheads is down-blended in Russia and then delivered to the USA where, after further processing, it is used as fuel for US nuclear power plants. The overall gain for Russia was initially estimated at $12 billion but in reality it will be less than this.[15]

According to the HEU Agreement, Russia must dismantle several thousand strategic and tactical nuclear warheads. Consequently, through the transparency provisions, the USA has gained an opportunity to indirectly obtain more information on the disassembly of Russia's nuclear warheads. Although actual warhead disassembly is not monitored, US teams of experts have gained a better understanding of the processes and materials involved. The transparency measures include both US visits to and monitoring of Russian facilities where the HEU is down-blended, in order to verify that the HEU is actually extracted from dismantled warheads. However, no measures have been agreed for enabling inspectors to verify the weapon origin of the material. In a reciprocal provision, Russia is allowed to conduct monitoring at US plants in order to verify that low enriched uranium shipped from Russia is not re-enriched in the USA for weapon manufacture.

Another major bilateral programme that is being successfully implemented is aimed at improving material protection, control and accounting (MPC&A) of Russian nuclear materials. This programme is funded under the auspices of the US Department of Energy and provides the USA with an opportunity to make regular visits to almost all the Russian facilities where nuclear materials, including weapon-grade material, are located. Within the MPC&A programme, similar arrangements were negotiated in the late 1990s for several Russian Navy facilities where both fresh and spent fuel for nuclear-powered naval vessels is kept. However, Russia refused to grant the USA access to four key warhead assembly and dismantlement plants, located in the four 'closed' cities of Lesnoy, Sarov, Trekhgorny and Zarechny. As a result, the USA refused to provide MPC&A assistance to those facilities. A similar deadlock over assistance to research and development facilities in Sarov and Snezhinsk may eventually be broken as a result of intensive talks on access.

[14] The text of the HEU Agreement is reproduced in *SIPRI Yearbook 1994* (Oxford University Press: Oxford, 1994), pp. 673–75.

[15] The HEU Agreement was later renegotiated, making the amount to be paid to Russia dependent on market forces. Given the fall in uranium prices after the deal was concluded, the revision suggested that Russia's overall income would be less than expected. Neff, T., 'Privatizing US national security: the US–Russian HEU deal at risk', *Arms Control Today*, vol. 28, no. 6 (Aug./Sep. 1998), pp. 8–14.

In two other important initiatives, progress is slow because of disagreements over transparency. The first is the construction of a fissile materials storage facility at Mayak (in the Ural Mountains) for the purpose of storing components extracted from dismantled nuclear weapons, including plutonium pits. The USA made its assistance conditional on Russia's acceptance of intrusive transparency measures. Although Russia has accepted US visits and random inspections at the Mayak facility, it has declined the US proposals aimed at verifying the origin of the material. Reportedly, the proposals included transparency measures to be implemented outside the future storage site, including the establishment of an 'upstream' chain of custody, specifically involving the plutonium pit conversion plant at Mayak.

The second important agreement is the 1996 Trilateral Initiative between Russia, the USA and the International Atomic Energy Agency (IAEA). The Trilateral Initiative was officially launched in September 1996 and was aimed at negotiating transparency measures to ensure that the excess weapon-grade fissile materials of both countries would not be reused in the production of nuclear weapons. Verification is to be implemented by the IAEA. Originally, Russia participated in the initiative in order to resolve its disagreements with the USA over the verification of arrangements at the Mayak storage facility. Although the three sides continuously report 'constant progress' in the talks, the absence of an agreement after more than five years of discussions demonstrates that progress is slow. Disagreements on how to find a balance between verification requirements and the protection of classified data remain unresolved.[16]

The last promising development in the area of transparency took place in the spring of 2001, when Russia and Belarus ratified the 1992 Treaty on Open Skies, which obligates the parties to submit their territories to short-notice unarmed surveillance flights.[17] The area of application stretches from Vancouver, Canada, eastward to Vladivostok, Russia. The Open Skies Treaty entered into force on 1 January 2002. Indirectly, it might represent a useful multilateral mechanism for greater transparency in nuclear assets in Russia and the USA. For instance, the overflights might become an additional remote monitoring measure to track changes in the deployment of nuclear warheads.

Non-traditional bilateral initiatives adopted in the 1990s helped to expand bilateral transparency measures to nuclear warheads and materials. Although no transparency measures have been applied to nuclear warheads, certain measures were agreed regarding fissile materials. The measures were incomplete and fragmented, but they permitted the establishment of a set of transparency regimes parallel to those based on formal strategic arms control agreements. Success in the implementation of these initiatives depended directly on the extent of the funding that the USA was ready to provide for a specific project and on the level of sensitivity of the facilities involved: the more funds and the

[16] See also chapters 5, 10 and 11 in this volume.

[17] 'All conditions fulfilled for Open Skies Treaty to enter into force', Press Release, Organization for Security and Co-operation in Europe (OSCE) Secretariat, Vienna, 5 Nov. 2001. The text of the treaty is available on the OSCE Internet site at URL <http://www.osce.org/docs/english/oskiese.htm>.

less sensitivity, the more successful the implementation. Russia often complained that the agreed measures were asymmetrical, leaving the US assets relatively less transparent. The USA countered that its programmes were in general more open and that there was not much for Russia to learn that was not already known. The initiatives covered only small segments of Russia's nuclear complex and thus failed to motivate Russia or the USA to disclose data on their stockpiles of nuclear weapons and weapon-grade fissile materials. A decade after the end of the cold war, the bulk of the nuclear holdings of Russia and the USA remain non-transparent.

Russian–US interest in nuclear warhead transparency and dismantlement

The 'transparency through assistance' efforts failed to address the issue of nuclear warhead transparency. From the very beginning Russia rejected the US attempts to gain access to its warhead facilities in exchange for assistance with warhead dismantlement or with improving the safety of nuclear materials. As soon as the most sensitive facilities appeared on the list of those to receive assistance, Russia refused to grant the USA the access it sought. As a result, the USA did not provide assistance for warhead dismantlement per se but did assist in such important but marginal activities as safe warhead transportation. It also facilitated and promoted dismantlement through the HEU and storage facility projects.

The 1997 Joint Statement

In 1997 Russia and the USA made their most recent attempt to include nuclear warheads in a formal bilateral nuclear control regime. On 21 March, at their Helsinki summit meeting, presidents Bill Clinton and Boris Yeltsin signed the Joint Statement on Parameters on Future Reductions in Nuclear Forces,[18] which opened the door for the discussion of transparency in warheads under three provisions.

First, the Joint Statement stipulated that a future START III accord should contain measures aimed at making available data on the numbers and yields of strategic nuclear warheads, as well as data on their elimination. The accord was also to guarantee that deep reductions in warheads would be irreversible. To implement these deep reductions, technical and organizational measures should be agreed. This provision required not only that there should be an exchange of data on numbers, capabilities and the elimination of strategic nuclear warheads but also that this exchange should be verified. If a START III agreement had been concluded, it might have included storage sites for strategic nuclear warheads and, perhaps, their production and elimination facilities and transporta-

[18] Joint Statement on Parameters on Future Reductions in Nuclear Forces, The White House, Office of the Press Secretary, Washington, DC, 21 Mar. 1997, available on the Carnegie Endowment for International Peace Internet site at URL <http://www.ceip.org/files/projects/npp/resources/summits6.htm#parameters>.

tion, in a transparency regime. However, the text of the Joint Statement permitted the interpretation that the irreversibility of the strategic warheads reductions could be achieved either by warhead elimination or by other technical and organizational measures, which were not specified and had not been negotiated.

Second, the Joint Statement called for the discussion of possible measures related to long-range sea-launched cruise missiles (SLCMs) and tactical nuclear systems. Expert discussions were to take place in the context of, but separately from, the START III negotiations. Again, this provision is open to two interpretations. According to one, 'tactical nuclear systems' refers to carriers only, not warheads. According to the other interpretation, the nuclear warheads attributed to the missiles are included, marking the Joint Statement as the first Russian–US document that could have triggered a dialogue on tactical nuclear warheads at the expert level. In addition, the provision required the negotiation of appropriate confidence-building and transparency measures with regard to SLCMs and tactical nuclear systems. Consequently, it might have improved the prospects for transparency in part of the stockpiles of tactical nuclear warheads or their delivery vehicles.

Third, the Joint Statement contained a provision that the parties would deactivate the delivery vehicles scheduled for elimination by 31 December 2003, the original deadline for the implementation of the 1993 Treaty on Further Reduction and Limitation of Strategic Offensive Arms (START II Treaty).[19] This early deactivation was to be carried out either by removing the warheads from their delivery vehicles or by 'taking other jointly agreed steps', which had not been determined. Finally, the USA stated that it would provide assistance, via the CTR programme, to facilitate early deactivation.

This 'early deactivation' provision was not incorporated into the START II Protocol, signed by Russia and the USA on 26 September 1997.[20] Instead, it was codified by an exchange of letters between Russian Minister of Foreign Affairs Yevgeniy Primakov and US Secretary of State Madeleine Albright. The two sides proposed to start expert consultations on early deactivation immediately after the START II Treaty entered into force. In both letters, the consultations were directly linked to US assistance. In Primakov's letter it was also stated that agreements made by Russia were based on the assumption that a START III accord would enter into force before early deactivation was completed, that is, by 31 December 2003.[21] Therefore, all three provisions of the Joint Statement related to nuclear warhead transparency were directly linked to a START III accord.

[19] For a description of the provisions of the START II Treaty see Lockwood, D., 'Nuclear arms control', *SIPRI Yearbook 1993: World Armaments and Disarmament* (Oxford University Press: Oxford, 1993), pp. 554–59. The treaty never entered into force; on 14 June 2002, as a response to the expiration of the ABM Treaty on 13 June, Russia declared that it will no longer be bound by the START II Treaty.

[20] See, e.g., Arms Control Association, 'Fact Sheet: START II and its extension protocol at a glance', (n.d.), URL <http://www.armscontrol.org/factsheets/start2.asp>.

[21] 'Fact Sheet on START II Protocol, letters on early deactivation', *Washington File* (United States Information Service, US Embassy: Stockholm, 26 Sep. 1997).

In summary, the Joint Statement opened prospects for the negotiation of a legal regime of transparency in strategic nuclear warheads through the START III talks on early deactivation of Russian MIRVed (equipped with multiple independently targetable re-entry vehicles) missiles. In parallel, through expert discussions, another agreement was reached to expand the transparency regime to cover tactical warheads attributed to tactical missiles and long-range SLCMs. In other words, at least a back door was opened for the negotiation of formal bilateral arms control regimes with associated transparency measures covering all tactical nuclear warheads, which remained open after the implementation of the PNIs.

The March 1997 Joint Statement contained a strict linkage between the commencement of START III negotiations and the ratification of the START II Treaty by Russia (the US Senate ratified the treaty on 26 January 1996). Because of domestic political debates and Russian–US disagreements over the air raids against Iraq in the winter of 1998/99 and the NATO bombing campaign in Yugoslavia in March–June 1999, Russia did not approve ratification until April 2000—three years after the Helsinki summit meeting. However, Article 9 of the Russian Law on Ratification contained a stipulation that Russia would not exchange the instruments of ratification until the US Senate had approved the set of ABM Treaty-related agreements that were signed at the same time as the START II Protocol.[22]

This provision effectively blocked entry into force of the START II Treaty since these agreements faced strong opposition in the US Senate. The Republicans believed that the collapse of the USSR had rendered the ABM Treaty null and void and that approval of the 1997 agreements might be interpreted as an admission to the contrary. As a result, the Clinton Administration decided not to submit either these agreements or the START II Protocol to the Senate since there was little chance that the Senate would approve the ABM Treaty-related agreements.

In summary, the complicated balance of compromises reached at Helsinki and codified at New York did not survive. Despite the surprising Russian ratification, the START II Treaty did not enter into force, and the framework for a follow-on START III accord set out in the Joint Statement collapsed. It became clear that there was little prospect of moving ahead with deeper reductions in nuclear arms without first cutting the START II–ABM Treaty-related Gordian knot, which has been tied by the legislatures in both Russia and the USA.

[22] The set of agreements was signed in New York on 26 Sep. 1997 by Belarus, Kazakhstan, Russia, Ukraine and the USA. It consisted of: the Memorandum of Understanding on Succession (MOUS), 2 Agreed Statements, and the Agreement on Confidence-Building Measures related to Systems to Counter Ballistic Missiles other than Strategic Ballistic Missiles. The MOUS recognized Russia, Belarus, Ukraine and Kazakhstan as successor states of the USSR vis-à-vis the ABM Treaty. The Agreed Statements set out technical parameters to clarify the demarcation line between non-strategic missile defences, which were permitted by the ABM Treaty, and strategic missile defences, which were restricted by the treaty. In order to alleviate concerns that tests of non-strategic interceptors might be used to circumvent the treaty, the states parties agreed on a set of confidence-building measures. The agreements would enter into force only after their ratification by the legislatures of the 5 countries. The USA did not ratify them and they became moot with the demise of the ABM Treaty in 2002.

Transparency versus force levels

The end of the cold war and the ensuing changes in the 1990s created an interesting debate in both Russia and the USA with regard to bilateral strategic arms control. On the one hand, considering the long life of nuclear weapons, Russia would be able to maintain approximate numerical strategic nuclear parity with the USA for a few more years. Consequently, the arms control regimes would still maintain their regulatory role in stabilizing the bilateral deterrence relationship. On the other hand, despite all the points of contention, the improved political relations between Russia and the USA, together with growing asymmetries between the two countries, meant that strategic arms control regimes received significantly less priority in their national security policies. In the 1990s, even nuclear arms control efforts gave way to assistance measures under the umbrella of numerous bilateral CTR programmes.

Moreover, Russia's continuing decline caused it to be removed from the centre of US national security calculations. Indeed, it would seem that Russia could not challenge US interests overseas, as it did during the cold war. In fiscal year (FY) 2002 Russia's defence budget was about $9 billion, compared to the US defence budget of over $300 billion.[23] With such huge asymmetry, it would hardly be possible for Russia to maintain approximate nuclear parity with the USA if the USA decided to maintain START I strategic forces levels. According to most estimates, Russia's strategic nuclear deterrent will, for economic reasons, decline from its recent level of about 5500 deployed warheads to the low thousands or even hundreds within the next 10–15 years, irrespective of the fate of arms control regimes.

From a US perspective, if Russia's forces are going to decline dramatically anyway, it would make little sense to enter into complicated and difficult arms control talks with Russia, as they could trigger domestic debates and result in a call for reciprocal concessions. Under the prevailing circumstances the USA has naturally started to lose interest in a substantial part of the formal bilateral negotiated arms control mechanisms—both existing and prospective.

At the same time, the USA maintains an interest in continuing—and even increasing—the transparency in Russia's nuclear arsenals and weapon production complex. This is partly because of concerns that the large nuclear weapon stockpile and know-how in Russia could be diverted to states seeking to acquire nuclear weapons or to non-state terrorist actors that could significantly threaten US policies and interests abroad and even US territory. Transparency, coupled

[23] Romashkin, P. B., Col. (Ret.), Advisor, Yabloko faction, State Duma of the Federal Assembly of the Russian Federation, 'Military expenditures in the federal budget for 2002', Oct. 2001, available on the Carnegie Endowment for International Peace Internet site at URL <http://www.ceip.org/files/projects/npp/pdf/Romashkin.pdf>. For FY 2002, the Russian Government requested *c*. 280 billion roubles. For 2002, the official average estimate of the rouble/US dollar exchange rate is expected to be 32 : 1. The national defence budget of Russia could therefore slightly exceed $9 billion. For the US figures, see *National Defense Budget Estimates for the Amended FY 2002 Budget* (Green Book), Office of the Under Secretary of Defense (Comptroller), Aug. 2001,URL <http://www.dtic.mil/comptroller/fy2002budget/>.

with safety measures, would help to reduce that risk or at least facilitate the detection of diversion at an early stage.

Another reason for the USA's interest in transparency beyond existing regimes can be found in military planning. It is known that Russia's strategic forces are—and most certainly will remain—below treaty ceilings. However, the scale of and schedule for future Russian reductions are uncertain. This complicates long-term US force planning and was perhaps one of the important reasons for the delays in the completion of the US Nuclear Posture Review in 2001.

For its part, Russia faces an even more complicated dichotomy. One school there believes that arms control regimes—and the transparency inevitably associated with them—represent the only tool available for restricting the military deployments of the superior side. Therefore, maintaining the regimes is in Russia's interest. For this school of thought, the only way to maintain strategic nuclear parity with the USA is to conclude a new strategic nuclear reductions agreement, with overall ceilings below 2000 warheads.

The other school in Russia argues that the weaker side should not invest too much in arms control—especially not in transparency. In their opinion, post-cold war nuclear arms reduction agreements have codified asymmetries in the size and structure of the US and Russian nuclear forces, to the disadvantage of the latter. One of their main criticisms was that the START II Treaty's permissive provisions for 'downloading' launch vehicles had the effect of leaving the USA in a better position than Russia to rapidly reconstitute its strategic forces by redeploying stored nuclear warheads on land- and sea-based ballistic missiles; the USA could gain up to a 6 : 1 advantage over Russia in the number of deployed strategic nuclear warheads. At the same time, START II required the parties to give up MIRVed intercontinental ballistic missiles—the cornerstone of the Russian strategic triad. Taken together, these provisions were seen as having a grossly inequitable impact on Russia's strategic nuclear forces, in effect making the weak even weaker.[24]

If, or when, Russian–US asymmetries in strategic nuclear deployments do become a reality, transparency in deployed arsenals might cause growing national security concerns. Under conditions of asymmetry, it could be argued that transparency is destabilizing. For inferior forces, transparency increases the sense of vulnerability. Since the weaker side perceives that the details of its smaller nuclear capabilities are well known to the stronger side, in time of crisis it might have a stronger motivation to use its weapons first, so as not to risk losing them in a disarming attack. This concern might also lead the weaker state to maintain its forces on high alert status, so as to be able to launch them before they are destroyed.

Generally speaking, a weaker state would want to keep its nuclear capabilities as ambiguous as possible in order to prevent their destruction in a disarming

[24] For more on this debate see, e.g., Pikayev, A., *The Rise and Fall of START II: The Russian View* (Carnegie Endowment for International Peace: Washington, DC, 1999), available at URL <http://www.ceip.org/files/Publications/pikayev.asp>.

attack and in order to have them for deterrence purposes. For this reason, the greater the asymmetries in numbers of deployed nuclear weapons, the stronger will be the pressure to reduce the level of transparency.

A new strategic framework?

Today, it is obvious that Russia and the USA have different priorities in their cooperative nuclear relations. The USA is clearly no longer interested in limiting Russia's nuclear force levels through arms control but still wants to strengthen transparency and ensure predictability. For its part, Russia has become perhaps even more interested than during the cold war in lowering the US force levels through arms control limitations. At the same time, a likely departure from approximate numerical parity in strategic nuclear force levels might increasingly press Russia to reduce transparency in its deployed and stored forces.

This basic imbalance significantly shaped Russian–US debates on a new strategic framework for bilateral relations in 2001 and early 2002. The term 'new strategic framework' was used for the first time by US President George W. Bush in his address to the students and faculty of the National Defense University in Washington, DC on 1 May 2001.[25] Bush declared that Russia and the USA were no longer enemies and that their relations should therefore not be regulated by such legacies of the cold war as the ABM Treaty. Moreover, the Bush Administration expressed its discontent with formal strategic arms control agreements, which it sees as inhibiting US flexibility to respond to new threats in an evolving security environment. While the Bush Administration carefully avoided characterizing the START process as a cold war legacy, it was silent on possible future development of the START agreements. Dissatisfaction with arms control negotiations was reflected in the statement by US Secretary of Defense Donald Rumsfeld to the effect that only enemies have negotiations, while friends hold consultations.[26]

Russia, in contrast, reiterated its commitment to traditional strategic arms control negotiations and legally binding treaties. It has indicated its potential willingness to pursue deep strategic nuclear reductions down to 1000 deployed strategic warheads, not only through measures negotiated with the USA but also through parallel unilateral steps. Russia also firmly retained its conviction that the ABM Treaty had not become irrelevant and still represented a cornerstone not only of bilateral stability but also of global security.[27] In fact, from

[25] 'Remarks by the President to students and faculty at National Defense University', Fort Lesley J. Mcnair, The White House, Office of the Press Secretary, Washington, DC, 1 May 2001, URL <http://www.whitehouse.gov/news/releases/2001/05/20010501-10.html>.

[26] See, e.g., Cirincione, J. and Wolfsthal, J. B., 'What if the new strategic framework goes bad?', *Arms Control Today*, vol. 31, no. 9 (Nov. 2001), p. 6, available at URL <http://www.armscontrol.org/act/2001_11/cirincionenov01.asp#bio>.

[27] See e.g., Letter dated 20 April 2000 from the Permanent Representative of the Russian Federation addressed to the Secretary-General of the Conference transmitting the text of a statement made on 14 April 2000 by Mr. Vladimir V. Putin, Acting President of the Russian Federation, in connection with the ratification by the State Duma of the Federal Assembly of the Russian Federation of the START-II Treaty and

time to time Russia had threatened to abandon a number of important arms control agreements if the USA unilaterally withdrew from the ABM Treaty. The list of treaties which might be affected by Russian reciprocal action included the START I and INF treaties and even the CFE Treaty.

Bush and Putin met for the first time at a summit meeting in Ljubljana, Slovenia, on 16 June 2001. Despite the tension inherent in their positions, they agreed to initiate a 'constructive dialogue' on the improvement of strategic stability.[28] The two presidents met again on 22 July 2001 at a meeting of the Group of Eight industrialized nations in Genoa, where they agreed to begin consultations on strategic offensive and defensive weapons with an understanding that discussions of these two types of armament would be linked.[29]

After the 11 September 2001 terrorist attacks on the USA, Russian–US relations improved. In the course of subsequent Russian–US talks, Russia changed its position against modification of the ABM Treaty. Russian Foreign Minister Igor Ivanov stated that Russia might accept the replacement of the ABM Treaty with a new document that more adequately reflected the new security realities.[30] During the October 2001 meeting between presidents Bush and Putin in Shanghai, hopes that the ABM Treaty controversy would be resolved were further raised. Reportedly, Russia was prepared to amend the treaty in order to permit some testing of US missile defence systems. However, the Bush Administration was unwilling to accept the Russian proposals for amendments to the treaty that would lead to any restrictions on US tests of anti-missile systems.[31] Instead, it sought a mutual withdrawal from the treaty.[32]

At the Russian–US summit meeting held in Washington, DC and Crawford, Texas, in November 2001, the two sides failed to reach agreement on the ABM Treaty. As a result, in late November the Bush Administration decided to withdraw from the treaty unilaterally. On 13 December, in accordance with Article XV of the treaty, the USA gave formal notification that it would withdraw from the ABM Treaty, to take effect six months later. President Putin characterized the US decision as a mistake but avoided undertaking any reciprocal action.[33]

of the package of 1997 agreements on anti-missile defence, Conference on Disarmament document CD/1611, 25 Apr. 2000, available at URL <http://www.unog.ch/disarm/curdoc/1611.htm>.

[28] Tyler, P., 'Bush and Putin: new era of trust?', *International Herald Tribune*, 18 June 2001, pp. 1, 4.

[29] Joint Statement by President Bush and President Putin on Upcoming Consultations on Strategic Issues, The White House, Office of the Press Secretary, Washington, DC, 22 July 2001, URL <http://www.whitehouse.gov/news/releases/2001/07/20010722-6.html>.

[30] 'The Russian Foreign Minister will hand over a personal message from the Russian President to the President of the USA', *Pravda* (Internet edn), 19 Sep. 2001, URL <http://english.pravda.ru/diplomatic/2001/09/19/15581.html>.

[31] Under Article XIV of the ABM Treaty, the parties may amend the document. Amendments would enter into force after ratification. The treaty was amended in the 1974 Protocol, which introduced further numerical restrictions on permitted ballistic missile defences.

[32] Mufson, S. and La Franiere, S., 'ABM Treaty withdrawal: a turning point in arms control', *Washington Post*, 13 Dec. 2001, pp. A1, 13.

[33] 'A statement made by Russian President Vladimir Putin on December 13, 2001, regarding the decision of the administration of the United States of America to withdraw from the Anti-Ballistic Missile Treaty of 1972', 14 Dec. 2001, URL <http://www.iss.niiit.ru/sobdog-e/sd-67.htm>.

Russia's relatively mild reaction to the US withdrawal from the ABM Treaty could be explained by the progress the sides had achieved in the area of further strategic arms reductions.[34] During the November 2001 Russian–US summit meeting, President Bush announced the willingness of the USA to reduce its strategic nuclear arsenals to a level of 1700–2200 deployed warheads—or about 10 per cent below the ceilings which the Clinton Administration had agreed—within a decade. In addition, the idea of formalizing the reductions on, as President Bush described it, 'a sheet of paper' was accepted.[35] During the visit of Secretary of State Colin Powell to Moscow in mid-December, the two sides agreed to codify the nuclear reductions in an agreement, although the form of such an accord would have to be negotiated.[36] For the first time, Powell said that it might take the form of a treaty, which the Bush Administration had previously resisted. Both presidents issued instructions to have the new arms control accord ready to be signed during President Bush's state visit to Moscow in late May 2002. Russia and the USA agreed to begin talks at the expert level in January 2002 on the levels of strategic nuclear reductions and the transparency and verification measures to be applied.[37]

III. Three scenarios for developing nuclear transparency

Three scenarios for developments in the area of nuclear transparency may be envisaged, depending on the course of the Russian–US strategic dialogue after the signing in May 2002 of the Treaty on Strategic Offensive Reductions (to be ratified).

In the first, a worst-case scenario, the follow-on Russian–US strategic nuclear consultations will fail. Under this scenario, existing transparency regimes could be significantly affected. The START I verification provisions would be frozen, with uncertain chances for revival. The START I Joint Commission on Inspections and Compliance would be paralysed. Regular data exchanges and various inspections would stop. Even non-interference in verification activities by NTM might be damaged. In a situation of missile defence developments in the absence of nuclear arms reduction agreements, Russia would have to accelerate activities aimed at developing technical countermeasures against missile interception. This would create a motivation to resume the encryption of telemetry data on missiles during their flight tests since these data could be used to facilitate work on the US missile defence.

[34] For a discussion of the ABM Treaty and international responses to the USA's decision to withdraw from it see Kile, S., 'Ballistic missile defence and nuclear arms control', *SIPRI Yearbook 2002: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2002), pp. 70–77.

[35] 'President announces reduction in nuclear arsenal', Press Conference by President Bush and Russian President Vladimir Putin, The White House, Office of the Press Secretary, Washington, DC, 13 Nov. 2001, URL <http://www.whitehouse.gov/news/releases/2001/11/20011113-3.html>.

[36] 'Remarks by Secretary of State Colin L. Powell and Russian Foreign Minister Igor Ivanov following their meeting, The Kremlin, December 10, 2001', US State Department transcript, available at URL <http://www.acronym.org.uk/tdocs/0112/doc03.htm>.

[37] Tyler, P. E., 'US and Russia to complete talks on an arms control pact', *New York Times*, 11 Dec. 2001.

In the political environment that would be created by an effective collapse of the START I regime, it would be hard to imagine any discussions on expanding transparency into new areas, such as nuclear warheads. At best, further progress in transparency would be halted for years.

Nevertheless, even in this scenario, the bilateral transparency regime would not completely disappear. The Treaty on Open Skies would provide a means for some cooperative transparency. Russia and the USA might also decide to continue implementation of CTR projects, granting the USA limited access to many Russian nuclear facilities. If transparency measures necessitated by traditional strategic arms control agreements no longer function, the alternative assistance-for-transparency approach would become the only available mechanism for the USA to maintain on-site transparency in Russia's nuclear capabilities. This makes it likely that, despite negative momentum in bilateral relations, the USA would prefer to continue implementation of assistance programmes. Russia could also remain interested in continuing its participation in at least the most profitable project, the HEU Agreement, with its built-in transparency arrangements.

The second scenario could be seen as an optimistic one. The two sides would solve their disagreements concerning nuclear reductions beyond the Treaty on Strategic Offensive Reductions and conclude formal agreements containing *inter alia* binding transparency and verification provisions. Transparency resulting from the START I verification regime would remain in force. The two sides might also agree to expand the assistance-for-transparency approach by finalizing the Trilateral Initiative and agreeing on other measures. In this scenario, a partial return to the Helsinki package might eventually take place, especially with regard to transparency in strategic nuclear warheads, with the aim of guaranteeing irreversibility of strategic nuclear reductions. In the longer run, along with a substantial improvement of Russian–US political relations, Russia and the USA could think about negotiating transparency measures that would also apply to their tactical nuclear warheads.

The third scenario could be called the realistic one. It would be mixed: Russia and the USA would not resolve their differences but would constrain themselves from inflicting too much damage on general bilateral relations or existing arms control and other cooperative arrangements. Indeed, it appears that they have already begun to make this scenario a reality, judging from the US decision to withdraw from the ABM Treaty and Russia's relatively mild reaction to it. Although there is no clarity about the nature of the new strategic framework, the USA seems to believe that the transition could continue for five to seven years, and would be accompanied by extensive transparency and confidence-building measures.[38] The Treaty on Strategic Offensive Reductions could be followed by new transparency measures, such as regular data exchanges, recip-

[38] Remarks of Donald Rumsfeld, US Secretary of Defense, Moscow, 13 Aug. 2001, URL <http://www.hsfk.de/abm/bushadmi/rumsfeld/130801a.html>.

rocal visits or even the provision of symbolic subcontracts for Russian companies to dismantle US strategic nuclear systems. These transparency measures would probably be of an ad hoc nature, without being codified into any legally binding verification agreement.

The diminishing role for formally negotiated arms control resulting from such an approach would inevitably affect the built-in formal agreements of the existing transparency regimes. The Russian side has already hinted that it wants to streamline the START I verification regime. According to some Russian experts, the regime not only is too complicated but also requires too many different kinds of inspections. Russia is also experiencing financial difficulties in conducting the inspections of US strategic forces mandated by START I. Therefore, even before completing the START I reductions, Russia reportedly raised the streamlining issue at the 2001 talks with the USA and the two sides seem to have made progress along these lines.[39] At the same time, they are reported to have expanded the transparency regime with regard to reductions to be made beyond the START I provisions.[40] As a result of further discussions, they could agree to limit themselves voluntarily in numbers and types of START I verification activities. Most probably, the USA could try to maintain the informal nature of these 'streamlines' in order to avoid painful ratification debates in the Senate.

A mixed picture might emerge in the missile area as well. Ambiguities about US missile defence plans might force Russia, as detailed in the first scenario, to resume encryption of telemetry data during its missile flight tests. On the other hand, in order to alleviate Russia's concerns, the USA might offer Russia extensive briefings and demonstrations of its missile defence activities. In fact, the first such briefing has already been given to a high-level Russian military delegation during a visit to Washington, DC, in early August 2001.

In summary, while the third scenario could curtail formal transparency, informal transparency measures could be expanded. The major question would be whether any new measures could adequately compensate for the partial loss of existing measures. Under this scenario, since transparency would become increasingly informal, it would thus become more uncertain and more easily reversible. Nevertheless, such a mixed approach would help to limit the damage to overall Russian–US bilateral nuclear transparency, prevent political relations from seriously deteriorating, and keep the prospects open for a possible future return to more formal and solid regimes.

[39] ITAR-TASS, 18 Jan. 2002, in 'Russian official says Moscow, Washington continue to disagree on arms reductions', Foreign Broadcast Information Service, *Daily Report–Central Eurasia (FBIS-SOV)*, FBIS-SOV-2002-0118, 18 Jan. 2002.

[40] 'Response to Russian statement on US ABM Treaty withdrawal', The White House, Office of the Press Secretary, Washington, DC, 13 Dec. 2001, available at URL <http://www.whitehouse.gov/news/releases/2001/12/20011213-8.html>.

IV. Security concerns and prospects for transparency in warheads

Russia and the USA differ not only in their priorities with regard to formal bilateral strategic arms control but also in their approaches to warhead transparency. The USA has long been interested in including all Russian stockpiles of warheads, both tactical and strategic, in transparency measures. Russia preliminarily accepted transparency only in strategic warheads in an attempt to guarantee the irreversibility of reductions under a new strategic accord and to deprive the USA of rapid breakout capabilities. Historically, Russia has never expressed interest in transparency in tactical nuclear warheads and has never officially disclosed data on its tactical nuclear weapon stockpiles.

Beyond the different positions taken by Russia and the USA, pursuing warhead transparency measures meets with significant technical difficulties. In the START process the two sides destroyed delivery vehicles. Their locations were well known and verification of their dismantlement proved to be effective. However, warhead transparency would pose new problems because most warheads are stored separately from their carriers and it is therefore difficult to monitor numbers, location and transfers by NTM. There is also a fundamental dichotomy between the need to verify warhead operations reliably and the requirement to maintain secrecy concerning their designs.[41]

At the 1997 Helsinki summit meeting, Russia demonstrated its willingness to discuss transparency in strategic nuclear warheads in the context of strategic nuclear reductions below the START II level. This suggested that, if the USA were to agree to make deep reductions, Russia could accept some transparency in strategic warheads as a measure accompanying their elimination. However, several problems came to the fore. A centrepiece of the US military strategy is the maintenance of maximum flexibility in force structure, including significant hedge capabilities that would permit the reconstitution of larger deployments if deemed necessary. This philosophy contradicted Russia's interest in deep, irreversible reductions and made a deal involving strategic warhead transparency in exchange for irreversible cuts quite difficult, if not impossible.

The USA is not particularly interested in transparency agreements that involve only warheads carried on strategic nuclear delivery vehicles, since they represent a smaller portion of Russia's total nuclear arsenal. Moreover, strategic nuclear forces are shrinking rapidly and are already regulated by the START I Treaty. At the same time, however, discussions about how to increase transparency in strategic arsenals would present the USA with an opportunity to also discuss tactical nuclear warheads.

[41] For further discussion of these contradictory needs and how they might be met see chapter 8 and appendix 8A in this volume.

Divergent interests in transparency for tactical nuclear weapons

The prospects for establishing transparency in tactical nuclear warheads remain slim. In the 1990s Russia was reluctant to codify tactical nuclear arms control measures into legally binding agreements. This prevented Russia and the USA from moving towards warhead transparency in the most direct way, through the negotiation of a verification regime for future tactical nuclear arms control agreements.

Russia's position is generally explained by several factors, principally the increasing perceived utility of nuclear weapons in Russian military thinking.[42] Indeed, in the 1990s Russia allocated very limited resources to national defence and will therefore have to reduce the size of its armed forces from the level of 2.7 million in 1992 to 850 000 by 2003.[43] These reductions would be possible because its growing conventional inferiority has been compensated by its still sizeable nuclear capabilities, seen as relatively inexpensive and powerful equalizers, providing credible guarantees against traditional non-nuclear aggression. If the current trends persist, nuclear weapons might play a greater role in deterring not only NATO and China but also regional powers. According to recent plans, Russia's ground forces will be reduced to a level of 170 000, some of whom are already dispersed among more than half a dozen peacekeeping missions, from Sierra Leone to Tajikistan. This manpower might be insufficient for dealing with the conventional might of some medium powers to the south of Russia. Therefore, tactical nuclear weapons could acquire regional functions—to provide security guarantees for Russia's allies in Central Asia and Armenia.

When the three Baltic states join NATO, the significance of tactical nuclear weapons could increase further unless NATO–Russian relations have improved radically. The new enlargement of NATO is likely to give rise to fresh concerns about the survivability of Russia's tactical nuclear weapons. These weapons might become a target for a conventional disarming strike, which could be carried out within minutes if the territories of the new members located along Russia's western border were to be used. This concern about pre-emptive vulnerability will, in turn, reinforce Russia's reluctance to agree to measures aimed at enhancing transparency in tactical nuclear weapons.

The Russian military question the very principle of equal levels of tactical nuclear weapons for Russia and the USA, citing the different geo-strategic environments of the two countries. The USA has no potential adversary in its neighbourhood and thus no need for such weapons in the context of deterrence. In contrast, Russia is located between many dynamic, strong and aspiring

[42] Russian Ministry of Defence, 'Russia's military doctrine', *Arms Control Today*, vol. 30, no. 4 (May 2000), pp. 29–38.

[43] Arbatov, A., [Security—Russia's choice] (Episentr: Moscow, 1999), pp. 430, 434 (in Russian).

powers in Europe and in Asia and might also be directly challenged by nuclear and missile proliferators.[44]

Moreover, Russian weapons of this category cannot reach the US homeland and overall ceilings on their numbers could hardly bring benefits to US forces overseas. As mentioned above, the USA is interested in tactical warhead transparency in order to prevent, or at least monitor, leakages and gain higher certainty for force planning purposes. Codifying the PNIs—with accompanying transparency measures—could also be helpful for guaranteeing the present low-alert status of Russian tactical nuclear weapons,[45] avoiding the risk of their unauthorized launch and maintaining regional stability in Europe.

For economic reasons, it will be difficult in the long run for Russia to maintain high levels of tactical nuclear deployments. Russia might therefore have an incentive to eventually accept transparency in its tactical nuclear warheads in exchange for benefits in some other areas. Such a deal could be made in some form of arms control agreement which would include warhead transparency measures. The 1997 package of agreements showed that this is not an impossible undertaking.

Russia, for its part, is interested in preventing the deployment of tactical nuclear weapons on the territories of the new NATO member states. In the framework of the 1997 package, which helped to reconcile Russia to the first wave of NATO enlargement, NATO stated that it had no plans or intentions to deploy nuclear weapons in the new member states. This provision was also included in the 1997 NATO–Russia Founding Act on Mutual Relations, Cooperation and Security.[46] Despite the importance of these statements, the NATO non-deployment pledge is not legally binding and thus reversible. In the mid-1990s, Russia attempted to codify this obligation in a treaty by proposing—via its ally, Belarus—the establishment of a Central European nuclear weapon-free zone (NWFZ). It was proposed that the treaty zone of application include the former Warsaw Pact Central European countries as well as the newly independent states located to the west of Russia.[47] It was even hinted that, under certain circumstances, Russia's Kaliningrad *oblast* could also be incorporated into the NWFZ.

At that time, the idea was received relatively positively by the East European newly independent states but was rejected by the Central European states applying for NATO membership and leading NATO countries.[48] They claimed that

[44] Belous, V., [Prospects for controlling tactical nuclear weapons], *Yadernoye Rasprostraneniye*, no. 37 (Carnegie Moscow Center: Moscow, Oct./Dec. 2000), (in Russian).

[45] The majority of Russia's tactical nuclear warheads are kept in central storage sites and are not deployed with their delivery vehicles.

[46] 'The member States of NATO reiterate that they have no intention, no plan and no reason to deploy nuclear weapons on the territory of new members, nor any need to change any aspect of NATO's nuclear posture or nuclear policy—and do not foresee any future need to do so.' (Article IV). The text of the Founding Act is reproduced in *SIPRI Yearbook 1998: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1998), pp. 168–73.

[47] Rozanov, A., 'Towards a nuclear-weapon-free zone in Central and Eastern Europe', *The Monitor*, vol. 2, no. 4 (fall 1996), pp. 19–21.

[48] Burgess, L., 'Nuclear policy battle looms as NATO expansion nears', *Defense News*, 30 Mar.–5 Apr. 1998, p. 42.

the NWFZ would create two zones of different security within the alliance—greater security for old members and less security for new members. However, in 1996 the USA privately indicated that in exchange for increased transparency in Russian tactical nuclear stockpiles it might be willing to agree to more binding arrangements. However, because of the interruption brought about by the US presidential election campaign and the ill will in Russia resulting from NATO enlargement, the idea failed to be seriously pursued.

Russia later attempted to address this issue from two angles. It argued that, while it had withdrawn all its nuclear warheads to its national territory, the USA had not done enough in exchange and thus remained the only nuclear power deploying its warheads on the territories of foreign nations—on the territories of its NATO allies. On several occasions, Russia appealed to the USA and put pressure on it to withdraw those warheads.[49]

Russia raised the issue of forward-based nuclear weapons during the Russian–US START III consultations held in 1997–2000. Historically, this had been a serious stumbling block, for example, during the SALT process in the 1970s, until the USSR decided to remove it from the negotiations agenda. However, Russia might now reasonably argue that its geo-strategic environment has changed dramatically. Russia has lost its conventional predominance in Europe and the system of two major alliances collapsed with the end of the Warsaw Pact. The disintegration of the USSR has meant a drastic reduction in the strength of the Russian defence forces, thus opening its key security assets to increased vulnerability. Under such circumstances, even a modest US forward-based nuclear presence has become strategically important.

All these factors might provide a framework for a deal involving transparency measures for tactical nuclear warheads. It is possible that Russia might agree on transparency for a part of its tactical nuclear forces, located in a certain area, in exchange for binding obligations from NATO on nuclear and significant conventional non-deployments to the east of the Elbe River and on the complete withdrawal of US tactical nuclear weapons from Europe. These arrangements could be accompanied by transparency measures verifying the absence of nuclear warheads from Central and Eastern Europe, withdrawal of US weapons from Western Europe and Turkey, and the storage of Russian warheads in central storage sites in European Russia.

VI. Conclusions

Until the late 1990s bilateral transparency in Soviet/Russian–US nuclear relations gradually increased. Major breakthroughs were achieved in the late 1980s and early 1990s, when the INF and START I treaties introduced unprecedented provisions for verifying compliance with formal nuclear arms control agreements. After the end of the cold war, Russia and the USA attempted to establish

[49] Yurkin, A., 'Russian official emphasizes negotiations for pull-out of US non-strategic weapons in Europe', ITAR-TASS, 14 Nov. 2002, in FBIS-SOV-2000-1114, 14 Nov. 2000.

an alternative set of transparency measures through various CTR programmes. In the early 2000s, several bilateral nuclear transparency arrangements are in place for strategic and intermediate-range nuclear delivery vehicles and for a part of the sensitive fissile materials in Russia.

Because of the increasing asymmetries in Russian–US nuclear forces and the post-cold war nature of their relations, formal bilateral nuclear arms control has partially lost its importance for both states and a deadlock has resulted. The future of arms control has become uncertain. This might lead to a loss of the essential mechanisms for further expansion of nuclear transparency measures. The recent attempts by Russia and the USA to proceed towards a new strategic framework are accompanied by significant uncertainties in their new dialogue, including the fate of existing and future transparency regimes. It is very likely that existing arrangements, imposed by formal bilateral arms control agreements, will be dismantled—in cooperative or non-cooperative ways—while new, more informal transparency measures have yet to be developed. There is a strong chance that such arrangements might be of an ad hoc nature and thus not sustainable and, indeed, easily reversible.

As a result, the regulatory and stabilizing role of arms control agreements and associated transparency could be lost. Deterrence still plays a major role in Russian–US nuclear relations, and the size of their nuclear forces will remain comparable for several years. When this approximate parity is lost during this or the next decade, as seems likely, Russia may become strongly motivated to abandon whatever transparency mechanisms are then in existence.

Despite all the emerging difficulties, it is still possible to reverse the negative trends. Russia and the USA maintain an interest in bilateral interaction in the nuclear area. There is still the potential for a grand bargain entailing deep, irreversible strategic nuclear reductions coupled with transparency in warheads. However, a broader deal involving transparency in tactical nuclear warheads will hardly be possible without a radical improvement in Russian–US relations, including the resolution of recent disagreements over issues of European security.