# Working Paper

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This paper was made possible through
the financial support of the German Federal Foreign Office
and of the William and Flora Hewlett
Foundation.
The author would like to thank for their support.
The author is solely responsible for the content
of this paper.

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## Lessons learned from past experiences with transparency and confidence-building measures

Background paper for the workshop
"Non-Strategic Nuclear Weapons in Europe:
Transparency and Confidence-Building
Measures in Practice"
SWP, Berlin, 27-28 March 2014

FG03-WP No 03
April 2014
Berlin

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## Introduction

NATO and Russia have jointly defined confidence and security building measures as "provisions for the exchange and verification of information regarding the participating states' armed forces and military activities, as well as certain mechanisms promoting cooperation among participating states with regard to military matters in order to promote mutual trust and dispel concern about military activities by encouraging openness and transparency."[1]

This paper builds on the definition reached by all members of the NATO-Russia Council in 2011. Transparency and confidence-building measures (TCBMs) are understood here as cooperative measures that aim to increase transparency and trust between states. They are intended to reassure potential adversaries of their non-aggressive intentions and to reduce the risk of misperception of certain activities.[2] Two types of TCBMs are frequently distinguished in the literature: *transparency measures* and actions *imposing military constraint on parties*.[3] In general, the measures of the first type seek to improve communication and understanding among parties. They span from exchanges of information to measures to confirm and validate the veracity and completeness of declared information, for example through on-site activities. The measures of the second type, those imposing military constraints, include for example the relocation of weapons, or changes of their alert status. Measures that aim to improve the *safety and security* of certain weapons can be seen as a third type of TCBMs.[4]

Often, TCBMs are conceived as a precursor for future arms control and disarmament agreements. States can implement them to demonstrate good faith and demonstrate their will to cooperate. In addition, TCBMs are frequently connected to or elements of arms control agreements. They can be a part of an arms control agreement, like the provision in the New START treaty on the notification of the temporary location of heavy bombers outside national territory. An example of a transparency instrument complementing an arms control agreement would be the Open Skies treaty. This agreement, which provides for cooperative overflights over the territory of member states, was conceived as a supplement to the Treaty on Conventional Forces in Europe. In contrast to legally-binding arms control accords, TCBMs are often only politically-binding. While such arrangements are of a lesser status from the perspective of international public law, they have the advantage that governments time and again find it easier to commit themselves to such political agreements.

This paper presents several examples of TCBMs in order to illustrate some strengths and weaknesses of such measures as instruments to improve international security. These examples obviously do not represent the full spectrum of TCBMs that has been discussed, developed or implemented in the past.

The goal of this paper is to provide some background for the debate about potential nuclear weapons-related TCBMs in the NATO-Russia context. Therefore, it emphasized those nuclear and non-nuclear TCBMs in which (some of) the nuclear weapons states that are members of the NATO-Russia Council (France, Russia, the United Kingdom and the United States) have participated. Those nuclear weapons-related TCBMs that have been discussed or agreed in the context of NATO-Russia Council are the topic of a separate paper.[5]

Substantively, the focus here is on those types of TCBMs that seek to increase *transparency* and/or *safety and security* of nuclear weapons. Examples from non-nuclear areas are included when they can help to illuminate the opportunities and limits of TCBMs in a NATO-Russia context. The TCBMs presented in this paper are loosely discussed under four headings, which are similar to the potential list of issues that could be on the NATO-Russia agenda:

- Statements/dialogue on doctrines;
- Data exchanges;
- Safety and security;
- On-site activities.

[1] *NATO-Russia Council Consolidated Glossary of Cooperation*, 2011, http://www.nato-russia-council.info/media/60018/nrc_consolidated_glossary_part_1_en-ru_.pdf (accessed 03.03.2014), p. 81.

[2] Jozef Goldblat, *Arms Control. The New Guide to Negotiations and Agreements*, 2. Ed., London 2003, p.10.

[3] Ibid., p. 11.

[4] Anne Finger/Oliver Meier, *Confidence-Building on Tactical Nuclear Weapons: What's on the Table?*, Hamburg: Institut für Friedensforschung und Sicherheitspolitik an der Universität Hamburg, May 2013 (Hamburger Beiträge zur Friedensforschung und Sicherheitspolitik, Heft 160).

[5] See Katarzyna Kubiak, *NATO and Russia experiences with nuclear transparency and confidence-building measures. Background paper for the workshop Non-Strategic Nuclear Weapons in Europe: Transparency and Confidence-Building Measures in Practice*. Berlin: Stiftung Wissenschaft und Politik, April 2014 (FG03-Working Paper No. 2).

## 1. Statements/dialogue on doctrines

### Building confidence on conventional force postures

Of particular importance from this perspective are several measures that were agreed upon in the context of the Conference on Security and Cooperation in Europe (CSCE), the predecessor of the Organization for Security and Cooperation in Europe (OSCE). The idea of a pan-European security conference had been proposed already in the mid 1960s by the Soviet Union. At first, NATO member states met such proposals with cautious interest, but in the 1970s, taking advantage of the détente in East-West relations, the time for the first multilateral East-West negotiations was ripe. The CSCE formally opened in Helsinki in July 1973 and ended in Helsinki in August 1975. The major result of these negotiations was the Helsinki Final Act, which includes a set of confidence-building measures. After tough negotiations, state parties could agree upon the prior notification of major military movements and exercises. In addition, states agreed to invite observers to military maneuvers on a voluntary basis.[6]
CSCE participants expanded these rudimentary confidence-building measures between January 1984 and September 1986, when the Conference on Confidence- and Security-Building Measures (CSBMs) and Disarmament took place in Stockholm. The 1987 Stockholm Document contains provisions on the exchange of information on military activities.
Its successor, the Vienna Document, adopted in November 1990, is more comprehensive. The signatories of the Vienna Document, i.e. all OSCE member states, agreed to exchange information with regard to defence planning, including details on force planning, defence expenditures and budgets. In addition, annual declarations on defence policies and doctrines provide background for a dialogue on these issues. In line with the Vienna Document, the participating states hold a structured dialogue to discuss issues in the field of defence planning on an annual basis. In addition, states are encouraged to hold periodic high-level military doctrine seminars and arrange study visits to foster dialogue between defence planning officials.[7]
Many OSCE member states have participated in such high-level doctrine seminars in 1990, 1998, 2001, 2006, and 2011.[8]
The value of such exchanges on doctrine could already be seen during the negotiation process for the Vienna Document. Based upon a Soviet proposal, a seminar on military doctrine was organized in Vienna between 16 January and 5 February 1990. For the first time, the chiefs of the general staff of the participating OSCE member states discussed issues of military doctrine directly with their counterparts.[9] Observers credit this seminar with having had a positive impact upon the further negotiations of the Vienna Document.
Since 1990, the Vienna Document was updated several times (the latest update being in 2011).[10] The TCBMs contained in the Stockholm and the Vienna Document are only politically binding, yet they have created an institutionalized framework for participating states to exchange information on conventional force postures and doctrines.

### Building confidence on nuclear postures and doctrines

In 2009, the five permanent members of the United Nations Security Council and recognized nuclear weapon states under the nuclear Non-Proliferation Treaty (NPT) – China, France, Russia, the United Kingdom and the United States – started a process of multilateral consultations and co-operation on disarmament-related issues. Such a dialogue had not existed before, despite the fact that these powers have negotiated common statements and positions at NPT Review Conferences. The context of the 2009 initiative was the failure of NPT states parties at the 2005 NPT Review Conference to agree on a final document. The P5 wanted to assuage concerns of non-nuclear weapon states that they are not doing enough to fulfill their obligations under Article VI of the NPT to pursue negotiations and make progress on nuclear disarmament.[11]

[6] Ki-Joon Hong, "Prospects for CBMs on the Korean Peninsula: Implications from the Helsinki Final Act Revisited", in: *Contemporary Security Policy* 23 (2002) 3, pp. 121-144 (123-129).
[7] *Vienna Document*, Chapter II.
[8] Hans-Joachim Schmidt, *Verified Transparency. New Conceptual Ideas for Conventional Arms Control in Europe*, Frankfurt a.M.: Peace Research Institute Frankfurt, 2013 (PRIF Report 119), p. 23.
[9] Peter Schlotter, *Die KSZE im Ost-West-Konflikt. Wirkung einer internationalen Institution*, Frankfurt/New York 1999, p. 234.
[10] When speaking of the Vienna Document, this paper refers to the 2011 version.
[11] Andrea Berger/Malcolm Chalmers, *Great Expectations. The P5 Process and the Non-Proliferation Treaty*, London: Royal United Sevices Institute, August 2013 (Whitehall Report 3/13), p. 1.

The P5-dialogue consists of high-level conferences, expert-level working groups, and ad-hoc meetings. Since 2009, four high-level conferences have taken place. The first meeting took place in London in September 2009. Participants discussed confidence-building measures in the context of nuclear disarmament. At the outset, there were some doubts about the usefulness of such a dialogue but it attracted high-level delegations and gathered momentum.[12] A second meeting took place in Paris in July 2011, a third one in Washington in June 2012, and a fourth one, hosted by Russia, was held in Geneva at the 2013 NPT Preparatory Committee. China is expected to host a fifth meeting ahead of the 2014 NPT Preparatory Committee. Even though the P5 want to increase the transparency of nuclear policies, their meetings are taking place behind closed doors in order to maintain confidence between partners and because of the sensitivity of issues discussed.

In general, discussions cover "issues related to all three pillars of the NPT – non-proliferation, the peaceful uses of nuclear energy and disarmament, including confidence-building, transparency, and verification experiences."[13] As such, the P5 process is not limited to TCBMs, but they are an important component of the discussions which focus on three core areas: disarmament verification, transparency in nuclear arsenals, and common nuclear terminology.

At the London conference, the P5 outlined their current nuclear doctrines, nuclear capabilities and their experiences with nuclear (weapon) accident response. The United Kingdom also described its exercise with Norway on methodologies and technologies of verification.[14] The United Kingdom proposed to broaden the P5 dialogue beyond discussions of possible transparency and confidence-building measures to cover multilateral work on methods and technologies on the verification of nuclear warhead disarmament.[15] Yet, this proposal has failed.

One very concrete outcome of the Paris meeting was the establishment of a working group, led by China, to agree on a glossary of key nuclear terms which is to be submitted to the 2015 NPT Review Conference. It is aimed to "increase P5 mutual understanding and facilitate further P5 discussions on nuclear matters".[16] Mrs. Mariot Leslie, DG Defence and Intelligence, Foreign & Commonwealth Office, a UK insider to the P5 Process, described the work on such a glossary as "low on the ladder of easy-to-hard steps".[17] Agreement on key terminology, such as shared definitions of "active" and "inactive" warheads is essential to lay the ground work for more ambitious transparency and confidence-building measures, such as a standard reporting forms for nuclear arsenals (see the section on "data exchange" below).

China leads the group since 2012. The working group held its first meeting in September 2012 in Beijing. Officials, nuclear laboratory staff and some military personnel identified over 2,000 English terms related to arms control, disarmament, non-proliferation, peaceful uses of nuclear energy, and nuclear safety and security. In early 2013, China, in its role as working-group leader, produced a shortlist of approximately 200–300 English terms which was then circulated to the other P5 states for comments. After two rounds of further refinement, this list was completed.[18] In early 2014, the P5 want to agree on common definitions for the shortlisted words and intend to submit a first draft of the resulting document to the 2015 NPT Review Conference.[19]

The P5 initiative "represents a modest, but important, start" of a dialogue between the P5 on their nuclear postures.[20] Its primary value so far lies in the process. Nuclear weapon states, including rather reluctant ones like China, discuss small, but concrete steps to improve transparency and mutual understanding.

### US-China strategic nuclear dialogue

There have been several US attempts to institutionalize a strategic nuclear dialogue between the United States and China. In January 2011, then-US Secretary

[12] Nick Ritchie, *Pathways and Purposes for P-5 Nuclear Dialogue*, London: European Leadership Network, September 2013 (Policy Brief).
[13] Berger/Chalmers, *Great Expectations* (see note 12).
[14] *UK-Hosted P5 Conference on Confidence Building Measures Towards Nuclear Disarmament (Part One of Three)*, 03./04.09.2009, http://www.cablegatesearch.net/cable.php?id=09LONDON2622 (accessed03.03.2014), point 2.
[15] Des Browne, "A Disarming Proposal", in: *The Guardian*, 05.02.2008.
[16] Rose Goettemoeller, *Washingotn P5 Conference on Implementing the NPT*, 09.07.2012, http://blogs.state.gov/stories/2012/07/09/washington-p5-conference-implementing-npt (accesed 03.03.2014).
[17] *UK-Hosted P5 Conference*, (see note 15), point 9.
[18] Berger/Chalmers, *Great Expectations*, (see note 12), pp. 23-24.
[19] *Joint Statement of Fourth P5 Conference: On the Way to the 2015 NPT Review Conference, Geneva, April 18-19, 2013*, 23.04.2013, http://www.un.org/ga/search/view_doc.asp?symbol=NPT/CONF.2015/PC.II/7 (accessed 03.03.2014).
[20] Berger/Chalmers, *Great Expectations* (see note 12), p. 2.

of Defense Robert Gates visited the headquarters of China's Second Artillery Corps, which is responsible for China's nuclear arsenal and discussed issues of nuclear strategy with Chinese officials. Gates had proposed a more structured, permanent military dialogue, similar to the exchanges between the United States and the Soviet Union during the Cold War.[21] China was not ready to pursue such a dialogue but over the recent years China and the United States have discussed strategic, nuclear issues in the context of a number of initiatives. Examples include mutual high-level visits like the one of Robert Gates to China in 2011 or China's Minister of National Defense, General Liang Guanglie to the United States in May 2012. Beijing and Washington have also sought to improve mutual understanding of strategic issues and to build personal relations and trust through military-to-military contacts and engagements.[22]

It seems, however, that the United States and China are often talking past each other on issues of nuclear strategy and doctrine. For example, US military and security analysts tend to discredit China's no-first-use policy as an effort in public diplomacy. Chinese officials, on the other hand, criticize the United States for not making a similar commitment to use nuclear weapons only in response to a nuclear attack. From the US perspective, China could build-up trust by increasing the transparency of its nuclear arsenal. For Beijing, in turn, secrecy and uncertainty are part and parcel of China's minimal nuclear deterrence posture.[23]

## 2. Data exchanges

### CSCE/OSCE

Data exchanges are key elements of the TCBMs within the CSCE/OSCE framework. The first basket of the 1975 Helsinki Final Act dealt with security issues. It contained confidence-building measures, including prior notification of major military movements and exercises. The 1986 Stockholm Conference expanded these provisions on the exchange of information. The Stockholm Document obliges states to notify all other participating states of "certain military activities", referring to military manoeuvres with more than 13,000 participating troops or 300 battle tanks. Participants notify each other about details such as the designation of the military activity, its general purpose, the names of the involved states, the start and end dates of the military activity as well as the numbers of troops 42 days in advance.[24]

When the CSCE member states drafted the Vienna Document in 1989/90, they incorporated these provisions on the notification of certain military activities and added further provisions on the annual exchange of military information. This includes data on military forces; their organization, number of personnel, and peacetime location of their headquarters. Furthermore, states agreed to exchange data on major weapon systems and equipment. These include among others battle tanks, armoured combat vehicles, certain artillery pieces, helicopters and combat aircraft. In addition to data on existing weapon systems, participating states exchange information on the planned deployment of these major weapon and equipment systems for the following year.[25]

The record of implementation of data exchanges among CSCE/OSCE member states is good. Western observers acknowledge this, though they sometimes complain that the information provided by their Eastern counterparts could be better. Participants use information exchanges to confirm or correct assumptions based on their national sources of information.[26] It is generally difficult to assess the military relevance of the information gathered through the exchange of data under CSCE/OSCE mechanisms. Yet, some Western states have proposed to use the Vienna Document as one instrument to fill the transparency gap created by the 2008 decision of Russia to suspend implementation of CFE, including its verification provisions.

### Notification of Ballistic Missile Launches

Agreements on the notification of launches of ballistic missiles can help to avoid the misinterpretation of military actions. The 1971 Accident Measures Agreement (sometimes also referred to as Nuclear Accidents

[21] Kevin Kallmyer, *U.S.-China Nuclear Dialogue: The Beginning of a Beautiful Relationship?*, 12.01.2011, http://csis.org/blog/us-china-nuclear-dialogue-beginning-beautiful-relationship (accessed 27.02.2014).

[22] For recent examples, see Office of the Secretary of Defense, *Annual Report to Congress. Military and Security Developments Involving the People's Republic of China 2013*, Washington, DC 2013, pp. 61-64.

[23] Gregory Kulacki, "Chickens Talking With Ducks: The U.S.-Chinese Nuclear Dialogue", in: *Arms Control Today* (October 2011).

[24] *Stockholm Document*, "Prior Notification of Certain Military Activities", Paragraph 31.1.1.

[25] *Vienna Document*, Chapter I.

[26] Schlotter, *Die KSZE* (see note 10), pp. 242-253.

Agreement),[27] as well as the 1972 Incidents at Sea Agreement between the United States and the Soviet Union included provisions on the advance notification of ballistic missile launches. According to the Accidents Measures Agreements, both sides would provide advance notification of planned missile launches that extended beyond the national territory of one party towards the direction of the other party. The Incidents at Sea Agreement[28] obliges the parties to give three to five days advance notifications for actions on the high seas which represent a hazard to navigation or aircraft in flight. Such hazards included ballistic missile launches at sea.

The measures on notification of ballistic missile launches were strengthened by the US-Soviet Agreement on Notifications of Launches of Intercontinental Ballistic Missiles and Submarine-launched Ballistic Missiles, which was signed in May 1988. This agreement obliges each party to notify the other party, no less than 24 hours in advance, of the planned date, launch area, and area of impact for any launch of an Intercontinental Ballistic Missile (ICBM) or Submarine-launched Ballistic Missile (SLBM). Thus, the United States and Russia now have to notify each other of all launches of strategic ballistic missiles.

The notifications are to be provided through the Nuclear Risk Reduction Centers. In September 1987, the United States and the Soviet Union had agreed to set up these Centers. They provide a constant and reliable communication channel between Washington and Moscow. Through the Nuclear Risk Reduction Centers, both sides exchange data regarding strategic offensive arms, ballistic missile launches, and the implementation of numerous arms control agreements.

Data exchanges on missile launches and other potentially provocative military activities can be particularly useful in times of tension. Moscow had informed the United States of its 4 March, 2014 ICBM test launch. The notification was given as a standard procedure and before the crisis in Ukraine evolved.[29]

**P5 nuclear dialogue**

Transparency on data related to nuclear arsenals is one key topic of discussion on the agenda of the P5 nuclear dialogue. The P5 at the 2009 London conference discussed confidence-building measures in the context of nuclear disarmament and looked at "how information exchanges and voluntary transparency measures could enhance strategic stability."[30] The P5 stated that they accept the idea that voluntary transparency measures would increase confidence. During the meeting, however, differences towards transparency measures between the P5 emerged.

In 2012, ten non-nuclear weapon states that cooperate in the context of the Non-Proliferation and Disarmament Initiative (NPDI) presented a draft standard reporting form to the P5 which had committed themselves to improve transparency of their nuclear arsenals at the 2010 NPT Review Conference.[31] This draft form included standards for reporting on numbers of strategic and non-strategic nuclear weapons, delivery vehicles, fissile material stocks and progress in following-up disarmament objectives and the reduction of the role of nuclear weapons in national doctrine.[32] This proposal turned out to be too ambitious for the P5 to accept it. However, the issue is further discussed in the framework of the P5 Nuclear Dialogue.

The hosts of P5 meetings sometimes treated their guests to unilateral transparency measures. For example, at the Washington conference, the United States gave a briefing on activities at the Nevada National Security Site to encourage discussion on additional approaches to transparency. The US Department of Energy National Nuclear Security Administration (NNSA) informed participants on releasing an updated report "The United States Plutonium Balance" that in detail described the U.S. plutonium inventory as of September 2009. A practical measure on transparency and confidence building was a tour of the US Nuclear Risk Reduction Center located at the State Depart-

[27] The full name of the agreement is *Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War between the United States of America and the Union of Soviet Socialist Republics*. See also the chapter in this paper on "Safety and security" below.

[28] The full name of the agreement is *Agreement Between the Government of The United States of America and the Government of The Union of Soviet Socialist Republics on the Prevention of Incidents On and Over the High Seas*.

[29] *Russia test-fires ICBM amid tension over Ukraine*, 04.03.2014, http://uk.reuters.com/article/2014/03/04/uk-russia-missile-idUKBREA2320520140304 (accessed 06.03.2014).

[30] *UK-Hosted P5 Conference*, (see note 15), point 2.

[31] The ten states were: Australia, Canada, Chile, Germany, Japan, Mexico, the Netherlands, Poland, Turkey and the United Arab Emirates. In the meantime, Nigeria and the Philippines have joined the NPDI.

[32] *Transparency of Nuclear Weapons: The Non-Proliferation and Disarmament Initiative. Working Paper Presented to Preparatory Committee for the 2015 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons*, 20.04.2012, http://www.mofa.go.jp/announce/event/2012/4/pdfs/0427_01_01pdf (accessed 03.03.2014).

ment, where participants observed "how the United States maintains a communications center capable of simultaneously implementing notification regimes under a number of arms control treaties and agreements, including under the New Strategic Arms Reduction Treaty (New START), Hague Code of Conduct Against Ballistic Missile Proliferation (HCOC), and Organization for Security and Co-operation in Europe (OSCE) Vienna Document."[33] Another instance of transparency exercised took place at the P5 meeting hosted by Russia in Geneva at the 2013 NPT Preparatory Committee, when the United States and Russia briefed the other P5 states on the ongoing implementation of the New START Treaty.[34]

## 3. Safety and Security

### The Accidents Measures Agreement

Several measures between the United States and the Soviet Union served the purpose of providing communication channels and information exchange in order to avoid misunderstandings and accidents. After the 1962 Cuban missile crisis, the Soviets and the United States increasingly feared that nuclear war between the superpowers might break out because of unintended events like the accidental launch of a nuclear missile. The 1963 "Hotline" agreement established a direct communication link between Washington and Moscow. Mutual fears then led to negotiations about the Accidents Measures Agreement within the process of the 1969-1972 SALT talks and the Accidents Measures Agreement was concluded in September 1971.[35]

The United States and the Soviet Union commit themselves to maintain adequate safeguards against accidental or unauthorized use of nuclear weapons and to notify the other side in the event of an accidental or unauthorized incident involving a possible detonation of a nuclear weapon. Article 1 reads: "Each party undertakes to maintain and to improve, as it deems necessary, its existing organizational and technical arrangements to guard against the accidental or unauthorized use of nuclear weapons under its control." While this provision reflects the common recognition of a serious problem, it leaves any specific safety measures to deal with it in the hands of each party.

During the negotiations, the United States had pursued a more ambitious approach. The US delegation described in general terms the procedures, command and control arrangements, and weapon design features that were intended to prevent inadvertent firing of weapons and other measures to prevent accidental detonation. This presentation included information about the precautions against human failure or unauthorized access to nuclear facilities. The US diplomats invited their Soviet counterparts to reciprocate and to pursue a more detailed and reciprocal dialogue on such safety measures. However, the Soviet Union declined this offer.[36] Still, one can conclude that the Accidents Measures Agreement had its value because it demonstrated a shared commitment of both sides to the issues of safety of nuclear weapons.[37]

Similar agreements dealing with accidents were concluded between the Soviet Union and France in 1976 and the Soviet Union and Britain in 1977.[38]

### Degelen Mountain Cleanup

Cooperation in the field of safety and security can be achieved by ad-hoc agreements without formal, high-level negotiations. An example for this is the trilateral cooperation between Kazakhstan, Russia, and the United States to "clean up" the former Soviet nuclear test site at Degelen Mountain.[39]

During the Cold War, the Soviet Union had carried out 456 nuclear explosive tests at the Semipalatinsk test site in the steppe of eastern Kazakhstan. Most of the tests were conducted underground; 209 of them at Degelen Mountain. Not all of these tests did vaporize the fissile material completely so that considerable

[33] *Third P5 Conference: Implementing the NPT*, 29.06.2012, http://www.state.gov/r/pa/prs/ps/2012/06/194292.htm (accessed 03.03.2014).
[34] *Fourth P5 Conference: On the Way to the 2015 NPT Review Conference*, 19.04.2013, http://www.state.gov/r/pa/prs/ps/2013/04/207768.htm (accessed 12.03.2014).
[35] The full name of the agreement is *Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War between the United States of America and the Union of Soviet Socialist Republics*.
[36] Raymond L. Garthoff, "The Accidents Measures Agreement", in: John Borawski (ed.), *Avoiding War in the Nuclear Age. Confidence-Building Measures for Crisis Stability*, Boulder, CO 1986, pp. 56-71 (60).
[37] Ibid., p. 69.
[38] John Borawski, "The World of CBMs", in: John Borawski (ed.), *Avoiding War in the Nuclear Age. Confidence-Building Measures for Crisis Stability*, Boulder, CO 1986, pp. 9-39, (24).
[39] The following account of these activities is largely based upon Eben Harrell/David E. Hoffman, *Plutonium Mountain. Inside the 17-Year Mission to Secure a Dangerous Legacy of Soviet Nuclear Testing*, Cambridge, MA: Belfer Center for Science and International Affairs (August 2013).

amounts remained in tunnels and containers when the test site was abandoned after Kazakhstan had become independent in December 1991. It is estimated that the plutonium left in the tunnels, if fully reclaimed, could be enough for the construction of dozens of nuclear bombs.[40] While several tunnels were sealed in the 1990s with the financial support by the United States, much of the fissile material remained largely unguarded and scavengers that were looking for valuable material (copper cables, for example) came close to it.

It was a group of scientists that alerted the governments of the Kazakhstan, Russia and the United States to this proliferation, health and environmental risk. In particular Siegfried S. Hecker, former director of Los Alamos National Laboratory was concerned about the situation after he had visited Kazakhstan several times in the 1990s. Hecker had built good personal relations with scientists in Russia and Kazakhstan and used these contacts to draw attention to the problem and push for action among scientists and policymakers. This effort was successful and Hecker and his colleagues from Kazakhstan and Russia signed a three-way agreement in 1999 to conduct studies to determine the scope of the problem. The work was divided up in the following manner: Russia provided the necessary information and scientists, Kazakhstan was in charge of the field work and provided the permissions needed, and the United States, through the Los Alamos National Laboratory, funded the effort.

This field work convinced all sides that the proliferation threat was real and that something had to be done. An official agreement between the three states could be concluded only after several specific problems were solved. One of the major concerns of the Russians was that the American scientist could gain sensitive information about the isotopic composition of the plutonium in the process of using spectrometer data to verify the presence of the plutonium. This problem was solved by a technical agreement that allowed US scientists to look at the spectrometer long enough to verify the presence of plutonium, but not long enough to determine its isotopic composition. After these problems were solved, the years between 2000 and 2012 saw several operations to secure fissile material at Degelen Mountain: bore holes containing plutonium were covered with massive domes, explosive chambers inside and outside of the tunnels were filled with special concrete, security and monitoring equipment was installed on the site. Much of the work done was funded by the US Cooperative Threat Reduction (CTR) program.[41] At the beginning, progress was rather slow but the work was spurred by the high-level political support that it received by the Presidents of the three countries involved. Obama, Medvedev and Nazarbayev pledged at the Nuclear Security Summit in Washington D.C. in 2010 to finalize the work by 2012. In October 2012, the work was finally completed and a high nuclear proliferation risk was significantly reduced.

## 4. On-site activities

### CSCE/OSCE context

The CSCE/OSCE context offers several examples of on-site activities that aim at increasing transparency and building trust between states. The Stockholm Document requires states to invite officials from the other parties to observe manoeuvres that have to be notified.[42] The Vienna Document includes similar rules for mutual observation of these military activities and contains several measures to increase and improve contacts between officials from participating states. Among them are rules for visits to air bases, exchanges and visits between military personnel, exchanges between academics and experts in military studies, and even invitations to observe the demonstration of new types of major weapon systems.[43] Under chapter III of the Vienna Document, states can voluntarily host visits to dispel concerns about military activities.

The provisions for compliance and verification contain additional on-site activities. The Vienna Document describes detailed procedures for on-site inspections. A central function of the on-site activities laid out in the Vienna Document is to evaluate the information provided on military forces and plans for the

[40] Ibid., p. 1.

[41] The Cooperative Threat Reduction (CTR) Program is also known as the Nunn-Lugar Program, because it is based on the Soviet Threat Reduction Act of November 1991 which was proposed by the Senators Nunn and Lugar in order to help securing and dismantling weapons of mass destruction and their infrastructure in the former states of the Soviet Union. For more information on the CTR program see Amy F. Woolf, *Nonproliferation and Threat Reduction Assistance: U.S. Programs in the Former Soviet Union*, Washington, DC: Congressional Research Service (March 2012).

[42] For the procedural details, see *Stockholm Document*, "Observation of Certain Military Activities".

[43] *Vienna Document*, Chapter IV.

deployment of major weapon and equipment systems. This includes the opportunity to inspect active military formations and units in their normal peacetime locations on the basis of specific regulations and limitation.[44] Since 1992, on average, participating states have annually conducted a total of 90 inspections and 45 evaluation visits.[45] No state is obliged to accept more than three inspections on its territory within one calendar year.

The on-site activities complement information gained by national technical means. Perhaps more importantly, these activities have contributed to the build-up of personal contacts between the militaries and defence officials from participating states. Particularly after the changes in the Soviet Union in the mid-1980s, such personal networks helped to open communication channels which enabled East and West to exchange ideas about the security situation and agree on common goals and shared interests.[46]

### The Trilateral Agreement on Biological Weapons

The Trilateral Agreement on Biological Weapons that entered into force on 15 September in 1992 is the result of American and British concerns about Russian compliance with the obligations under the 1975 Biological and Toxin Weapons Convention (BWC) which prohibits the development, production and stockpiling of biological weapons, but includes only rudimentary provisions for verification. The United States and other countries have voiced the suspicion that the Soviet Union has a clandestine biological weapon program. This suspicion of Soviet non-compliance became a major political issue after a scientist involved in the Soviet program defected to the United States in 1989.[47]

Between 1990 and 1992, the United States and the United Kingdom put significant political pressure upon the Soviet Union, and later on Russia to admit its offensive BW program. In 1990, President Mikhail Gorbachev invited US and British officials to visit several Soviet scientific research institutes. Four visits took place in January 1991 and, because of the Soviet insistence on reciprocity, a Soviet team in December 1991visited four similar facilities in the United States. However, due to commercial and defense confidentiality, arbitrarily applied quarantine restrictions and other constraints, these visits were unsatisfactory for both sides. After the turbulent changes in Russia in 1991-1992, Russia, the Unite States and the United Kingdom concluded the Trilateral Agreement in order to formalize this process of reciprocal visits. [48] The agreement was issued in form of a joint statement by the three governments in September 1992.[49]

The agreement confirmed the commitment of the three governments – which are also the BWC depositaries – to the compliance with the BWC and provided for a series of visits (not inspections) to non-military facilities in all of the three countries. In October 1993 and January 1994, a joint US/UK team visited four biological research facilities in Russia. In return, Russian teams visited three sites in the United States in February 1994, and in March 1994 one site in the United Kingdom. The agreed procedure for these visits required the receiving side to arrange a briefing for the visitors on the activities of the facility (the research undertaken and the products manufactured). Furthermore, it had to be ensured that staff of the respective facility was present and able to discuss past activities and provide information on hazard and safety requirements of the site. The restricted use of sampling, audio and video recording was permitted.[50]

Under the agreement, expert working groups were set-up to discuss procedures for visits to military biological facilities, too. However, the three parties could not agree on the definition of a military biological facility and the negotiations failed in 1996. Due to a "lack of collective resolve to continue" the process, no further meetings took place.[51] Furthermore, the visits to the non-military sites have led to mutual allegations that the other side was secretly working on biological weapons. Despite these downsides, the agreement can be seen as "a significant achievement", be-

[44] *Vienna Document*, Chapter IX.

[45] *Defense Treaty Inspection Readiness Programm: Vienna Document of 2011*, http://dtirp.dtra.mil/tic/synopses/vdoc99.aspx (accessed on 25.02.2014).

[46] Schlotter, *Die KSZE* (see note 10), pp. 244-256.

[47] Michael Moodie, "The Soviet Union, Russia, and the Biological and Toxin Weapons Convention", in: *The Nonproliferation Review* (Spring 2001), pp.59-69 (59).

[48] David C. Kelly, "The Trilateral Agreement: Lessons for Biological Weapons Verification", in: Trevor Findlay/Oliver Meier (ed.), *Verification Yearbook 2002*, London 2002, pp. 93-109.

[49] *Joint Statement on Biological Weapons by the Governments of the United Kingdom, the United States and the Russian Federation*, 10-11 September 1992, http://archives.sipri.org/contents/expcon/cbwarfare/cbw_research_doc/cbw_historical/cbw-trilateralagree.html (accessed on 13.02.2014).

[50] Kelly, *The Trilateral Agreement* (see note 49), pp. 98-100.

[51] Ibid., p. 102.

cause the visits provided additional information on the others side programs and set an important precedent.[52]

## Conclusion

Some general findings and lessons can be derived from the TCBMs described in this paper. First, there is a rich history of TCBMs that were successfully implemented during and after the Cold War. The overall experience is mostly positive. While the costs for the implementation of TCBMs were relatively low, the gains in terms of security were often significant. The better the political climate between the states involved, the easier it is to agree on and implement TCBMs. However, it would be deceptive to conclude from this statement that TCBMs are futile because they are only possible when they are not needed.[53] There are no simple, one-way causalities between TCBMs and the improvement of political relations between states or vice versa. The relationship is a reciprocal one. The case of the CSCE/OSCE process illustrates this. The progress of the political climate between the East and West during the period of détente in the late 1960s/1970s and in particular in the course of the internal changes in the Soviet Union in the 1980s was certainly conductive for the progress of the CSCE process. The CSCE in turn furthered the progress of the overall political relationship by increasing the mutual understanding that both sides had shared interests – like the avoidance of miscalculation – and established instruments that helped the rivals to gain a better understanding of each other. Furthermore, TCBMs can help to prevent escalation during times of crisis.

Second, in confidence-building, process often matters as much as outcome. Regular, institutionalized interactions can help to establish networks of personal relationships. Those networks frequently are useful to agree on more ambitious TCBMs later. They can also provide channels of communication in times of crisis. Often, meetings between experts at the working-level have proven to be very useful. Members of the military or scientists have a similar professional background, speak the same professional language, often share certain views of the world and accept the same standards of judgment. On this basis, they can appreciate the expertise of their counterparts and build good working (and often personal) relationships and networks. In the best case, a sense of community develops; a community that identifies the same problems and looks for joint solutions.[54] The case of Degelen Mountain is an excellent example for this. However, this case also shows that while these expert-level meetings are very important, it is the well-balanced combination with meetings of high-level political decision-makers that is often needed to gather broader support for an initiative.

Third, transparency is useful – within limits. Transparency can help to build trust by providing a means to evaluate the veracity of declarations. However, a party might consider some amount of ambiguity and uncertainty as an essential element of its security strategy, as it is the case with China with regard to its nuclear force posture. Restrictions on transparency out of fear for revealing sensitive information can severely hamper the usefulness of TCBMs and, like in the case of the Trilateral Agreement on Biological Weapons, create more distrust than trust. However, while the need to protect sensitive information has to be taken seriously for anyone dealing with TCBMs, the cases presented in this paper show that actors often managed to find ways to solve this problems. Sometimes, a certain amount of creativity was needed. In the case of the Degelen Mountain cleanup Russian and US scientists found a technical solution to solve a dispute about confidentiality.

Fourth, picking low-hanging fruits first can enable participants to reach higher later. Practical cooperation in the context of joint project is more valuable than information exchanges or dialogues, but it also requires a greater degree of trust. Dialogue, in turn, can establish a basis for more ambitious measures. Often, the very first steps are not about exchanging information on capabilities but on the thinking that is associated with them. Only if the actors learn more about rationales and positions of the other side, more ambitious steps are possible. Of course, a prerequisite

[52] Ibid., pp. 102-108.

[53] Following a similar line of argument, Colin Gray argues that states can only agree on arms control, when there is no strong motive to compete. In such a situation, according to Gray, arms control is futile. See Colin S. Gray, *House of Cards. Why Arms Control Must Fail*, Ithaca, NY 1992.

[54] Several authors have shown the important role of so called „epistemic communities“ in furthering international cooperation. See for example Emmanuel Adler, “The Emergence of Cooperation. National Epistemic Communities and the International Evolution of the Idea of Nuclear Arms Control”, in: *International Organization* 46 (Winter 1992) 1, pp. 101-145; Max M. Mutschler, *Arms Control in Space. Exploring Conditions for Preventive Arms Control*, Basingstoke 2013.

to any meaningful communication about doctrine is that the actors who communicate speak the same language, meaning that they manage to work out shared definitions of central concepts. Initiatives like the working group of the P5 Nuclear Dialogue with the aim to establish a glossary of key nuclear terms illustrate this point.

Transparency and confidence-building measures are practical instruments of a cooperative security policy. They can help to reduce mutual distrust and establish patterns of interaction which can be particularly valuable during times of crisis.