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Reviving Nuclear Disarmament

Paths Towards a Joint Enterprise

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List of Abbreviations

ABM Treaty	Anti-Ballistic Missile Treaty
BMD	Ballistic Missile Defense
CBM	Confidence-Building Measure
CoC	Code of Conduct
CTBT	Comprehensive Nuclear-Test Ban Treaty
DPRK	Democratic People's Republic of Korea
ECSC	European Coal and Steel Community
EU	European Union
EURATOM	European Atomic Energy Community
EURODIF	European Gaseous Diffusion Uranium Enrichment
IAEA	International Atomic Energy Agency
ICoC	International Code of Conduct for Outer Space Activities
INF Treaty	Intermediate-Range Nuclear Forces Treaty
IPDNV	International Partnership for Nuclear Disarmament Verification
JCPOA	Joint Comprehensive Plan of Action
LAWS	Lethal Autonomous Weapon Systems
LOW	Launch on Warning
MPI	Middle Power Initiative
NATO	North Atlantic Treaty Organization
NEA-NWFZ	Northeast Asian Nuclear Weapons-Free Zone
New START	New Strategic Arms Reduction Treaty
NPDI	Non-Proliferation and Disarmament Initiative
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
NSG	Nuclear Suppliers Group
NSSC	Nuclear Security Training and Support Center
P5	The five permanent members of the United Nations Security Council
PAROS	Prevention of an Arms Race in Outer Space
PPWT	Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects
PSNA	Panel on Peace and Security in Northeast Asia
RECNA	Research Center for Nuclear Weapons Abolition
SESAME	Synchrotron-Light for Experimental Science and Applications in the Middle East
SLBM	Submarine-Launched Ballistic Missile
SLCM	Sea-Launched Cruise Missile
SSBN	Nuclear-Powered Ballistic Missile Submarine
START	Strategic Arms Reduction Treaty
THAAD	Terminal High Altitude Area Defense
UNSC	United Nations Security Council
VERTIC	Verification Research, Training and Information Centre
WMD	Weapons of Mass Destruction
WMDFZ	Weapons of Mass Destruction-Free Zone

Preface

Patricia Flor

A world without nuclear weapons is a shared responsibility of each and every one of us. The idea of freeing this world from nuclear weapons has been the main driving force behind all efforts towards nuclear disarmament. It is deeply entrenched in all consensus texts adopted by the Review Conferences of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) over the last 20 years.

But in spite of all efforts to promote nuclear disarmament and in spite of important reductions achieved since the end of the Cold War, overall progress in nuclear disarmament is widely perceived as insufficient and dissatisfactory.

This working paper reunites the discussions and contributions which took place during the conference “Reviving nuclear disarmament: paths towards a joint enterprise” in June 2016 in Berlin. It is a rich source of ideas how progress towards nuclear disarmament could be stimulated – on a global scale, in the shape of nuclear-weapon free zones in various regions of the world or through various forms of nuclear arms control.

As the conference title rightly claimed, nuclear disarmament should be a joint enterprise. But while the objective seems to be a joint endeavor there is widespread disagreement about varying pathways to nuclear disarmament:

Some wish to stimulate nuclear disarmament by negotiating a nuclear weapons ban which would prohibit nuclear weapons worldwide with a view to making them politically and – ultimately – legally unacceptable.

Others, including Germany, argue that there can be no progress towards concrete nuclear disarmament without the active involvement of the nuclear weapon states. These countries are convinced that the international security environment needs to be taken into account in assessing nuclear disarmament measures. They favor a step-by-step approach towards the common goal of effective, verifiable and irreversible nuclear disarmament with the NPT as the cornerstone of the international nuclear non-proliferation and disarmament architecture.

Germany is working with its partners within the Non-Proliferation and Disarmament Initiative (NPDI) based on the conviction that the NPT needs strength-

ening and that the 2010 NPT Action Plan provides a strong basis to engage the nuclear weapon states in concrete nuclear disarmament measures.

Priorities include an early conclusion of another substantial nuclear arms control agreement between the United States of America and the Russian Federation and early progress in negotiations of a Fissile Material (Cut off) Treaty and the entry-into-force of the Comprehensive Nuclear-Test Ban Treaty (CTBT). Moreover, a robust and credible verification regime is essential to establish the confidence which is necessary for sustainable progress in nuclear disarmament. Strengthening the existing framework of security assurances for non-nuclear weapon States, e.g. through a multilaterally binding instrument, could help to address many of the concerns and fears underlying the debate for nuclear disarmament.

There is no doubt that the speed of multilateral nuclear disarmament, including in these areas, is not satisfactory. The upcoming NPT review cycle is another opportunity to redouble our efforts to make concrete progress on the basis of 2010 NPT Action Plan and to work towards our shared goal of a world without nuclear weapons.

Reviving Nuclear Disarmament: Paths Towards a Joint Enterprise

Oliver Meier

Achieving a nuclear weapons-free world is a vision that can only be achieved as a “joint enterprise” that brings together some – and later, all – states possessing nuclear weapons, as well as non-nuclear weapon states with advanced civil nuclear programs.¹ Progress toward nuclear disarmament and a reduced role of nuclear weapons must be a common endeavor, undertaken together by those who possess nuclear weapons as well as non-nuclear weapon states. Polarization of the debate about reducing the role of nuclear weapons is counterproductive, regardless of whether it is nuclear weapon states or non-nuclear weapon states that are responsible for weakening the middle ground. Arms control can be successful if the “logic of restraint” – a difficult and fragile compromise between those who argue that nuclear weapons are legitimate instruments of influence and those who argue that nuclear weapons need to be abolished – is accepted as the foundation of the nuclear order.²

Nuclear weapon states and non-nuclear weapon states alike support the notion that improving “the conditions” for a nuclear weapons-free world is a good thing. Indeed, nuclear disarmament efforts will need to take into account the legitimate security interests of all states, including those that possess nuclear weapons. But what are these conditions? How do different states perceive the relative importance of specific obstacles for nuclear disarmament? When should security concerns be considered “legitimate”? When are they only used as a pretext to deflect a serious debate about disarmament?³ What specific steps can be taken to improve the conditions for a nuclear weapons-free world?

Practitioners and researchers from 17 key states debated these questions during a two-day conference organized by the German Institute for International and Security Affairs (SWP). The meeting was organized in cooperation with the German Federal Foreign Office and the Friedrich Ebert Foundation and took place on 16–17 June 2016.

Participants presented different perspectives on the state of affairs and the role of key actors in the current disarmament debate. They were asked to describe specific hurdles for progress on nuclear disarmament

and, more importantly, to identify and debate specific proposals on how to tackle these obstacles.

Discussions at the conference took place under the Chatham House rule. This SWP Working Paper is therefore not a conference report. Instead, it is intended to highlight some of the issues debated at the meeting. Selected participants have contributed updated versions of their input papers, in which they identify some policy options to tackle some of the hurdles on nuclear disarmament.⁴ The concluding chapter summarizes several proposals that participants put forward during the various panel discussions and breakout sessions.

Just as nuclear disarmament will have to be a “joint enterprise,” this conference could only be successful as a collaborative undertaking. SWP thanks the Federal Foreign Office and the Friedrich Ebert Foundation for their support of the event and this publication. SWP colleagues, the institute’s conference secretariat, many interns, and particularly Elisabeth Suh worked hard before, during, and after this conference. Most of all, however, I would like to thank all the participants, who were willing to engage actively in the proceedings.

The challenge of making nuclear disarmament a “joint enterprise” has recently become more acute. On 27 October 2016, the First Committee of the United Nations General Assembly adopted resolution L.41, with the support of 123 states, most of which are frustrated by the slow progress on nuclear disarmament. The resolution paves the way for talks on a nuclear weapons ban treaty in 2017. Hopefully, (negotiations on) a ban treaty would help to advance nuclear disarmament. This will depend to a large degree on whether the international community will be able to develop and pursue a shared agenda for abolishing nuclear weapons. We hope that this Working Paper helps to inform discussions on such an agenda.

1 James E. Goodby and Steven Pifer. “Creating the Conditions for a World Without Nuclear Weapons.” In *The war that must never be fought. Dilemmas of nuclear deterrence*, eds. George Pratt Shultz and James E. Goodby. (Stanford, CA: Hoover Institution Press, 2015), 473–501.

2 William Walker. *A Perpetual Menace: Nuclear Weapons and International Order*. (London, New York: Routledge, 2012), 4–6.

3 Harald Müller. *Die gesplittene Gemeinschaft: Zur gescheiterten Überprüfung des Nuklearen Nichtverbreitungsvertrags*. HSFK-Report, 2015/01. (Frankfurt am Main: Hessische Stiftung Friedens- und Konfliktforschung, 2015), 19–21. Accessed 16 November 2016. http://www.hsfk.de/fileadmin/HSFK/hsfk_downloads/report0115.pdf.

4 Drafts were submitted before the U.S. presidential elections.

Naming the Conditions: Views of States Possessing Nuclear Weapons on the Hurdles for Further Nuclear Cuts

Oliver Meier and Elisabeth Suh

States possessing nuclear weapons argue that they can take further nuclear disarmament steps only when the conditions are right. Thus, the five nuclear weapon states recognized by the NPT in a recent joint statement argued that they should continue to pursue steps toward a world without nuclear weapons “in a way that promotes international stability, peace, and security, and based on the principle of increased and undiminished security for all.”¹

Beyond such rather vague and general statements, what specific conditions for nuclear disarmament do states possessing nuclear weapons identify? This Working Paper lets these states speak for themselves. It cites what China, the Democratic People’s Republic of Korea (DPRK), France, India, Israel, Pakistan, Russia, the United Kingdom, and the United States have recently said about the hurdles for nuclear cuts. The paper is in no way intended to be comprehensive or balanced. Rather, it seeks to give an idea of how states

possessing nuclear weapons describe prevailing obstacles to nuclear disarmament.

The statements of states possessing nuclear weapons are grouped here under eight topics, which appear in many of their statements on nuclear disarmament, namely:

- ▶ disparities in military capabilities
- ▶ nuclear cuts by Russia and the United States
- ▶ offense–defense stability and the role of missile defenses
- ▶ the impact of novel conventional weapons and cyber warfare on strategic stability
- ▶ regional security as a precondition for nuclear disarmament
- ▶ security assurances and nuclear cuts
- ▶ proliferation risks and reductions in the number of nuclear weapons
- ▶ the entry-into-force of the CTBT

Obviously, not all of these issues receive equal attention from all states possessing nuclear weapons. But these broad themes capture many of the hurdles that states possessing nuclear weapons see as being in the way of further cuts in nuclear weapons as well as reductions in the role of nuclear weapons.

Textbox 1: Statements by Nuclear Possessor States on Nuclear Disarmament

Joint Statement of the five NPT-nuclear weapon states, Washington, DC, 15 September 2016

“We continue to pursue a progressive step-by-step approach towards this end, in a way that promotes international stability, peace, and security, and based on the **principle of increased and undiminished security for all**. We continue to believe that this approach is the only practical way to make progress toward nuclear disarmament while enhancing international peace and stability, and is the only realistic way to achieve a world without nuclear weapons. The P5 stressed that addressing further prospects for nuclear disarmament would require **taking into account all factors that could affect global strategic stability**. The P5 all reaffirmed the importance of full compliance with existing, legally-binding arms control, nonproliferation, and disarmament agreements and obligations as an essential element of international peace and security.”²

NATO Warsaw Summit Communiqué, 8–9 July 2016

“The Alliance reaffirms its resolve to seek a safer world for all and **to create the conditions** for a world without nuclear weapons in full accordance with all provisions of the NPT, including Article VI, in a step-by-step and verifiable way that promotes international stability, and is based on the **principle of undiminished security for all**. ... We remain **committed to contribute to creating the conditions** for further reductions in the future on the basis of reciprocity, recognizing that progress on arms control and disarmament must take into account the prevailing international security environment. We regret that the conditions for achieving disarmament are not favourable today.”³

Textbox 1: Statements by Nuclear Possessor States on Nuclear Disarmament (ctd.)

China

“Countries with the largest nuclear arsenals should continue to drastically reduce their nuclear stockpiles in a verifiable, irreversible and legally binding manner. **When conditions are ripe**, all nuclear weapon states should join the multilateral nuclear disarmament negotiation process.”⁴

DPRK

“Nuclear disarmament, in its true sense, can be realized only when complete and total elimination of all nuclear weapons on the globe is fully achieved. In order to **create conditions** for it, the countries that possess the largest nuclear arsenals should de-alert the nuclear weapons in operational readiness, take the lead in abolishing nuclear weapons and withdraw those weapons deployed in foreign countries and territories.”⁵

France

“France is a peaceful power which does not intend to give up on the goal of disarmament, including nuclear disarmament. It therefore shares the ultimate goal of totally eliminating nuclear weapons, **when the strategic context allows**.”⁶

Russia

“We believe that the priority today should be not the prohibition of nuclear weapons, which would be a purely propagandistic move, but serious joint work to **create conditions** to facilitate genuine nuclear disarmament.”⁷

United Kingdom

“Britain is committed to **creating the conditions** for a world without nuclear weapons, in line with our obligations under the Nuclear Non-Proliferation Treaty.”⁸

United States

“Unfortunately, some states are currently unwilling to engage in further nuclear reductions, and others are increasing their arsenals. At the same time, violations of international norms and existing agreements are creating a more uncertain security environment and making the conditions for further reductions more difficult to achieve.”⁹

Textbox 2: Unilateral Statements by Nuclear Possessors on Being a Responsible Nuclear State

China

“China firmly sticks to a path of pursuing peaceful development, and adopts an open, transparent and **responsible nuclear policy**. China has consistently advocated and promoted complete prohibition and thorough destruction of nuclear weapons.”¹⁰

DPRK

“As a **responsible nuclear weapon state**, the DPRK will engage actively in the global efforts to realize nuclear disarmament.”¹¹

France

“France has adopted a **responsible, restricted nuclear doctrine** based on the principle of strict sufficiency; France maintains its arsenal at the lowest possible level compatible with the strategic context.”¹²

India

“As a **responsible nuclear power**, India's nuclear doctrine continues to stress a policy of credible minimum deterrence with a posture of no-first use and non-use against non-nuclear weapon states.”¹³

Israel

“Israel continues to invest a great effort to promote reconciliation with its neighbors and contribute to the global non-proliferation regime, complementing its pre-existing policy of **responsible behavior and restraint in the nuclear domain**.”¹⁴

Pakistan

“Pakistan is a **responsible nuclear State**. Our nuclear policy is shaped by the evolving security dynamics in South Asia.”¹⁵

United Kingdom

“As a **responsible Nuclear Weapons State** the UK is committed to creating the conditions for a world without nuclear weapons, in line with our obligations under the nuclear non-proliferation treaty.”¹⁶

Disparities in Military Capabilities

Those states that possess nuclear weapons generally argue that strategic stability is a precondition for nuclear disarmament. Vice versa, imbalances in nuclear as well as non-nuclear weapon capabilities are described as impediments to reductions in the number of nuclear weapons.

Generally, states that perceive themselves to be at a military disadvantage are more likely to make the argument that strategic parity is a precondition for reducing the number of nuclear weapons. Pakistan thus maintains that the strategic disparity vis-à-vis India has “forced” it to acquire nuclear weapons.¹⁷ According to Islamabad, Pakistan’s possession of nuclear weapons is legitimate, since “underlying security considerations ... drive smaller states to seek weapons [“including nuclear weapons”] to defend themselves. These motives include perceived threats from superior conventional or non-conventional forces; existence of disputes and conflicts with more powerful states; and discrimination in the application of international norms and laws.”¹⁸ Pakistan states that other external factors, such as the preferential treatment of India by the United States, negatively affect strategic stability in South Asia.¹⁹

The bilateral security dilemma is further complicated by India’s perception of China as a competitor: India argues that it needs nuclear weapons to counterbalance China’s nuclear capabilities. This creates a “security trilemma”²⁰ between China, India, and Pakistan in a region where developments in one country can have wider strategic consequences for more than one counterpart. This already fragile relationship is further complicated by the fact that China sees itself at a strategic nuclear disadvantage vis-à-vis its global competitor, the United States.

Nuclear Cuts by Russia and the United States

Almost all states possessing nuclear weapons see further reductions by the United States and Russia in the number of their nuclear weapons as being a precondition for a multilateral disarmament accord.

The United States concedes that the same countries which “ushered in the era of nuclear arms have a special responsibility to guide the world beyond it.”²¹ Despite current tensions with Russia, the United States intends to pursue another round of bilateral nuclear cuts. President Barack Obama has repeatedly stated that his 2013 offer to Russia to further reduce the number of

deployed strategic nuclear weapons by one-third through another bilateral treaty remains on the table.²²

Russia does not want to go down this road and argues that “meeting the [Strategic Arms Reduction Treaty (START)] obligations will exhaust [Russia’s] possibilities regarding bilateral reductions with the United States. Therefore it is necessary to seek possible ways of getting other states with nuclear military capabilities onboard.”²³ Russia is making further bilateral strategic arms reductions dependent on reducing perceived discrepancies in military imbalances in other areas. Moscow maintains that “the advancement toward nuclear disarmament must be made with full consideration of the whole set of factors that affect strategic stability, including the creation of unilateral missile defense systems, placement of strategic non-nuclear strike weapons, threat of placement of weapons in outer space, inability to ensure the entry into force of the [CTBT], and growing imbalance in conventional arms in Europe.”²⁴

The United States and Russia possess more than 90 percent of the 15,350 nuclear weapons that are estimated to exist globally.²⁵ China²⁶, France²⁷, and the United Kingdom²⁸ point to their smaller numbers of nuclear weapons and thereby condition joining a multilateral nuclear reduction process on further U.S.-Russian reductions. Beijing argues that the international community should start negotiating a long-term plan for nuclear disarmament, including a convention on the complete prohibition of nuclear weapons, only after “drastic” reductions are enacted in a “verifiable and irreversible manner” by Russia and the United States.²⁹

Offense–Defense Stability and the Role of Missile Defenses

Some states possessing nuclear weapons argue that missile defense systems disrupt strategic stability and thus impede progress toward nuclear disarmament. In particular, missile defense systems deployed by the U.S. in Europe and northeast Asia are contentious.

The United States, which has a technological edge over its nuclear competitors, rejects the argument that its missile defense efforts have implications for strategic stability. Washington argues that these systems are directed neither against Russia nor China.³⁰ On the contrary, Washington has argued that “the role of U.S. nuclear weapons in these regional deterrence architectures can be reduced by increasing the role of missile defenses and other capabilities.”³¹

Russia, however, perceives U.S. missile defense as a “serious obstacle[s] on the way towards further nuclear disarmament” and a “dangerous prerequisites for the resumption of a nuclear arms race.”³² Moscow assumes “that the genuine goal of the U.S. global missile defense is originally the Russian nuclear forces”, and that the “deployment of another position area for U.S. global missile defence” in northeast Asia is “inadmissible” and entails “further escalation of tension.”³³

Similarly, China maintains that the “development and deployment of missile defense systems, which are detrimental to global and regional strategic stability, must be ceased.”³⁴ Thus, the “deployment of global missile defense systems by the U.S., including THAAD [Terminal High Altitude Area Defense] missile defense system in the [Republic of Korea], ... will impede the nuclear disarmament process, trigger regional arms race, and escalate military confrontation” since it “will severely undermine the strategic security interests of regional countries including China and disrupt regional strategic balance,” Beijing claims.³⁵

Pyongyang contends that the THAAD system in South Korea is “escalating confrontation with an aim to remove the treasured nuclear sword of the compatriots in the north, precious property of the nation.”³⁶

The Impact of Novel Conventional Weapons and Cyber Warfare on Strategic Stability

States that possess nuclear weapons see technological developments in the field of advanced conventional weapons, cyber space, and outer space affect strategic stability, and thus complicate nuclear disarmament.

Washington refutes the argument that its programs to develop long-range, precision-strike conventional weapons – such as the Prompt Global Strike program – negatively affect strategic stability: “The conventionally armed strategic-range systems that the United States might deploy ... will not undermine strategic stability between the United States and the Russian Federation.”³⁷

For Russia, on the other hand, the U.S. Prompt Global Strike program is an “insurmountable obstacle to further steps towards reducing nuclear arsenals.”³⁸ Moscow also sees the weaponization of outer space and the dangers of an arms race in outer space as being a major hurdle for nuclear disarmament.³⁹

China puts emphasis on the impact of third issues, such as the Prevention of an Arms Race in Outer Space (PAROS) and the Treaty on the Prevention of the

Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (PPWT).⁴⁰

France recognizes the need for progress in all fields of disarmament and argues that “we cannot make progress towards nuclear disarmament unless we are able to guarantee undiminished security for all while making sure there is not another arms race.”⁴¹

India has also pointed out that there is “increasing attention on [the] impact of Cyber on international security,” arguing that such “scientific and technological developments ... may have a negative impact on the security environment and disarmament, particularly when they give rise to proliferation concerns.”⁴²

According to Pakistan, growing threats such as “the hostile use of Outer Space, offensive cyber capabilities, development and use of Lethal Autonomous Weapon Systems (LAWS) and armed drones, as well as the development of advanced conventional hypersonic systems of global reach” impede global security and thus threaten disarmament efforts.⁴³

Regional Security as a Precondition for Nuclear Disarmament

Many states that possess nuclear weapons cite regional security problems as a reason for maintaining nuclear weapons – and thus a hurdle for reducing the number of nuclear weapons. These problems are particularly acute in the Middle East as well as in South and East Asia.

Israel has consistently argued that regional peace and stability through recognition, reconciliation, and mutual trust are preconditions for dialogue and arms control. Among the range of issues concerning regional security, Israel stresses the need to address “real proliferation challenges,” namely the Iranian nuclear program.⁴⁴

Pakistan states that “peace and stability in South Asia cannot be achieved without resolving underlying disputes, agreeing on measures for nuclear and missile restraint, and instituting conventional forces balances.”⁴⁵ India adds that confidence-building and any arms control measures need to “fully take into account the political, military and other conditions prevailing in the region.”⁴⁶

The DPRK makes clear that regional security issues must be solved before nuclear disarmament can be pursued. Normalization of relations with the United States is essential from Pyongyang’s point of view, which maintains that “as long as there exists a nuclear

weapon state in hostile relations with the DPRK, our national security and the peace on the Korean peninsula can be defended only with reliable nuclear deterrence.”⁴⁷

Security Assurances and Nuclear Cuts

Some nuclear weapon states see positive nuclear security assurances – a commitment of a nuclear armed state to defend its ally – as a non-proliferation instrument: Historically, extended nuclear deterrence is believed to have reduced the need for Allies such as Germany and Italy to possess nuclear weapons.⁴⁸ Vice versa, it is argued that reducing the role of nuclear weapons could weaken such extended deterrence relationships and would therefore spurn proliferation. These arguments are made specifically by the United States and the United Kingdom, which contribute to the nuclear deterrence posture of the North Atlantic Treaty Organization (NATO). For example, the U.S. Department of Defense has argued that “in the absence of allied confidence in U.S. capabilities and commitments, [U.S. allies around the world] could feel compelled to acquire nuclear weapons of their own. Thus, maintaining continued allied confidence in the U.S. extended nuclear deterrent is an essential element of U.S. nuclear non-proliferation policy.”⁴⁹

Other states possessing nuclear weapons, however, see positive security assurances as being obstacles to nuclear disarmament. Russia states that positive security assurances and associated NATO nuclear sharing arrangements impede reductions in the number of nuclear weapons.⁵⁰ China also demands that “relevant states should abandon the policy and practice of providing nuclear umbrella and nuclear sharing and withdraw all their nuclear weapons deployed overseas.”⁵¹ Pakistan argues that positive security assurances pose an obstacle on the path toward a nuclear weapons-free world, since these assurances “encourage the possession or even use of nuclear weapons as part of the strategic doctrines of their alliances.”⁵²

Negative security assurances – pledges not to use or threaten to use nuclear weapons against a certain state – are believed to advance non-proliferation by limiting threat perceptions and reducing the role of nuclear weapons in security doctrines. Security Council Resolution 984 from 1995 recognizes “the legitimate interest of non-nuclear-weapon State Parties to the Treaty on the Non-Proliferation of Nuclear Weapons to receive security assurances ... against the use of nuclear

weapons.”⁵³ The five nuclear weapon states recognized by the NPT thus provide negative security assurances to all non-nuclear weapon states party to the NPT, conditioned on their full compliance with their nuclear non-proliferation obligations.⁵⁴

China is the only NPT-nuclear weapon state that commits to negative security assurances for all non-nuclear weapon states, without mentioning the precondition of full compliance with the NPT.⁵⁵ India⁵⁶ and Pakistan⁵⁷ – both of which possess nuclear weapons and are not party to the NPT – have called for a multilateral, legally-binding agreement on security assurances.

The DPRK justifies its nuclear buildup and withdrawal from the NPT with the lack of credibility of security assurances from the United States: “Instead of providing security assurances to the DRPK which acceded to the NPT in 1985, the US has intensified nuclear threat against the DPRK,” Pyongyang states.⁵⁸

Proliferation Risks and Reductions in the Number of Nuclear Weapons

Some states that possess nuclear weapons – particularly France, the United Kingdom, and the United States – cite the risk of other states and non-state actors acquiring nuclear weapons (technology) as another major obstacle to nuclear disarmament.

According to Washington, “measures that impede proliferation make it more likely that we can achieve progress on disarmament” since “it is difficult to conceive that any state would completely liquidate its nuclear stockpile in an environment where other states are seeking to acquire them.”⁵⁹ According to France, “[t]he proliferation of nuclear weapons and their means of delivery is a real threat to international and regional peace, security and stability” and “compromises our ability to meet all the objectives that States have set in the framework of the [NPT],” among them nuclear disarmament.⁶⁰

London contends that “there is a continuing risk of further proliferation of nuclear weapons,” which creates “future nuclear threats that we cannot even anticipate today.”⁶¹ It is therefore essential for all states to support the International Atomic Energy Agency (IAEA) and strengthen IAEA “measures to give us all confidence that states are in compliance with their NPT obligations,” according to the United Kingdom.⁶²

Pakistan, however, maintains that effective non-proliferation efforts should not be a precondition for

nuclear disarmament.⁶³ Islamabad's position is that conditioning disarmament on non-proliferation renders the vision of a nuclear weapons-free world as "empty rhetoric."⁶⁴

Entry Into Force of the CTBT

Parties to the NPT have consistently described the entry into force of the 1996 CTBT⁶⁵ as being the most important nuclear disarmament measure. However, of the 44 states listed in Annex II to the Treaty, eight (China, DPRK, Egypt, India, Iran, Israel, Pakistan, and the United States) have yet to ratify the CTBT for it to enter into force.

To some degree, the six states that possess nuclear weapons (among the eight listed above) condition their ratification on the policies of some other states that possess nuclear weapons. Pakistan and India have committed to nuclear testing moratoria, but they have made CTBT ratification dependent on an improvement in their bilateral relationship. Thus, Islamabad has been unwilling to move beyond politically binding, bilateral statements on non-testing with India because of "compelling regional security dynamics" and the need for a "balanced security environment" in South Asia.⁶⁶

Although China does not openly acknowledge this linkage, many observers believe that Beijing is waiting for Washington to take the lead in ratifying the CTBT.

Summary

Two general themes emerge from this collection of statements. First, the views of states that possess nuclear weapons on the conditions for nuclear disarmament are egocentric. They frequently point to other states (that have nuclear weapons) and allege that these countries are responsible for the unfavorable environment for nuclear disarmament. States possessing nuclear weapons rarely, if ever, reflect on how their own policies may be influencing the threat perceptions of others.⁶⁷

Second, states possessing nuclear weapons describe disarmament obstacles in vague terms. Most statements refer to broad concepts and problems. There is a lack of clarity on positive steps to overcome specific problems or create better conditions for nuclear reductions. This elusiveness makes it difficult to turn descriptions of hurdles into prescriptions for lowering – let alone overcoming – disarmament obstacles.

Encouraging states that possess nuclear weapons to spell out what the specific conditions for further reductions in the number of nuclear weapons are would therefore be a good beginning for any dialogue on nuclear disarmament.

¹ *Joint Statement From the Nuclear-Weapon States at the 2016 Washington DC, P5 Conference*. Washington DC, 15 September 2016, accessed 10 November 2016. <http://bit.ly/2glFIik>.

² *Joint Statement From the Nuclear-Weapon States at the 2016 Washington DC, P5 Conference*. Washington DC, 15 September 2016, accessed 10 November 2016. <http://bit.ly/2glFIik>.

³ North Atlantic Treaty Organization (NATO). *Warsaw Summit Communiqué*. Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Warsaw, 8-9 July 2016. Accessed on 16 November 2016. <http://bit.ly/29wBtNW>.

⁴ *Statement by H.E. Ambassador FU Cong of China at the Thematic Discussion on Nuclear Disarmament at the First Committee of the 70th Session of the United Nations General Assembly*. New York, 20 October 2015, accessed on 24 October 2016. <http://bit.ly/2fr3NW2>.

⁵ *Statement by Mr. Ri In Il, Expert, Ministry of Foreign Affairs of the Democratic People's Republic of Korea at First Committee of the 71st Session of the General Assembly, Thematic Discussion on "Nuclear Weapons"*. New York, 13 October 2016, accessed on 16 November 2016. <http://bit.ly/2gB0CwY>.

⁶ *Statement by Mrs. Alice Guitton, Ambassador, Permanent Representative of France to the Conference on Disarmament, Head of the French Delegation, at the 70th session of the United Nations General Assembly First Committee*. New York, 19 October 2015, accessed on 24 October 2016. <http://bit.ly/2foJN31>.

⁷ *Remarks by Mikhail Ulyanov, Director of the Foreign Ministry Department for Non-Proliferation and Arms Control and Representative of the Russian Federation at the First Committee of the 71st Session of the UNGA, within the General Debate*. New York, 4 October 2016, accessed 16 November 2016. <http://bit.ly/2g3oAgG>.

⁸ May, Theresa. *Oral statement to Parliament*. PM Commons statement on future of Trident. London, 17 July 2016, accessed on 24 October 2016. <http://bit.ly/2g3qbDd>.

⁹ *Statement by Robert A. Wood, Delegation of the United States of America, 71st UNGA First Committee, Thematic Discussion on Nuclear Weapons*. New York, 14 October 2016, accessed 16 November 2016. <http://bit.ly/2ff10Jc>.

¹⁰ *Statement by H.E. Ambassador FU Cong of China at the Thematic Discussion on Nuclear Disarmament at the First Committee of the 70th Session of the United Nations General Assembly*. New York, 20 October 2015, accessed on 24 October 2016. <http://bit.ly/2fr3NW2>.

¹¹ *Statement by Mr. Ri In Il, Expert, Ministry of Foreign Affairs of the Democratic People's Republic of Korea at First Committee of the 71st Session of the General Assembly, Thematic Discussion on "Nuclear Weapons"*. New York, 13 October 2016, accessed on 16 November 2016. <http://bit.ly/2gB0CwY>.

¹² *Statement by Amb. Jean-Hugues Simon-Michel, Permanent Representative of France to the Conference on Disarmament, Head of the French Delegation*. New York, 1 May 2015, accessed 16 November 2016. <http://bit.ly/2ff6CQS>.

¹³ *Statement by Ambassador D.B. Venkatesh Varma, Permanent Representative of India to the Conference on Disarmament, at the 71st Session*

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- 14** *Non Paper: Israel's Credentials in Nuclear Non-Proliferation, Safety and Security*. NSG Chair Communication – Outreach with Israel. NSG(07)13, 19 March 2007.
- 15** *Statement by Ambassador Dr. Maleeha Lodhi, Permanent Representative of Pakistan to the United Nations, at the 2016 Substantive Session of the United Nations Disarmament Commission (UNDC)*. New York, 4 April 2016, accessed on 24 October 2016. <http://bit.ly/2g3rmT2>.
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- 17** *Statement by H.E. Syed Tariq Fatemi, Minister of State for Foreign Affairs of Pakistan, at the Conference on Disarmament Plenary Meeting*. Geneva, 17 May 2016, accessed on 24 October 2016. <http://bit.ly/2exfRam>.
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- 54** See e.g. the resolutions of France (S/1995/264), the United Kingdom (S/1995/262) and the U.S. (S/1995/263).
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The Impact of the Humanitarian Initiative on Nuclear Arms Control

Harald Müller

The Humanitarian Initiative showed its strength during the 9th Review Conference of the Parties to the NPT in 2015. It framed the substance of the discussion and put the NPT-nuclear weapon states and their allies on the defensive throughout the proceedings. It attracted many supporters. Even most allied non-nuclear weapon states, coordinated by Australia, recognized the validity of the humanitarian concern. The number of signatories of the “humanitarian pledge” to work toward the abolition of nuclear weapons because of their inhumane character and to close the “legal gap” through an instrument to ban them grew close to two-thirds of all members to the United Nations General Assembly.

The Humanitarian Initiative Has Transformed the Disarmament Discourse

Previously, the disarmament discourse consisted of a weighing of nuclear weapons’ “pros” – deterrence in support of security – and “cons” – their enormously destructive character and the immense damage and suffering their use would cause. This has been changed in six aspects. First, the humanitarian aspect – death and suffering – has been prioritized over the military/security value that deterrence adherents assert. This change of priorities follows the template of discourses on other banned weapons – notably the landmine discourse serves as a blueprint for the humanitarian campaign.

Second, national security has been replaced by human security as the grammar for security thinking. The valid subject of security policy is not the state but the people. Universalist humanism views borders and states as being less legitimate and important than the lives and dignity of all individuals in the world.

The third contribution of the Humanitarian Initiative is probably the most contestable one. “New” scientific evidence, the argument is, highlights the dangers emanating from nuclear weapons in a new way. Health, environmental, and economic effects with deadly consequences for suffering populations, and gender asymmetries in the effects of nuclear weapons, create a new urgency to terminate these dangers promptly. To this author who has spent more than 40 years on nuclear issues, these dangers do not look new. The one “new” item of information for me is the gender aspect; in all due respect, the marginal differences pale against the

gender-neutral, large-scale deadly effects of nuclear weapons we have known about for so long. Nevertheless, all public relations campaigns must use the alleged “newness” to multiply their persuasiveness. In that, the Humanitarian Initiative was successful.

Fourth, the notion of a “legal gap” took its strength from this new urgency: Nuclear weapons are inhumane and immensely dangerous. State and societal infrastructures are not capable of coping with their effects. Such weapons must be prohibited, as with chemical and biological weapons. Since no legally-binding prohibition exists, it must be created promptly to fill that “gap.”

Fifth, there are new ideas concerning the type of legal instrument and the process to negotiate and adopt it. For the “how,” the range is from a “simple” ban to a time-bound sequence of steps to a framework in which useful operative steps could be integrated (e.g., as protocols) to a comprehensive nuclear weapons convention. As for the process, the majority appears to be determined to avoid venues that would give the nuclear armed states a veto over the outcome. There is much to be said for open-ended negotiations in which, in the end, a majority may adopt an instrument to which not everybody agrees.

Finally, the operative impact of the “effective legal instrument” is of secondary importance compared to its symbolic-normative value. Proponents see “filling the gap” as being a step with great normative power that might have strong influence on the way nuclear weapons will be seen and valued in nuclear armed states and allied states, inducing, incrementally, population majorities to support nuclear abolition. That the new treaty will not lead to the dismantlement of a single nuclear weapon in the short term is – given this expectation – no flaw.

Traditional nuclear armed states’ arguments no longer cut it. The notion of “right conditions” for nuclear disarmament are countered with the statement that this position renders nuclear disarmament dependent on the political climate between the nuclear armed states themselves, which carry the responsibility. The “conditions” that seem quasi-natural in the nuclear armed states’ discourse are made by them, and they have not shown great determination in reliably rendering these conditions – their interstate relations – disarmament-friendly.

For the same reason, an argument recently heard by one nuclear armed state – that the course of the Humanitarian Initiative might impede or prevent progress in joint disarmament efforts by nuclear weapon states – lacks credibility. The allegation that a ban treaty would *necessarily* do grave damage to the NPT is also implausible. Finally, attempts to prove that there is no “legal gap” are

futile. “Legal gap” is neither a legal term nor a natural phenomenon whose existence could be argumentatively or physically (dis)proven. If people hold prohibition as being necessary, they see a gap. If people believe the NPT provides for an orderly path toward eventual prohibition, there is none: The “gap” is in the eye of the beholder.

Members of the Humanitarian Initiative were motivated by frustration with the stagnation of arms control, the perceived reticence of NPT-nuclear weapon states to fulfill their “unequivocal commitment” to complete nuclear disarmament, and their perceived condescension in regarding regard nuclear disarmament issues as their exclusive turf. Working toward a nuclear ban can be done without them and to their chagrin, which would give satisfaction to the non-nuclear and non-governmental actors who have been feeling disrespected by the nuclear armed states. It has given a feeling of empowerment to state and non-state actors, who had been rather powerless in this field.

The Humanitarian Initiative has polarized the NPT community, more than ever, into the supporters of the Humanitarian Initiative and the nuclear armed states and their allies. Representing only 30–40 states, this latter minority, nevertheless, represents more than half of the world’s population – the majority of their populations, however, would support nuclear abolition. It is a polarization along a good/bad, moral/immoral axis, which stimulates emotions of opposite – if not hostile – feelings. The (notably non-government organizational) strategy of the Humanitarian Initiative employs blaming and shaming, probably aimed at influencing nuclear armed and allied populations. Within the non-proliferation regime, however, reconciliation of views, compromise, and consensus have become more difficult; building and maintaining cross-cutting coalitions face greater challenges.

Risks

The search for an “effective legal instrument” to eliminate the “legal gap” is not without political risks, though they could be diminished or eliminated with prudence and foresight.

A Comprehensive Convention might take a long time to negotiate and be more controversial than thought by the “likeminded,” because all the controversial issues in the NPT – verification; export control; nuclear security; sensitive fuel cycle activities and related material; procedures for assessing compliance; enforcement; conditions of and reactions to withdrawal; the role of the

United Nations Security Council – would loom large. Negotiations on time-bound instruments – a time-bound, step-by-step approach with a fixed end-date, or a step-by-step approach with target dates for steps – may lead to stalemates, or even filibuster attempts by interested parties, on every date that must be agreed to. A failure of the process might create cracks in the Humanitarian Initiative and lead to further frustration within the NPT process.

A “simple ban” avoids these troubles but may leave yawning “legal gaps” in the verification-compliance-enforcement box. The same applies to a framework approach, which would later be complemented by specific protocols. In both cases, there would be the risk that states might become parties to the supposedly superior ban/framework treaty while leaving the supposedly inferior NPT, thereby getting rid of Article III undertakings of verification and export control. It would be essential to ensure that parties to the new instrument carry the same obligations as non-nuclear weapon state parties to the NPT.

Finally, if a large number of states focus on prohibiting nuclear weapons, it could lead to an insufficient level of diplomatic and civil society resources for working out smaller steps that could foster disarmament and non-proliferation.

Options for Allied Non-Nuclear Weapon States

- ▶ Allied non-nuclear weapon states should recognize the legitimacy of a ban approach but confirm their own different priorities. Combating the ban movement is futile and counterproductive.
- ▶ They should explain their readiness to join a ban at the “right time” in the disarmament process, but confess that alliance obligations make accessions presently impossible.
- ▶ They should express their interest in the results of ban negotiations being an acceptable treaty so that eventual accession would be no problem.
- ▶ On this basis, they should participate in negotiations with a view to avoiding “legal gaps” between the ban and the NPT with regard to non-proliferation undertakings.
- ▶ Simultaneously, they should continue the search for useful, feasible “steps” toward disarmament that supporters of the Humanitarian Initiative could endorse.
- ▶ Likewise, they should establish ways to address the “conditions” for nuclear disarmament. It makes no sense to leave this subject exclusively to the nuclear armed states.

New Arms Control Formats and Coalitions

Rajeswari Pillai Rajagopalan

Developing rules for negotiating international security issues was relatively easier in the distant past than it has been in the last two decades, which have proven to be challenging for a variety of reasons: There were two or three powers (the United States, Russia and the United Kingdom) that controlled several advanced technologies including in the nuclear and outer space realms, and these countries had an inherent interest in controlling the proliferation of these technologies. With a limited number of actors, agreeing upon a treaty and other arms control measures in order to curb proliferation was more viable. Today, however, nuclear technology is spread across a large number of countries, and developing an agreement is accordingly a big challenge. Negotiations in the area of nuclear arms control and disarmament in the United Nations Conference on Disarmament in Geneva have come to complete standstill: The Conference on Disarmament has been stalemated for two decades, to a point where there is not even agreement on the agenda. Hence, efforts are being made to come up with new initiatives, proposals, and platforms to make progress in the area of nuclear arms control and disarmament.

Lessons from the Nuclear Security Summit Process

Between 2010 and 2016, the heads of all states capable of developing their nuclear technology came together biennially to discuss nuclear security issues in high-level meetings. Despite some initial hesitations in certain quarters because these were not under a United Nations umbrella, the Nuclear Security Summit process has been a relative success: Participation of more than 50 countries from around the world clearly elevated awareness of – and responsiveness to – nuclear security issues, making it clear that nuclear security is a common interest. The process captured the attention of all established nuclear states and led them to evaluate nuclear security from a new perspective as well as address complacency regarding the risks of nuclear terrorism and sabotage.¹

This fresh perspective led countries to come up with new national and multilateral initiatives in the forms of pledges called “gift baskets.” These commit-

ments have been made in areas such as nuclear security regulation, physical protection of nuclear materials, nuclear forensics, nuclear security culture, insider threats, and nuclear terrorism. But I am skeptical that this can be a model for future arms control and disarmament.

Broadly speaking, there are two reasons why I am skeptical. The near universal agreement about the threat of nuclear security is not visible regarding other major arms control/disarmament issues, including nuclear disarmament. Also, there have been far too many disagreements among big powers on major issues, and major powers have taken very rigid stands on arms control issues. This is a key problem. The lack of consensus among major powers has therefore become the biggest stumbling block in developing new arms control measures. Looking at some of the past examples, the Nuclear Non-Proliferation Treaty, for instance, became nearly universal because of consensus, especially among great powers. This consensus among great powers, however, is now lacking on most issues: This is not just in relation to nuclear disarmament or arms control issues, but rather a reflection of broad disagreements on any major security issue today. Increasing tensions in particular between the North Atlantic Treaty Organization and Russia; the United States and China; China and its neighboring countries; as well as in the Middle East and the South China Sea have made the process of consensus-building extremely challenging.

A contributing factor to this stalemate is the lack of U.S. leadership: The United States today appears unable or unwilling to lead, and this has gained particular traction under the Obama Administration. As the greatest power, it has a special responsibility to take the lead, irrespective of power challenges posed by China and Russia. The unwillingness of the United States to fulfill its global commitments is also reflected in recent U.S. presidential election debates, which have raised the topic of increased burden-sharing by U.S. allies.

This was the key difference in the Nuclear Security Summit process: Here, the United States took the lead and brought about large-scale participation and solid commitments. For these two reasons (a near consensual scenario with regard to nuclear security and the lack of U.S. leadership) explained above, this type of activism is unlikely to be successful in other areas concerning arms control and disarmament.

Nevertheless, informal approaches can have some benefits. One good illustration of this involves outer space: The International Code of Conduct for Outer Space Activities (referred to as ICoC), proposed by the European Union (EU), can be viewed as a useful example going forward, at least for kick-starting debates at the global level, despite the fact that the proposal was recently shelved. More than 100 states were involved in the three Open Ended Consultations, for instance. The EU made some mistakes with regard to the process through which the ICoC was developed but there was useful effort made to reach out after initial mistakes. Such informal exercises can help in preparing for more formal efforts, however: These kinds of non-legal commitments are particularly important for developing greater levels of political trust among states, which has been the biggest hurdle in consensus-building efforts. But such initiatives and exercises have to be truly inclusive if it is expected that participants will buy into them. In order for these measures to be feasible and effective, certain limits need to be recognized: There are political problems and disagreements rooted in legitimate national security concerns that should not be ignored or dismissed.

Lastly, the current disagreements and political problems are reflections of the changing power equation between the United States and its allies and the rest of the world. The shifting balance of power is a critical factor in framing the rules of the road, be it on arms control or disarmament measures. Today, power is spread out more evenly, which makes it more difficult to reach agreements. The relative decline of the United States and the spectacular rise of China and other powers have had a determining influence in the area of nuclear disarmament and arms control. Proliferation of technology to a large number of countries has also made the process more challenging. Since these challenges are not entirely resolvable, it is necessary for certain groups of states to prioritise challenges, identify what the least common denominator may be and start with that rather than wait for the most ideal solutions. Nuclear terrorism may be a good starting point, given the increasing threat of radicalism and extremism in some of the most fragile regions of the world such as Asia. Along with nuclear terrorism, security of nuclear installations and nuclear materials is an area, as seen in the Nuclear Security Summit process, that can potentially bring states to work together in a consensual manner.

1 Rajeswari Pillai Rajagopalan. "India and the Nuclear Security Summit." *Nuclear Security Matters* (Belfer Center for Science and International Affairs, Harvard University, 26 April 2016), accessed 8 September 2016.
<http://nuclearsecuritymatters.belfercenter.org/blog/india-and-nuclear-security-summ>.

Russia and Nuclear Disarmament: Building on New START

Pavel Podvig

The U.S.-Russian arms control process is currently in one of the most difficult periods of its history. Although implementation of the key disarmament agreement, the New Strategic Arms Reduction Treaty (New START), which limited strategic nuclear forces, is going smoothly, the prospects for a follow-on treaty are highly uncertain. A number of controversial issues – ranging from missile defense to accusations of non-compliance with the Intermediate-Range Nuclear Forces (INF) Treaty – could make further mutual reductions in nuclear arsenals impossible. In addition, the two countries have already made a long-term commitment to modernization of their strategic forces; they are also working on a range of systems that may further complicate the arms control calculation, such as dual-capable, long-range cruise missiles, conventional strike systems, anti-satellite weapons, and systems that would protect their space assets.

Strategic Forces

Russia has made a significant investment into its strategic modernization program in recent years: It is working on at least three types of intercontinental ballistic missiles as well as sea-based and air-launched cruise missiles; it is deploying a new early-warning system and developing a hypersonic boost-glide vehicle as well as an anti-satellite system; and it is also building a fleet of ballistic missile and attack submarines, and planning to resume production of a strategic bomber. There will be strong pressure to complete the current programs, and any efforts to reduce the strategic arsenal would not be supported by the military or the defense industry. It is therefore unlikely that Russia would be willing to curtail the current programs or limit the scale of deployment of its new strategic systems.

Another important factor that would complicate future strategic arms control is that the numerical limits on the number of warheads and delivery systems established by a treaty such as New START are no longer seen as a true measure of the capability of strategic forces or of a relative balance of forces. Indeed, the Russian military believes that although

the New START establishes a limit of 1,550 deployed warheads, the United States can relatively quickly increase the size of its operational force to about 5,000 warheads (the actual number is somewhat smaller). A new treaty may address this issue to some extent, but it probably would not change the situation in a significant way. At the same time, after the deployment of new strategic systems is completed, Russia may have a similar capability of its own. That could open the way to a new agreement that might call for a limit of, say, 1,000 deployed warheads. The benefits of such an agreement, however, would be limited.

Tactical Nuclear Weapons

Russia is believed to have a significant advantage over the United States regarding the number of tactical nuclear weapons it possesses. It has resisted, however, any attempts to include these weapons in arms control negotiations. One of the reasons is that there are few incentives for Russia to engage in a discussion about its tactical nuclear arsenal. Proposals to establish a common ceiling for all nuclear weapons do not seem particularly attractive, as it is difficult to see why Russia would agree to restrict its current freedom to deploy any number of non-strategic nuclear weapons (which, importantly, also include nuclear long-range sea-based cruise missiles) in exchange for a somewhat lower ceiling for the U.S. strategic force.

One way to approach tactical nuclear weapons would be to build on Russia's assurances that all its non-strategic nuclear weapons are consolidated at central storage sites and to develop a set of measures that would ensure that these weapons are kept there. This would be equivalent to extending the current New START limit of 1,550 deployed strategic warheads to all nuclear weapons, since the current situation can be described as (almost) zero deployed tactical weapons – few non-strategic weapons are operationally deployed, in the New START sense of this term. Opening a dialogue along these lines would also help address the issue of long-range sea-based cruise missiles, which are currently not covered by the New START and which Russia normally does not include in the category of tactical weapons.

Long-range Cruise Missiles and the INF Treaty

Development of long-range cruise missiles appears to be one of the key elements of Russia's strategic modernization program. A new sea-launched cruise missile (SLCM), Kalibr, and a new air-launched cruise missile, Kh-101, were demonstrated in action during the Syria campaign in the fall of 2015. It appears that Russia has plans to deploy long-range SLCMs on its attack and ballistic missile submarines. The missiles are clearly dual-capable and, although the deployment of air-launched cruise missiles is constrained by the New START treaty, there is no limit on the deployment of nuclear SLCMs. Russia also has tested a ground-launched version of the Kalibr missile, which probably resulted in the United States accusing Russia of violating the terms of the INF Treaty. If this is the case, any new arms control agreement will be impossible unless the INF Treaty compliance issue is resolved. The dual-capable nature of the new cruise missiles and uncertainty about their nuclear capability will also complicate any arrangement that would address these systems.

Missile Defense

The U.S. missile defense program has long been one of the most contentious issues in the U.S.-Russian arms control dialogue. The issue is unlikely to ever be definitively resolved, mostly due to the political support of the missile defense program in the United States and Russia's concerns about the potential of the program. An agreement that would limit missile defense may be possible, even if extremely unlikely. It will not help to resolve the dispute, however, since this agreement would not be stronger than the Anti-Ballistic Missile Treaty, which once placed limits on missile defenses, but was abandoned by the United States in 2002. One possible way to address the issue of missile defense in the U.S.-Russian relationship is to agree on transparency measures that would make sure that both sides understand the limitations of missile defense.

Prompt Strike Conventional Capabilities

Russia's concerns about the U.S. capability to deliver high-precision conventional strikes also have a long history. Even though it is virtually impossible to deliver a successful conventional counterforce strike against Russia's strategic forces, Russia has argued that this capability could give the United States a strategic advantage. Russia has been particularly concerned about the potential conversion of strategic nuclear delivery systems to conventional systems. The New START effectively closed the conversion route but did not address the development of dedicated systems, such as hypersonic boost-glide systems. Since the hypersonic programs exist in Russia and the United States (as well as in China), it might be possible to reach an agreement that would limit these developments. Since these programs seem to provide a very narrow niche capability, an agreed limit on these systems might be possible.

A Framework for Future Dialogue

The difficulty of reaching agreements on individual issues does not necessarily mean that no engagement is possible. Indeed, Russia has demonstrated in the past that it values its arms control dialogue with the United States. First of all, the arms control process establishes Russia as an equal partner to the United States. Furthermore, the arms control process provides a framework that legitimizes a range of Russia's concerns about various U.S. strategic programs. This suggests that Russia may prefer to maintain dialogue if confronted with a choice of unilateral U.S. actions over which it would have no influence or control. One area where progress appears to be possible is a new strategic force reduction agreement that would preserve the link between offensive and defensive forces and the symbolic limits on the conventional capabilities of strategic systems that were included in the New START. The simplest way to do that is to extend the New START with lower overall limits on deployed warheads and non-deployed launchers. In addition, it might be possible to reach a formal agreement that hypersonic boost-glide systems would be counted as ballistic missiles. In fact, the New START provides a very robust framework for deep reductions, and this potential should be utilized to the fullest extent.

Missile Defense and Nuclear Arms Control

Katarzyna Kubiak

Since its inception, plans for territorial ballistic missile defense (BMD) were closely related to discussions on nuclear arms control and disarmament. In 1972, the United States and Russia limited anti-ballistic missile systems because of their unsettling impact on strategic stability. The Anti-Ballistic Missile (ABM) Treaty set the conditions for further nuclear reductions by the two superpowers. After the end of the Cold War, however, the United States found itself in a new security environment in which it felt BMD was essential to defend its soldiers, population, and territory from attacks with ballistic missiles. Subsequently, Washington withdrew from the ABM Treaty in 2002, to the discontent of its NATO allies and Russia. By extending the concept of a purely national BMD system and planning its elements to be deployed in Europe, the United States forced its allies to also consider BMD. After yearlong controversial political debates, in 2010 the Alliance also decided to develop a capability to protect its populations, territory, and forces against attacks with ballistic missiles. In reaction to U.S. and NATO BMD plans, Moscow threatened to discontinue further disarmament and arms control measures, adopt countermeasures, and strengthen its nuclear potential.

A Hurdle for Nuclear Disarmament?

Territorial BMD became a stumbling block on the way toward improved relations with Russia and threatens to hinder future nuclear disarmament. The obstacles on this path are questions of strategic stability and lack of unanimity as to the nature of missile threats and the pace of their growth. Behind these obstacles, however, lies a deeper problem. The United States, European NATO members, and Russia differ in their interpretations of the intentions behind BMD, in particular with regard to NATO's BMD and its American component, the European Phased Adaptive Approach. For the United States, BMD is a tool to hedge against the threat of ballistic missile attacks. European NATO states have differing perceptions; but, in *minimo minimorum*, BMD is another project strengthening transatlantic ties for them. Russia, however, perceives the system from a power-struggle

perspective. Moscow does not trust U.S. and NATO assurances that NATO's BMD will not be directed against Russia. Rather, the Kremlin fears that the open-ended architecture of the system could make Russia a potential target.

Historical Cooperation Attempts

Since the 1990s, the United States – and later, NATO – tried to engage Russia in BMD cooperation. The motivation was to mitigate misconceptions about its purpose and to turn BMD from a problem into an opportunity. The dialogue was held with different levels of intensity and areas of emphasis. In recent years, Moscow has offered to share early warning data (2007), proposed a joint BMD system in which Russia and the Alliance would each assume missile defense responsibility for a sector of Europe (2010), and demanded legally-binding guarantees that missile defense would not be used against Russia (2011). NATO member states neither agreed on delegating the authority to secure their territory to a non-member state, nor on giving Russia legal guarantees. In response, NATO foresaw two independent systems with separate chains of command that coordinate and work back to back. The Alliance assured Moscow on the highest political level that the planned system is not directed against Russia, will not undermine its strategic deterrence capabilities, and that there is no intention to redesign the system to have such a capability in the future. Yet, neither side was content with the other side's proposal. Talks remained fruitless and did not move beyond the political level.

Today, the dialogue on BMD is at its lowest point since the end of the Cold War. Russia terminated the NATO-Russia dialogue on missile defense issues in October 2013. Following Russia's military intervention in Ukraine and its violation of Ukraine's sovereignty and territorial integrity, the Alliance suspended all practical civilian and military cooperation with Moscow in April 2014.

Despite the deadlock, the July 2016 NATO Warsaw Summit communiqué states the Alliance "remains open to discussion," should Russia be ready to debate BMD with NATO again. Both NATO and Russia worry about ballistic missile attacks from third states. Thus, there is a shared interest in developing a capacity to defend against such attacks. Moreover, cooperation could provide mutual operational and political benefits. Cooperation would enhance transparency,

which in turn enhances strategic stability. Pooling and sharing would make defense more efficient and effective. It would also send a strong non-proliferation signal. Finally, due to its long-term nature, it could establish sustainable habits of cooperation. Against this background: What is the potential for cooperation between NATO and Russia on missile defense?

Prospects for Cooperation

The United States no longer sees opportunities for deep cooperation, including on research and development or on joint interception. Russia wants to discuss BMD in comprehensive talks touching on a wide range of aspects regarding strategic parity. These include strategic-range weapons that carry conventional warheads, space weapons, and tactical nuclear weapons. Yet, broad talks on strategic stability seem unlikely as long as political relations between Moscow and Washington do not improve.

This, however, does not mean that cooperation is impossible: At the July 2016 Warsaw Summit, NATO members decided to “enhance transparency and confidence and to increase ballistic missile defense effectiveness” by engaging with third states on a case-by-case basis. The United States is also willing to discuss with Russia transparency and confidence-building measures aimed at clarifying goals and intentions behind BMD.

Engagement thus should begin with small steps. NATO and Russia could start cooperating on issues advantageous to both, but not critical to the functioning and effectiveness of existing or planned systems. This should first address the lack of trust. Both sides could exchange annual declarations on BMD capabilities. These might include the numbers of existing and planned interceptors, silos, launchers, radars, as well as advanced notice of planned changes. A permanent NATO-Russia working group could annually assess the ballistic missile threat and discuss technical specifications of existing and planned BMD systems. In the next step, Russia and NATO could invite experts to observe BMD tests, to visit radar sites, missile-intercepting defense bases, and command-and-control posts. These steps aim at inserting predictability and transparency into the build-up of BMD systems. By implementing them, NATO could respond to the Russian fear related to the current systems open architecture and make room for intensified cooperation in the future. The German government could

initiate internal NATO discussions aimed at convincing other members of the advantages of BMD talks with Russia.

Subsequently, Brussels and Moscow could gradually switch to more practical steps. In order to explore the potential for cooperation, both sides could reinvigorate the NATO-Russia Council theater missile defense interoperability study. Its purpose was to discuss cooperation on a political level. Another step would be to reinvigorate command-post and computer-assisted exercises. These aimed at developing mechanisms and procedures for joint operations and involved practicing theater missile defense planning and coordination. Germany could invite the NATO-Russia Council for a wrap-up session to summarize the output to date and to plan and coordinate future cooperation. As a next step, Berlin could offer an invitation to another theater BMD exercise, as it did twice before (2008 and 2012). With these, NATO and Russia could feel their way in order to intensify practical cooperation in the future, including in the field of the controversial territorial ballistic missile defense.

If these steps succeed, both NATO and Russia could negotiate a multilateral, reciprocal follow-up ABM Treaty to curb the quantity and quality of BMD systems in Europe. Such a treaty could set up ceilings on interceptors, launchers, and radars. It would include verification mechanisms to ensure compliance. It could also codify further transparency and confidence-building measures on BMD, including those mentioned above. Such a treaty would permanently insert predictability into the functioning and development of BMD capabilities in Europe. Calculability would, in turn, make way for further nuclear disarmament.

Ensuring Stability with Different Nuclear Postures: The United States and China

Tong Zhao

Managing the Impact of Conventional Hypersonic Weapons

The United States is taking the lead in developing conventional hypersonic weapons, which can travel at speeds of more than five times that of sound and currently include boost-gliders and hypersonic cruise missiles. Even though conventional hypersonic weapons in the near future may only have a limited capability to strike and destroy nuclear forces, countries with small nuclear arsenals are growing increasingly concerned about the threat of a conventional counterforce strike against their nuclear forces. Such threat perceptions about a conventional first strike will not help stabilize nuclear relationships and can lead to a nuclear build-up. As a first step to contain such negative consequences, nuclear weapon states can promote a joint political commitment to refrain from the use of conventional hypersonic weapons against each other's nuclear capabilities. Admittedly, there will be challenges regarding the verifiability of such commitments, but even a political commitment that explicitly renounces the option of a conventional first strike against nuclear weapons will contribute toward reducing exaggerated concerns.

In addition, since hypersonic weapons are more capable of penetrating missile defenses than traditional ballistic missiles, the temptation to use hypersonic missiles as nuclear weapon delivery vehicles will be significant, but arming hypersonic vehicles with nuclear warheads can negatively affect crisis stability. The flight trajectories of hypersonic missiles are different from ballistic missiles, but if a country possesses both nuclear-armed and conventionally armed hypersonic missiles, other countries that have early-warning capabilities may have serious difficulties figuring out whether the incoming missiles they face are part of a nuclear or conventional strike. It is therefore possible that nuclear retaliation might be initiated mistakenly in response to an incoming conventional hypersonic attack. Given such risks, the United States and China should have dialogues about avoiding the deployment of nuclear warheads on future hypersonic vehicles.

A Dialogue to Promote De-alerting and Reduce the Role of Nuclear Weapons

U.S. efforts to keep a substantial number of strategic missiles on high alert during peacetime affect other nuclear weapons states' thinking on this issue. Some Chinese experts nowadays point to U.S. practice and argue that China should also raise the level of readiness for its nuclear forces. This contradicts traditional Chinese thinking and policy. For many decades, Chinese leaders have believed that, for the purpose of nuclear deterrence, Chinese nuclear weapons do not need to be kept on high alert during peacetime.

In particular, the U.S. practice of "Launch on Warning" (LOW) has started to influence some Chinese experts' thinking on when and how their nuclear retaliation should be delivered. Within the military, some have started to argue for China to adopt the LOW posture.

Given the risks associated with high alert levels and the LOW posture, it would be helpful for the United States (and Russia) to take steps to change its existing policy. This would reduce Chinese interests in such practices. It would also be useful for the United States and China to conduct in-depth exchanges on the issue of nuclear alert levels and the LOW posture. In addition, open domestic discussions and debates in China over nuclear employment policy would help the Chinese government to better understand the potential risks of raising the alert level and, therefore, to refrain from adopting the LOW posture.

Avoiding Destabilizing Operational Strategies for Nuclear Ballistic Missile Submarines (SSBNs)

The United States and China have no common understanding about how to incorporate China's new sea-based nuclear capability into the bilateral strategic stability relationship. In the 2010 Nuclear Posture Review Report and Ballistic Missile Defense Review Report, the Obama administration made commitments to maintaining strategic stability with China. In theory, this means the United States will not deliberately seek to undermine China's nuclear retaliation capability. At U.S.-China dialogues, maintaining a relationship of mutual vulnerability has been accepted as the starting point for discussing strategic security issues. This common understanding, however, does not seem to have been extended to cover the underwater domain. The U.S. Navy, trained during the

Cold War to hold enemies' SSBNs at risk, views China's emerging strategic nuclear submarine fleet as a new threat and has taken measures to develop counter capabilities. Together with its allies in the region, the United States has revitalized strategic anti-submarine warfare capabilities in the Asia-Pacific region. With the number of U.S. maritime surveillance aircraft and attack submarines deployed in the region increasing, the U.S. Navy has explicitly expressed interests in trailing and tracking Chinese SSBNs. Washington has also undertaken a number of research and development programs to use groundbreaking technologies such as unmanned vessels to track and trail Chinese submarines. There is no doubt that China sees such behavior as highly threatening.

To mitigate the potential risks, it is important for U.S. political leaders to realize that for U.S. strategic interests, it is unnecessary to conduct aggressive anti-submarine operations against Chinese SSBNs. As part of China's overall nuclear deterrent, Chinese SSBNs do not pose new threats to the United States nor the security interests of its allies. It is high time for Washington and Beijing to have serious discussions about strategic nuclear submarines and strategic anti-submarine warfare operations in the region. A political commitment from Washington to not deliberately threaten China's SSBNs can help mitigate Beijing's concerns.

For China's part, there are also options that China can take to minimize any destabilizing impact of its SSBN deployment. For instance, China does not need to keep a large number of SSBNs at sea at all times. Unlike the United States, China can choose to keep its SSBN patrol frequency no higher than the level that is necessary to maintain machine and crew proficiency. It would be helpful for China to have a thorough domestic debate about whether China needs to maintain a so-called continuous-at-sea deterrent. Given that China does not face an existential threat in peacetime, China can afford to deploy its SSBNs to sea only when a security crisis emerges. With lower patrol frequencies, risks of accidents will also be reduced. Such unilateral measures of self-restraint should be encouraged for all countries that possess SSBNs, including the United States and China.

Additional cooperative measures such as joint training and exercises on submarine rescue and emergence response can also offer opportunities for the nuclear navies to engage with each other and build relationships. Such operational-level confidence-building measures can also be helpful.

Implications of Nuclear Weapons for Regional Security: The Case for Japan

Tatsujiro Suzuki

Given the increasing tensions in Northeast Asia, especially with regard to the nuclear threats posed by the Democratic People's Republic of Korea (North Korea), Japan's security alliance with the United States has become stronger.

Japan's position, while facing the dilemma of nuclear abolition and nuclear deterrence, is even clearer now, as shown by its statement from April 14, 2016, at the meeting of the United Nations Open Ended Working Group on Nuclear Disarmament:

“Nuclear disarmament must be promoted based on two basic understandings, the first being a clear understanding of the humanitarian impacts of the use of nuclear weapons and the second being the objective assessment of the reality of the security environment. ... At the same time, severe security environment, especially that of Northeast Asia as it faces the clear and present security challenges such as the recent nuclear testing and ballistic missile launches by the Democratic People's Republic of Korea, must always be taken into consideration in promoting nuclear disarmament and non-proliferation.”¹

Concerns over Japan's Latent Nuclear Capability

As a result of Japan's fundamental nuclear policy of recycling plutonium from spent fuel, Japan has already accumulated 47.8 tons of plutonium – 10.8 tons in Japan and 37 tons in France and the United Kingdom, with whom Japan had commercial reprocessing contracts.² This is already the largest stockpile of plutonium among non-nuclear weapon states, and it could increase further: Japan has constructed the Rokkasho nuclear fuel reprocessing plant, whose commissioning has been postponed. If the Rokkasho plant starts operating, however, Japan's plutonium stockpile is likely to grow.³

Most recently, the senior director for arms control and non-proliferation at the National Security Council, John Wolfsthal, expressed his concern over Japan's plutonium stockpile and reprocessing policy in an interview with Kyodo News:

“If Japan were to change course, they would find the United States to be supportive. ... The upcoming

renewal in 2018 of a bilateral nuclear agreement with Japan has the potential to become a very controversial issue. ... There is no question that plutonium recycling in Japan has been expensive, that is a challenging future for Japan. ... If Japan keeps recycling plutonium, what is to stop other countries from thinking the exact same thing?”⁴

This is exactly the concern expressed by the United States and other experts in an Open Letter to Prime Minister Shinzo Abe of Japan on March 28, 2016, saying: “We call on Japan to announce ... an indefinite postponement of its plan to start the Rokkasho reprocessing plant in order to further the mutual goal of Japan and the United States to minimize global stocks of separated plutonium.”⁵

Concerns over reprocessing programs are spreading across Northeast Asia: The government of the Republic of Korea (South Korea), during bilateral negotiations with the United States, strongly insisted on its sovereign right to conduct reprocessing, like Japan. While criticizing Japan for holding large plutonium stockpiles, China is planning to build a commercial reprocessing plant imported from France. Reprocessing plutonium has thus become an issue of regional security and needs to be given serious attention.⁶

Three Specific Proposals to Resolve Japan's Nuclear Dilemma

► Confidence-building through Track 2 process (“Nagasaki Process”) toward a Northeast Asia Nuclear Weapon-Free Zone (NEA-NWFZ)

As a regional think-tank for nuclear disarmament and non-proliferation, founded in 2012, the Research Center for Nuclear Weapons Abolition, Nagasaki University (RECNA) issued the policy proposal “A Comprehensive Approach to a NEA-NWFZ” in March 2015.⁷ This proposal calls for a Comprehensive Framework Agreement among the countries in the region, including (i) the termination of the Korean War, with mutual declarations of non-hostile intents, (ii) the assurance of the equal right to all forms of energy (including nuclear energy), (iii) the agreement on a Three-plus-Three Arrangement of a NWFZ, and (iv) the establishment of a permanent Northeast Asian Security Council. The Three-plus-Three Arrangement refers to the United States, China, and Russia as the three nuclear weapon states in the region providing legally-binding, negative security assurance to the three non-

nuclear weapon states of South Korea, North Korea, and Japan.

Following up on the report, RECNA held a workshop in February 2016 inviting key experts from the region. Here, an independent, non-governmental “Panel on Peace and Security in Northeast Asia (PSNA)” was established and will meet in November 2016. Given the difficult security environment, it is essential for non-governmental actors to initiate regional confidence-building on the Track 2 level.

► **Eliminating concerns over Japan’s latent nuclear capability: Reducing plutonium stockpiles and regional confidence-building scheme for civilian nuclear fuel cycle**

Japan can easily allay international concerns over its plutonium stockpile by adopting a more flexible recycling policy, such as a policy of restraining reprocessing until its stocks are reduced significantly. Besides, it can collaborate with other countries with large plutonium stockpiles, such as United Kingdom, France, and the United States, to jointly develop cost-effective, feasible options to reduce such stockpiles.

In order to enhance transparency and confidence in its civilian nuclear program, Japan can seek various multilateral approaches for nuclear fuel cycle programs. One specific example is a regional verification scheme, such as the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials, that will enhance regional confidence and increase transparency of all civilian programs in the region.

► **Strengthen the Non-Proliferation and Disarmament Initiative (NPDI) as a bridge between nuclear weapon states and non-nuclear weapon states to facilitate diplomatic processes for legally binding instruments to prohibit nuclear weapons**

Due to their dependence on nuclear deterrence, allied states such as Japan are closer to the positions of nuclear weapon states. The initial and main mission of the NPDI is to build a bridge between nuclear weapon states and non-nuclear weapon states. Here, Japan should show stronger leadership and promote the notion that nuclear weapons cannot be used under any circumstances; nuclear weapons must thus be legally prohibited.

The NPDI can also support a more flexible “legal/political framework” to prohibit nuclear weapons, such as the one suggested by the Middle Power Initiative (MPI)⁸: A “framework agreement,” as proposed by the MPI, follows the example of the United Nations Framework Convention on Climate Change, in which

additional measures are negotiated and specific commitments are affirmed at annual conferences. A flexible approach of this nature may be attractive to – and consistent with – the NPDI’s “building block approach.” Further study is needed, of course, but it is worth considering if the NPDI can be a bridge to invite nuclear weapon states to the negotiations over a legally binding framework for the abolition of nuclear weapons.

Conclusion

Although the historic visit by U.S. President Barack Obama to Hiroshima in May 2016 left strong impressions but led to no concrete actions concerning nuclear disarmament, Japan has to take this opportunity to change its security policy, which is currently dependent on U.S. extended nuclear deterrence. Japan also needs to rethink and reaffirm its commitment to the civilian nuclear fuel cycle programs in order to eliminate international concern. The specific proposals presented here (confidence-building toward an NEA-NWFZ, reduction of plutonium stockpiles, and strengthening of the NPDI) will provide the best chances for resolving Japan’s long-standing nuclear dilemma.

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Nuclear Arms Control in the Middle East: Proposals and Ideas

Ephraim Asculai

There can be little doubt that disarmament of weapons of mass destruction (WMD) in general, and nuclear disarmament in particular, are worthy causes.¹ There are regions on the globe where WMD issues are of secondary importance, however. The Middle East is most certainly a region where WMD disarmament could reduce tensions and promote peace. Chemical weapons have been used in several states in the Middle East, and the possibility of acquiring a nuclear-weapons capability has been a very realistic one. Rumors of WMD ambitions of non-state entities abound and cannot be discarded. Doing away with WMD would be a very positive step.

The primary question is: Can the discussion on WMD disarmament be dissociated from the general security situation in the Middle East region? Tackling issues of principle in the Middle East in its tumultuous state in the second decade of the 21st century could seem very much out of place. With both state and non-state entities being involved and uncertain inter-state relationships, the atmosphere is certainly not conducive toward efforts to reach agreements on almost any matter where consensus is essential. Therefore, a regional discussion of disarmament topics could become realistic if and when the security status in the Middle East becomes more stabilized.

A region that willingly abandons WMD is by definition a safer one and more conducive to an eventual laying down of arms. On the other hand, recent events, for example in Syria, have shown that hundreds of thousands of people have died through the use of conventional weapons, resulting in the WMD issue being of less importance than the humanitarian crisis.

Conditions of Negotiations

As in any case of negotiation, one can set the following necessary conditions for achieving the desired results:

- ▶ The outcome must be overall beneficial to all sides of the negotiations.
- ▶ The negotiations are not “bad faith” ones.
- ▶ The agreement must be “freely arrived at,” since

coercion will not have a strong and lasting effect on the agreement.

The only sufficient condition one could think of is that all sides have had enough of bloodshed, with little prospects for a win situation. Continuing regional co-existence would depend on good and lasting arrangements. The regional states would need to forgo their hegemonic, territorial, and religious ambitions and grow accustomed to the idea that peace, or at least peaceful co-existence, is the best solution. Unfortunately, this does not seem to be the situation at present.

Sadly, to say, the NPT has had very little apparent value in the Middle East. Several states that were (and still are) parties to the Treaty violated its stipulations, and were found to have done so: Iraq, Libya, Iran, and Syria. There is always the possibility that others have followed suit. It is one thing to say that treaties could be violated, but confronting such a reality and dealing with it is a completely different matter. In addition, the nuclear issue is one in which non-state entities could play an important role.

The record of attempts to compel any disarmament agreement, including nuclear-related agreements, in the Middle East shows that these have mostly failed. They have failed primarily because of inherent distrust among the regional states. It thus seems that, should they proceed in the same way, they would probably fail in the foreseeable future. Resolutions in international fora will do little to advance agreements. When the reasons for passing these resolutions are more political than sincere, failures in attempts to achieve practical results, such as the call for a weapons-of-mass-destruction-free zone (WMDFZ) in the Middle East, come as no big surprise. With distrust ruling motivations, methods other than coercion should be tried. Distrust among the participants in negotiations has to be overcome. Without some trust, the prospects of holding WMD agreements together are very low.

An Option to Move Forward: A Regional Step-by-Step Process

It would probably be better if any regional arrangement first addressed less important issues, since the chances of achieving agreement on less controversial issues are higher than on issues that would be very difficult to resolve. This could be a first step in the right direction, showing that some regional agree-

ment is possible, leading the way to a discussion about more profound issues. Strange to say, even the issue of sitting together and discussing matters has to be resolved. This can be done in Track II or even Track 1.5, as has been done in the past. We thus arrive at a methodology of a step-by-step process, which could slowly lead to a process that is acceptable to all.

Taking the bull by the horns is not the best way to proceed. One should start with discussions on less contentious issues, such as mutual assistance in cases of natural disasters, epidemic research and relief, food support and so on.

Another way to proceed would be to assemble a working group willing to discuss issues. All countries in the region would be invited, but not all would need to be represented, although some countries, such as Israel, Iran, Egypt, and Saudi Arabia, would be essential. The outcome of such discussions does not need to be a binding agreement at first, but it could take the shape of a non-binding Code of Conduct (CoC). If this process were able to proceed to nuclear matters, the first topic could be the safety and security of radioactive sources, other than fissile materials. This would indirectly also address the issue of “dirty” bombs. The next topic – much more controversial – could be the issue of “no first use” of WMD.

There can be little doubt that such meetings should be convened by an outside facilitator, as was the case with the failed meeting in 2012 to discuss a WMDFZ in the Middle East. Only a neutral and impartial person could proceed with any prospect of success. It is not an easy task, but almost any other way is probably doomed to failure.

Achieving a CoC has the additional advantage in that it avoids the delicate issue of verification, in cases where it is usually applied. A formal arms control agreement must have verification clauses. The stricter the verification, the better its chances of success. On the other hand, however, the chances of freely agreeing to a very strict verification mechanism are slim. Compromise will lead the way to future potential violations. Beginning with a CoC does lower tensions, and some trust could be established. There was a lot of general trust in the original safeguards agreements, which were then blatantly violated. The formal obligations meant very little to the violators. Distrust, which is not conducive to later relations, was obviously behind this.

Returning to the basic issue of a WMD disarmament agreement for the Middle East, it would be risky to say that the Joint Comprehensive Plan of Action

(JCPOA)² with Iran would be a good example on which to base a future regional agreement for WMD disarmament. It has perhaps the most thorough verification mechanism ever devised, but it is still far from perfect. In addition to quite a few slipups and loopholes, it has two major faults: For all practical purposes, the JCPOA verification mechanism cannot search for undeclared and undetected nuclear facilities; it also cannot look into related matters such as the development of the weapons’ explosive mechanism and their delivery systems.

Thus, the prerequisites for starting a WMD-elimination negotiation process seem to be:

- ▶ earnest willingness to achieve this goal,
- ▶ the elimination – or at least subjugation – of all belligerent non-state entities to the authority of the host states,
- ▶ the willingness to start negotiations with few or no preconditions.

These do not seem to exist at the moment. The step-by-step process suggested here could be the way to cautiously proceed, and perhaps later achieve the desired outcome.

1 Article VI of the NPT does not define the exact meaning of the term “disarmament”. Does it mean the dismantlement of existing weapons, or of all facilities for their production, assembly and means of delivery? This has to be defined, according to Article VI, by a separate treaty.

2 The JCPOA between the European Union, the United States, Russia, China, the United Kingdom, France, Germany and Iran, concerning Iran’s nuclear program, was adopted in October 2015.

Building on the Iran Deal

Kelsey Davenport

The July 2015 nuclear deal with Iran, known as the Joint Comprehensive Plan of Action (JCPOA), restricts Tehran's nuclear program and subjects it to intrusive monitoring and verification. In exchange, the United Nation, European Union, and United States lifted nuclear-related sanctions on Iran.

Although the JCPOA dramatically reduced the threat of a nuclear-armed Iran, many of the limits contained in the agreement expire after 10–25 years. Given the time-bound nature of these restrictions, it is critical to consider potential strategies and policy solutions that would build upon the Iran nuclear deal, further reinforce proliferation barriers vis-à-vis Iran, as well as other states in the greater Middle East, and strengthen nuclear security and safety on a regional basis.

Extend and Strengthen JCPOA Fissile Material Restrictions

The JCPOA contains innovative restrictions on fissile material production. Extending and expanding these measures beyond the terms set by the JCPOA would provide further assurance that Iran's nuclear program will remain peaceful and block other countries from producing fissile material for nuclear weapons.

One of the elements of the JCPOA that could be expanded throughout the region is the ban on reprocessing spent reactor fuel. Iran is committed under the JCPOA to forgo reprocessing plutonium from spent fuel for 15 years and to not “develop, acquire, or build facilities capable of separation.” The deal also laid the groundwork for a more permanent prohibition, as Iran stated that it “does not intend thereafter” to “engage in any spent fuel reprocessing or spent fuel reprocessing [research and development] activities.”¹

Other countries in the region, particularly those pursuing nuclear power programs, could make a similar commitment to forgo reprocessing, thus blocking the route to weaponization using separated plutonium. Israel, the only country with such a capability, could commit to end reprocessing activities. Given that experts speculate that the Dimona reactor is nearing the end of its lifespan, and may be used now primarily for the production of

tritium, this could be a possible step for Israel to take. Verification of the end of reprocessing could initially be done with non-intrusive monitoring.

Nuclear-supplier countries could contribute to this effort by committing to take back spent reactor fuel from any reactor they constructed in a country that agreed to ban reprocessing. Russia committed to do this for the Bushehr reactor in Iran and for additional units it will build at that site.

Regarding uranium enrichment, the majority of restrictions on Iran's activities phase out after 15 years under the JCPOA. These restrictions include the cap on Iran's stockpile at 300 kilograms of uranium enriched 3.67 percent, the prohibition on enrichment above that level, and the cap on uranium enrichment capacity.

Iran says it intends to expand its uranium enrichment capacity to provide fuel for the Bushehr-1 light-water reactor after these limits expire. That would require an annual production of approximately 27 tons of uranium enriched to 3.67 percent. With that increase in capacity, if Iran chose to pursue nuclear weapons, it could produce enough material in a matter of weeks.

To negate the risk posed by an expanded Iranian uranium enrichment program, the Netherlands, the United Kingdom, and Germany could work with Iran on transitioning toward a multilateral enrichment facility. These three countries hold stakes in Urenco, a multilateral uranium enrichment consortium that could be used as a model for a Middle East agreement.

Within the 15 years, these three countries could work with Iran to lay the groundwork for multilateralization and bring in regional partners to buy into a Middle East enrichment consortium. Countries looking to pursue nuclear power programs, such as the United Arab Emirates, Saudi Arabia, and Jordan, may be logical candidates to begin with. The benefits of a buy-in to a regional enrichment program are twofold: It increases transparency on uranium enrichment by adding a layer of regional oversight, and it reduces the incentive to pursue domestic enrichment for a fuel supply guarantee. Iran claimed that its experiences with EURODIF, a European joint stock operator of uranium enrichment plants, and its attempt to obtain fuel for its Tehran Research Reactor incentivized domestic enrichment. A regional buy-in might discourage other countries from making a similar argument for developing domestic enrichment capabilities.

Encourage Ratification of the CTBT

A principal element of the global non-proliferation regime has been to prevent, and ultimately ban, nuclear testing. In addition to providing proof of warhead designs, nuclear test explosions enable emerging nuclear weapon states to build smaller, lighter warheads for delivery on ballistic missiles.

Although Iran is prohibited from testing particular explosive systems relevant to designing a nuclear warhead under the JCPOA,² ratification of the CTBT would further strengthen the taboo against nuclear testing, create a “test-free zone” in the Middle East, and bring to force additional monitoring to detect any illicit nuclear explosive testing.

As a regional step, Iran, Israel, and Egypt could move together toward ratification of the CTBT and fully support the CTBT’s international monitoring system, as well as the development of its on-site inspection capabilities, which will be available after the treaty enters into force. These states are all Annex 2 countries that support the treaty and have signed it, but whose ratification is necessary for entry into force.

It would be in Iran’s interest to take action on this treaty to further demonstrate its commitment to a peaceful nuclear program and provide assurances that when key JCPOA restrictions expire, Iran has no intention of developing a weapons program. Members of the E3/EU+3 that negotiated the agreement with Iran should encourage these countries to take steps to complete ratification.

Promote Regional Cooperation on Nuclear Security

To date, Iran is not party to any of the major nuclear safety and security conventions and treaties.³ This raises questions about the vulnerability of sites such as Bushehr and Arak to sabotage, attack, or natural disasters. A safety or security breach at one of these sites could have serious consequences for Iran and the region in the event of a radiation release, and it would be in Tehran’s interest to take steps to prevent such an incident.

A regional nuclear security center, or cooperative network of centers, could be an ideal mechanism to bolster key areas of nuclear security and safety and build cooperative response mechanisms, as a number of other countries in the Middle East – several of which are developing nuclear power programs – also have room to strengthen nuclear security and safety.

The nuclear deal with Iran lays the groundwork for a nuclear safety centre in Iran and cooperation with the E3/EU+3 countries on “establishing and maintaining regulatory independence and effectiveness, training on implanting nuclear safety culture and best practices,” and provide support and assistance to “enable Iran to join relevant conventions on nuclear safety and security.”⁴

Iran’s center could be used as a regional complex for nuclear security and safety training and preparedness. The Nuclear Training and Support Center network and developmental resources of the International Atomic Energy Agency could be drawn upon to assist in developing the center and to facilitate the sharing of resources from established centers.

Alternatively, a network of centers in the region could be formed that would allow for countries to develop unique expertise, share resources, and/or create regionally-focused solutions to mitigate insider threats and discuss emergency responses. Turkey and the United Arab Emirates have existing institutes that could be utilized for such a network. The Asian Regional Network⁵ might be a model to consider for establishing such a network or, in the short term, utilizing some of the existing infrastructure at Project SESAME⁶ to create a space for cooperative scientist engagement in these issues.

1 *Joint Comprehensive Plan of Action, Annex I Nuclear Related Measures, E(18; 20)*. Vienna, July 14, 2015.

<http://www.state.gov/e/eb/tfs/spi/iran/jcpoa/>

2 In Annex I, Section T of the JCPOA, Iran agreed to a ban on all such experiments even though some ostensibly have civilian applications.

3 This includes the Convention on the Physical Protection of Nuclear Materials, its 2005 Amendment, the International Convention for the Suppression of Acts of Nuclear Terrorism, the Convention on Nuclear Safety and the Code of Conduct for the Safety and Security of Radioactive Sources.

4 *Joint Comprehensive Plan of Action, Annex III Civil Nuclear Cooperation, D(8)*. Vienna, July 14, 2015.

5 China, Japan, and South Korea participate in a sub-network that meets on the outskirts of the annual meeting of the IAEA’s Nuclear Security Training and Support Centers (NSSC) network. It includes cooperation and coordination between the Centers of Excellence in each state.

6 Project SESAME is the Synchrotron-Light for Experimental Science and Applications in the Middle East. Under construction in Allan, Jordan, it will offer scientists in the region access to Synchrotron light source for research. While not specifically nuclear, it is a cooperative framework allowing scientists from member countries to use the same resources. Members include Iran, Israel, Turkey, Jordan, and Egypt.

Managing a Trilemma: Pakistan-India-China

Pervez Hoodbhoy

In this essay I consider three nuclear issues of outstanding importance concerning Pakistan in the context of its neighbors India and China.

The Question of India's and Pakistan's Entrance into the Nuclear Suppliers Group (NSG)

The United States is enthusiastic about India's membership. During his visit to India in 2010, U.S. President Barack Obama issued a joint statement with Indian Prime Minister Manmohan Singh:

"The United States intends to support India's full membership in the four multilateral export control regimes – the Nuclear Suppliers Group, the Missile Technology Control Regime, the Australia Group (for chemical and biological controls), and the Wassenaar Arrangement (for dual-use and conventional arms controls) – in a phased manner, and to consult with regime members to encourage the evolution of regime membership criteria, consistent with maintaining the core principles of these regimes."¹

This support has been repeatedly reaffirmed. But, as India's strategic rival and Pakistan's strategic partner, China has a different take. Pakistan has already formally applied for membership, and China says that its aspirations are legitimate. China stated in 2015 that,

"We support Pakistan's engagement with the NSG, and hope such efforts could be conducive to the authority and effectiveness of the international non-proliferation regime... Pakistan has taken steps towards its mainstreaming into the global non-proliferation regime."²

Although China did not block the lifting of NSG sanctions on India in 2008, it is expected to push hard for Pakistan's membership. This would make the export of Chinese nuclear reactors to Pakistan easier. Presently, China takes the position that those exported in recent years have been "grandfathered." But this can only go so far. Thus, China is likely to take the position that either both countries are awarded

NSG membership or neither. Citing the A.Q. Khan affair, the United States, United Kingdom, and France are expected to oppose Pakistan's membership.

In conclusion, both countries should be awarded NSG membership, provided that they abide by United Nations Security Council Resolution 1172,³ which calls for a cessation of nuclear testing, fissile material production, and development of ballistic missiles. To deny Pakistan membership while granting it to India will open the NSG to charges of partiality and disregard of basic principles of fairness.

The Development of Tactical Nuclear Weapons by Pakistan

Pakistan is explicit about its plans to use short-range nuclear weapons to counter Indian conventional forces. Pakistan's planners intend this as a shot across the bow: The armored invasion could stop, and the Indians would withdraw in the face of such resoluteness. Pakistan has "blocked the avenues for serious military operations by the other side," declared retired General Khalid Kidwai in March 2015.⁴ He dismissed fears that the command and control of truck-launched missiles would introduce command and control instability. Echoing this message, in October 2015, Pakistan's foreign secretary, Aizaz Choudhury, declared that Pakistan might use tactical nuclear weapons in a conflict with India.⁵

India is making its own preparations. In a massive military exercise in April 2016 involving tanks, artillery, armored personnel carriers, and 30,000 soldiers in the Rajasthan desert bordering Pakistan, the Indian Army practiced what it would do if attacked with nuclear weapons on the battlefield. Driving the current set of Indian strategies and capabilities is the army's search for a way to use military force to retaliate against Pakistan for harboring terrorists who, from time to time, have launched devastating attacks inside India.

A first step to reducing all these nuclear dangers is to prevent an escalation of tensions. This must start with Pakistan tackling the threat of Islamist militancy at home and preventing militant attacks across the India-Pakistan border. Rather than limit cooperation to crisis management after an attack, Pakistan and India could agree on a South Asian version of the Open Skies Treaty to provide each other limited access to their air space for surveillance purposes. India has an interest in monitoring possible militant camps

within Pakistan and border areas where militants may cross. Pakistan seeks early warning in case India is preparing to mount a surprise attack. The 1992 Open Skies Treaty – covering the United States and its European North Atlantic Treaty Organization allies and Russia and its former Soviet and Eastern European partners – allows for controlled surveillance flights with agreed instruments such as photographic and video cameras, radar, and infrared-red (heat) scanners. The goal is to promote “greater openness and transparency in their military activities” and “to facilitate the monitoring of compliance with existing or future arms control agreements and to strengthen the capacity for conflict prevention and crisis management.”⁶ The United States and other parties to the Open Skies Treaty could share with Pakistan and India the technical and management issues involved and the value and experience of an agreement.

The two countries also should prepare if things go wrong. One possibility is a direct line of communication – a hotline – from Pakistan’s Strategic Plans Division chief to the head of India’s Strategic Forces Command. There are other hotlines, and they are not always used or used wisely, but in a crisis this may be better than relying on the television news, Facebook, or Twitter.

Development of Submarine-Launched Ballistic Missiles (SLBMs) and Anti-Ballistic Missiles by India

Expectedly, Pakistan has reacted sharply to the reported successful testing of a nuclear-capable K-4 SLBM by India in April 2016 from its nuclear-powered submarine, the INS Arihant. India envisages having a full fleet of large nuclear-powered submarines, of which the Arihant is the first.

A spokesman for the Strategic Plans Division said that the “upgradation of military hardware by India for operationalizing Cold Start Doctrine; building a variety of nuclear-capable missiles ranging from tactical weapons to inter-continental ballistic missiles, enabling of its nuclear triad; acquisition and upgradation of aircraft carrier fleet and nuclear submarines were all worrisome developments that would destabilize the nuclear stability.”⁷

Pakistan has also said that it is “seriously concerned” by India’s test of a locally developed anti-ballistic missile on May 15, 2016.⁸ This could intercept missiles coming from the Pakistani side, and thus blunt Pakistan’s offensive edge.

Given India’s burgeoning economic power and competition with China, it is hard to see how it can be dissuaded from pushing the subcontinent’s arms race. For now, one can only watch.

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- 6 *Treaty on Open Skies*. 24 March 1992, accessed 8 September 2016. <http://www.state.gov/t/avc/trty/102337.htm#preamble>.
- 7 *Dawn*. “India’s bid for ‘second strike capability’ to put pressure on Pakistan, says SPD official.” 15 May 2016, accessed 8 September 2016. <http://www.dawn.com/news/1258420/indias-bid-for-second-strike-capability-to-put-pressure-on-pakistan-says-spd-official>.
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Strengthening European Security: Responsible Nuclear Reassurance

Jacek Durkalec

Reassurance without nuclear weapons is desirable. Yet, for the foreseeable future, the elimination of the nuclear component from the mix of capabilities of NATO is not feasible. To the contrary, the salience of extended nuclear deterrence in Europe is likely to grow in the coming years. The gloomy outlook results from a qualitative change in perceptions about the nuclear risks in Europe following Russia's explicit and implicit nuclear threats that have accompanied aggressive actions in and around Ukraine.

Before this crisis, discourse about Russia's nuclear arsenal focused mainly on hardware: the disproportionately large number of non-strategic nuclear weapons, the variety of delivery vehicles, and the locations of storage sites.¹ Now, these concerns are being reinforced by substantial worries about the role of Russia's nuclear arsenal in its overall politico-military strategy. Nuclear saber-rattling in the past two and a half years has proven that nuclear weapons have become an integral element of Russia's approach to conflict, which merges military and non-military, conventional, and asymmetrical instruments.² It has highlighted that the role of Russia's nuclear arsenal goes beyond traditional nuclear deterrence, which is aimed at preserving the status quo. Russia can exploit nuclear threats to support aggressive actions aimed at territorial change.³ Also, Russian military exercises have revealed that its military has improved the skills and capabilities necessary to conduct different types of nuclear operations, and that its nuclear and conventional capabilities are closely intertwined, posing challenges to stability during any potential crisis. Unfortunately, it is likely that nuclear risks over the next several years will continue to grow. This would be the case if, for example, Russia were to decide to begin serial production and deploy its new ground-launched cruise missiles, which violates the INF Treaty.⁴ Overall, due to these developments, nuclear coercion – or even the use of nuclear weapons in Europe – has become thinkable again.

Russia's emphasis of the nuclear component has forced NATO to adjust its nuclear approach, including sharpening the nuclear narrative at the Warsaw Summit in July 2016. In general, NATO's focus on nuclear deterrence has atrophied over the last

decades; its conventional forces do not provide a credible deterrent against nuclear threats nor offer reassurance to allies in this regard. Strengthening conventional capabilities and capacities to counter hybrid warfare should remain a priority, but it is insufficient to only decrease risks and counter threats to the Alliance at the highest – namely nuclear – level.⁵ Furthermore, by merely adapting its nuclear approach to given developments, NATO is missing a chance to reverse Russia's course and to clarify that overreliance on nuclear weapons does not necessarily imply a military advantage.

Pursuing Measured Nuclear Adaptation

NATO's adaptation to new nuclear realities needs to be done in a responsible way – one that ensures effective nuclear deterrence, but at the same time does not bar nuclear aspirations. It should be made clear that adaptation is a necessity, not a choice, since NATO is not seeking to increase its reliance on nuclear weapons. The Alliance needs to communicate that the role of nuclear weapons remains the same, but that growing nuclear challenges to NATO's security make this role more visible.

While searching for a new balance between deterrence and disarmament, NATO needs to avoid mimicking Russian nuclear software (including nuclear rhetoric, provocative exercises, and lower nuclear threshold) and hardware (including a diversified arsenal of dual-capable systems).

In terms of hardware, NATO's adaptation should concentrate on rebuilding a perception of effectiveness of its current nuclear arrangements, as intended by, for example, the life-extension program for the B-61 nuclear-armed gravity bomb. Such a path would show continuity and restraint while at the same time countering the arguments in favor of investments in new nuclear capabilities by NATO.

In addition, NATO should continue to explore different options for burden-sharing in a way that enhances deterrence and also provides for the long-term goal of reducing the number of nuclear weapons in Europe. For example, the United States can include strategic bombers into the regular work of the NATO Nuclear Planning Group. That will strengthen collective deterrence as it would allow NATO members to jointly design options of using strategic bombers to signal Alliance's cohesion and resolve. It could also open the path for reducing reliance on dual-capable

aircraft and basing U.S. weapons in Europe, when political and security conditions permit.

Political Instruments to Decrease Nuclear Risks in Europe

NATO needs to make clear that it favors political solutions to decrease the role of nuclear weapons in the Euro-Atlantic security environment. If skillfully designed and successfully implemented, political measures will enhance stability in NATO-Russian relations. They will lower the risks of misinterpreting modernization decisions during peacetime and an inadvertent escalation during a crisis, alleviate the need for future radical nuclear adaptation measures, and facilitate the resumption of the NATO-Russian dialogue about reducing the salience of nuclear weapons in Europe.

To this end, the Alliance should encourage Russia to engage in a substantial dialogue on strategic stability in Europe. NATO should encourage Russia to explain its behavior, including 1) the relationship between its nuclear and conventional forces in light of military exercises; 2) its concept of crisis stability, taking into account the risk of misinterpretation created by its nuclear signaling through the use of dual-capable systems; and 3) the role of the “escalate to de-escalate” concept in Russia’s nuclear doctrine. At the same time, NATO should be ready to discuss Russia’s concerns and be transparent about the scope of its own nuclear adaptation.

The Alliance needs to recognize that arms control was important with Russia as a potential partner, but that it is even more urgent with Russia as a security challenge. As a top priority, NATO should continue to seek Russia’s return to full compliance with the INF Treaty. In addition, the Alliance should continue its internal work on possible options for transparency- and confidence-building measures and reciprocal reductions of non-strategic nuclear weapons. Even though progress in arms control is unrealistic today, concrete options will be available when political momentum arises.⁶

The following non-cooperative political measures could also be useful in altering Russia’s reliance on nuclear weapons: NATO member states should pressure Russia privately, publicly, and on different international forums in order to change its nuclear approach. They should publicly communicate the most disturbing forms of Russia’s nuclear behavior.

This will have some effect, as it is not in the interest of Russia to be seen as an irresponsible nuclear actor, taking into account its permanent seat on the United Nations Security Council and its obligations under the Nuclear Non-Proliferation Treaty. NATO should also explain why its approach to nuclear weapons significantly differs from Russia’s. Doing so will provide a point of reference, demonstrating how responsible nuclear deterrence contrasts with the worrisome approach being taken by Russia.

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Strengthening Verification Instruments as a Precondition for Nuclear Disarmament

Andreas Persbo

The International Partnership for Nuclear Disarmament Verification (IPNDV) is an informal group of 20 to 25 countries and one non-governmental organization, the Nuclear Threat Initiative, which is based in Washington, D.C. Reportedly, about 80 experts from these countries participate in the work. The initiative focuses on the dismantlement phase of the nuclear weapons lifecycle. On the one hand, it mostly repeats work already conducted by previous collaborations such as the United Kingdom-Norway Initiative, the United Kingdom's work with the United States, and the recently concluded project on multilateral verification by the Verification Research, Training and Information Centre (VERTIC), based in London. On the other hand, its narrow scope enables participants to focus the research effort, increasing the likelihood that it delivers practical results.

Objective and Structure of the IPNDV

According to its participants, the IPNDV aspires to develop “innovative monitoring and verification solutions” applicable to the verified dismantlement of nuclear warheads.¹ To achieve this goal, the IPNDV has organized itself into three groups:²

- ▶ The first working group focuses on what objectives are needed to produce confidence in the nuclear warhead dismantlement process.
- ▶ Guided by these objectives, the second working group studies the mechanics of on-site inspections to strike the delicate balance between promoting confidence and protecting sensitive national security and proliferation-sensitive information.
- ▶ Finally, the third working group surveys existing technologies and identifies what innovations are needed to plug technological gaps.

Needs and Constraints Relating to Disarmament Verification

It is proper to assess any initiative (such as the IPNDV) against a suitable benchmark. Setting a level of aspiration is a subjective undertaking, and often one

that takes several competing policy interests into account. One starting point, perhaps, would be to examine new initiatives against the standards set in the so-called Schuman Declaration of May 9, 1950. It begins with the phrase: “World peace cannot be safeguarded without the making of creative efforts *proportionate* to the dangers which threaten it” (emphasis added).

A fundamental tenet of the European Union – the principles underlying the 1951 European Coal and Steel Community (ECSC) – rests on the ideas brought forward in the declaration. Furthermore, the 1958 European Atomic Energy Community (EURATOM), proposed by Jean Monnet, is a direct offspring of the ECSC and, again, rests on the principle that dangerous materials, such as coal, steel, and uranium, should come under international control or, at least, coordination. Both of these communities represent a creative effort *proportionate* to the fears of a third major conflict emanating in Europe – one which, although not explicitly stated by any statesman, could well have been fought with nuclear arms.

Today, the proliferation, possession, and potential use of nuclear weapons are seen by many as some of the most serious threats to international peace and security. A famous example of this opinion is U.S. President Barack Obama’s “Prague Speech” of April 2009.³ Another often quoted example is a Wall Street Journal op-ed penned by the U.S. statesmen Shultz, Perry, Kissinger, and Nunn almost a decade ago.⁴ Although not elaborating on the threat that nuclear arms pose, the United States and Russia in 2009 committed themselves to the vision of a “nuclear free world” while cautioning that this “long-term goal will require a new emphasis on arms control and conflict resolution measures.”⁵ James E. Doyle sums up much of the debate in his *Survival* article “Why Eliminate Nuclear Weapons?,” published in 2013.⁶

If nuclear weapons proliferation, possession, and use are such a danger to international security, would an initiative such as the IPNDV be a *creative* and *proportionate* response? It should be apparent that the enterprise falls well short of the level of ambition suggested by an application of the Schuman-Monnet formula. The IPNDV’s self-imposed mandate risks circumscribing its work and channels it into research areas that have been considered elsewhere. As such, it will not be able to deliver verification solutions relevant to all aspects of nuclear disarmament: The mustered expertise invested in the IPNDV could have proposed solutions relating to the disposal of nuclear materials previously used in weapons as well as measures ensuring the prevention of

the re-emergence of nuclear weapons once abolished. Looking at these aspects would have advanced the understanding of how to, eventually, verify a nuclear abolition.

Obstacles to the IPNDV

The success of the initiative requires two things. First, it needs to be able to shape itself into an innovative and sincere new force, ultimately enabling the commonly accepted goal of nuclear abolition. Here, the challenge is to move beyond internal policy debates and get into discussions on real solutions. If it cannot do this, the results may well be disappointing to stakeholders outside of the process. Tariq Rauf, while calling the effort “worthwhile,” has even suggested that it may be ultimately impracticable: In a February 2016 paper⁷ delivered to the Open-Ended Working Group on “Taking Forward Multilateral Nuclear Disarmament Negotiations,” he appears to advocate a minimalistic approach to verification, based on the real example of South Africa’s nuclear disarmament.⁸

Second, it needs to be able to deliver results that enhance our ability to verify; results that, furthermore, are accepted by all participating partners. To date, no research effort has managed to strike a reasonable balance between the inspector’s need to observe the verification process and the inspected state’s need – on several rational grounds – to restrict access. A Pareto-optimal solution, in which a change in inspectors’ access conditions will not make them – or the inspected state – worse off, is likely to be found at some point. However, it is not clear at this time where one can make such Pareto improvements. It is encouraging that the IPNDV’s second working group appears to aspire to find this optimality.

It remains essential that the initiative pushes the boundaries of its participants’ imaginations, and that it distinctly states what scenario it is working against – establishing clear boundary conditions for its work. This may perhaps aid it in securing buy-ins from all relevant stakeholders. For instance, the International Atomic Energy Agency declined to send a representative to its second meeting held in Oslo, Norway, in late 2015. The Russian Federation is participating on a very low level, and not all nuclear weapon-armed states have bought into the concept. Moreover, as long as the scope of work is hopelessly limited, not all expertise deployed will be usefully engaged in its work. Until that happens, the usefulness of the IPNDV may well be in doubt.

Establishing a Viable Research Agenda

In November 2015, VERTIC published a 144-page report on scenarios, modeling, and simulations for disarmament verification research and development.⁹ It provides a guide for establishing a technical, legal, and political research agenda. The report also explains how creating nuclear disarmament “scenarios” and models of nuclear programs can provide detailed environments in which to run these simulations. In other words, it is advocating a scenario-driven research agenda. As explained in a 2015 paper by Rafael Ramirez, among others, scenario-driven research is a valid scholarly research methodology, which, moreover, produces interesting research that is both rigorous and actionable.¹⁰ The VERTIC report suggests defining a small number of processes in which countries can be disarmed, using firm assumptions. The verification implications of those ways can then be examined in a rigorous and scientific fashion.

1 Nuclear Threat Initiative (NTI). *Fact Sheet on International Partnership for Nuclear Disarmament Verification*. Accessed on 15 November 2016. <http://bit.ly/1dyqYKa>.

2 Frank Rose. *Updating ‘Trust But Verify’ for 21st Century Arms Control*. 21 March 2016, accessed 8 September 2016. <http://bit.ly/2fRbllt>.

3 The White House. *Remarks By President Barack Obama In Prague As Delivered*. Press Release, 5 April 2009, accessed 8 September 2016. <http://bit.ly/1MbqUjR>.

4 George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn. “A World Free of Nuclear Weapons.” *The Wall Street Journal*, 4 January 2007, accessed 8 September 2016. <http://on.wsj.com/2fr437F>.

5 The White House. *Joint Statement by President Dmitriy Medvedev of the Russian Federation and President Barack Obama of the United States of America*. Press Release, 01 April 2009, accessed 8 September 2016. <http://bit.ly/2duPtHN>.

6 James E. Doyle. “Why Eliminate Nuclear Weapons?” *Survival: Global Politics and Strategy* February–March 2013, accessed 8 September 2016. <http://bit.ly/2eAcZ7o>.

7 Tariq Rauf. *Taking Forward Multilateral Nuclear Disarmament Negotiations: Open-ended Working Group*. 25 February 2016, accessed 8 September 2016. <http://bit.ly/2foAn7R>.

8 J.W. De Villiers, Roger Jardine and Mitchell Reiss. “Why South Africa Gave Up the Bomb.” *Foreign Affairs* November/December 1993, accessed 8 September 2016. <http://fam.ag/2ff6nRyg>.

9 Verification Research, Training and Information Centre (VERTIC). “Exploring Multilateral Verification of Nuclear Disarmament: Scenarios, Modelling and Simulations.” *VERTIC Research Report Number 12*, November 2015, accessed 8 September 2016. <http://bit.ly/1PNQUR1>.

10 Rafael Ramirez, Malobi Mukherjeeb, Simona Vezzolic, and Arnoldo Matus Kramerd. “Scenarios as a scholarly methodology to produce ‘interesting research’.” *Futures* 71 (August 2015): 70–87, accessed 8 September 2016. <http://bit.ly/2foAUXg>.

Cyber Warfare and Nuclear Weapons: Game-changing Consequences?

Sico van der Meer

In 2010, the U.S. Air Force lost computer communication with 50 Minuteman nuclear ballistic missiles for one hour, fortunately without any consequences.¹ In 2012, British researchers discovered that Chinese-manufactured computer chips used in military weapons systems, nuclear plants, etc., all over the world contain a secret “backdoor” that could facilitate disabling or reprogramming the chip remotely.² It is possible that such computer chips are also being used in nuclear weapons systems. These are only two examples of incidents of cyber threats regarding nuclear weapons that have become public, but probably more incidents in various nuclear weapon states remain unreported.

Most nuclear weapons systems were designed decades ago, when manipulations of computer networks, or cyber attacks, were an almost non-existent threat. Nowadays, cyber threats are everywhere, and one may expect that they have consequences for the stability of nuclear weapons systems as well. Considering the many unknowns of the still evolving issue of cyber threats, it is hard to measure how serious the risks are, but it cannot be excluded that, over the long term, they may have “game-changing” effects on the perceived value of nuclear weapons. This contribution briefly discusses two potential consequences of this phenomenon: cyber operations targeting nuclear weapons systems, and cyber operations replacing nuclear weapons. In conclusion, some potential policy options to deal with these consequences are presented.

Cyber Operations Targeting Nuclear Weapons

The most obvious cyber threat to nuclear stability is the risk of sabotage of nuclear weapons systems. One could think of cyber attackers feeding incorrect information into systems and – maybe far-fetched but not unthinkable – even taking control of the weapons. Various parts of nuclear weapons systems could be targeted, for example command and control systems, alert systems, launch systems, and target-positioning systems. Scenarios in which alert systems are hacked and show a massive nuclear attack by adversaries may

lead to an accidental nuclear conflict, especially in states with automated warning systems attached to nuclear weapons on so-called hair-trigger alert. It is also conceivable that hackers are able to manipulate the coordinates of (pre-programmed) targets of nuclear missiles, or to spoof GPS-like systems that some missiles use to calculate their positions vis-à-vis their targets. Currently, there is no evidence that any state or non-state actor is able to successfully perform such manipulations, but considering the fast developments in the cyber arena, in the near future it might well be possible.

In the worst-thinkable scenarios, these possibilities may cause the inadvertent use of nuclear weapons, and/or use against unintended targets. In less dramatic scenarios, the perceived vulnerabilities of the nuclear weapons systems may affect nuclear stability. Especially the deterrent value of nuclear weapons may decrease, if potential adversaries think they have options to manipulate these weapons when being used, and/or when the possessor of the nuclear weapons suspects that adversaries can. It is hard to forecast the effects of such decreasing nuclear deterrence. On the one hand, it may encourage nuclear disarmament because the weapons are more or less perceived as being obsolete and/or dangerous; on the other hand, it may lower the threshold for using large numbers of nuclear weapons if this is perceived as strengthening the deterrent value to some extent.

Cyber Operations Replacing Nuclear Weapons

Another destabilizing effect of tools for digital manipulation, or cyber weapons, is their asymmetric nature. While currently only nine states (supposedly) possess nuclear weapons, cyber weapons can be obtained, developed, or used by any state or non-state actor; they are relatively cheap, risk-free, and easy to operate. This has two consequences.

First, cyber weapons may become a new kind of Weapon of Mass Destruction – or maybe it would be better to call them Mass Weapons of Destruction. It is to be expected that within a few years – thanks to the rapid, continuing digitalization of the world – cyber attackers could harm entire societies. Cyber weapons may not be able to cause the same level of deadly destruction as nuclear weapons, but they may be very powerful – think of serious, combined sabotage of energy and water supplies as well as communication,

transport, and payment systems, and so on. If this scenario were to become reality, it is conceivable that nuclear weapons would be regarded as outdated, expensive weapons that could be replaced by cheaper cyber weapons with more or less the same deterrent effect.

Second, nuclear weapons may not be able to deter cyber attacks.³ Until today, convincing attribution of cyber attacks has been very problematic. This makes retaliation for cyber attacks hard as well; because of potential “false flag” operations (deliberately producing fake traces pointing to someone else), there is a serious risk of retaliating upon an innocent party. In case of large-scale cyber attacks that disrupt an entire society, retaliation with nuclear weapons may thus be even more problematic. Moreover, cyber weapons might well be used by non-state actors with no obvious territory to target, nor much to lose from any (nuclear) retaliation. From this perspective, nuclear weapons may lose part of their deterrent value.

Policy Options

To limit the potentially destabilizing effects of cyber threats on nuclear weapons, various policy options can be considered by the international community (especially the nuclear weapon states):

- ▶ Nuclear weapon missiles could be de-alerted and retargeted to hazard-free locations such as oceans to prevent inadvertent use because of cyber attacks. This will also increase the response time (especially in cases where there are automated alarm systems), enabling decision-makers to carefully check all circumstances before launching. To prevent manipulation via the cyber domain, human decision-makers must always be in the loop with regard to the possible use of nuclear weapons.
- ▶ Confidence-building measures (CBMs) among nuclear weapon states as well as toward non-nuclear weapon states could be developed to ensure that cyber attackers cannot cause incidents by manipulating nuclear weapons systems. These CBMs could deal with issues such as reliable emergency procedures to prevent inadvertent use after the control over any nuclear weapon is lost or manipulation is detected. Nuclear weapon states can no longer get away with statements such as “trust us, our nuclear weapons are safe”; they should offer at least some transparency concerning basic cyber security measures.

- ▶ Increased intelligence-sharing among nuclear weapon states regarding non-state actors trying to manipulate nuclear weapons systems via the cyber domain, cooperation in cyber forensics, and the sharing of best practices and lessons-learned regarding the cyber security of nuclear weapons systems.
- ▶ International standards could be developed on what minimum effects a cyber attack should have to qualify for military retaliation, including wording on if/when nuclear weapons could be used for that. An important issue in this regard is what evidence must be provided in order to engage in legitimate retaliation. In addition, one could think of establishing a neutral multilateral organization that inquires into and verifies the forensic evidence of large cyber attacks.

Theoretically, an international ban could be considered on embedding secret malicious codes or circuitry in products that could be activated any time (for example, in the event of war). Currently, this does not seem to be realistic though, because of serious problems with the verification and enforcement of such a ban.

- 1 Larry Shaughnessy and Chris Lawrence. “Air Force lost some communication with nuclear missiles.” *CNN News*, 27 October 2010, accessed 8 September 2016. <http://edition.cnn.com/2010/US/10/26/nukes.lost.communications/>.
- 2 Sophie Curtis. “Cambridge researchers uncover backdoor in military chip.” *Techworld*, 29 May 2012, accessed 8 September 2016. <http://www.techworld.com/news/security/cambridge-researchers-uncover-backdoor-in-military-chip-3360617/>.
- 3 Neil C. Rowe. “The attribution of cyber warfare.” In *Cyber warfare. A multidisciplinary analysis*, ed. James E. Green (Oxford: Routledge, 2015), 61–72.

Toward a Joint Enterprise? Pragmatic Proposals to Reduce Nuclear Weapons and Improve the Conditions for a World Free of Nuclear Weapons

Oliver Meier

In 2007, in their seminal *Wall Street Journal* op-ed “A World Free of Nuclear Weapons,” George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn argued that the United States should begin “intensive work with leaders of the countries possessing nuclear weapons to turn the goal of a world without nuclear weapons into a joint enterprise.”¹ Expanding on this theme, James E. Goodby and Steven Pifer, in 2015, suggested essential features of a disarmament program for such a “joint enterprise.” Thus, nuclear weapon states and key non-nuclear weapon states should pursue, among other things, agreements on reductions in the number – and role – of nuclear weapons and aim to develop verification and compliance mechanisms.² Such a work program should also include mechanisms to address regional disputes, limits on conventional forces, and controls over nuclear materials.

Today, political support for a “joint enterprise” on nuclear disarmament – understood here to encompass the irreversible reduction in the number of nuclear weapons and their role in security policies – is dwindling. Instead, the debate about the role of nuclear weapons has polarized. On one side, those who possess nuclear weapon are investing heavily in the modernization of their nuclear arsenals. None of them are seriously considering nuclear disarmament; many of them have increased their reliance on nuclear deterrence.

On the other side, there is a growing movement of non-nuclear weapon states who want to negotiate a nuclear weapons ban treaty. Many of the supporters believe that the step-by-step approach (on which the “joint enterprise” proposal is based) has failed. Although ban supporters do not reject inclusive approaches involving nuclear and non-nuclear weapon states, there is little willingness to accommodate the security concerns of nuclear weapon states and their allies.

It is difficult to discuss pragmatic steps to reduce the role and number of nuclear weapons in such a charged environment. What is more, polarization is likely to increase. In 2017, negotiations on a ban treaty

are likely to begin, while nuclear deterrence is moving up the security agenda in many regions, particularly in Europe and Asia.³

Yet, the SWP conference “Reviving Nuclear Disarmament: Paths Toward a Joint Enterprise,” held 16–17 June 2016, demonstrated that there is no lack of ideas and problems that could be addressed by a “joint enterprise.” Officials and experts from eight states possessing nuclear weapons as well as nine non-nuclear weapon states developed the recommendations reproduced in this chapter.

Discussions were based on the contributions made by participants, some of which inspired the contributions in this Working Paper. Eight working groups were convened to identify the (perceived) hurdles for nuclear disarmament and put forward three specific ideas on how to jointly tackle these obstacles. Participants were encouraged to develop ideas that were significant, feasible, and novel. The timeframe for their implementation was supposed to be the period leading up to the 2020 NPT review conference. The text boxes in this article contain edited versions of these recommendations.

Without attempting to summarize the debates and discussions at the meeting,⁴ several themes can be identified. These are reflected in some of the recommendations coming out of the debate and have been reproduced below.

Make Disarmament Commitments Real

There is much consternation among non-nuclear weapon states about the “rich kids’ attitude” of nuclear weapon states. These states often equate disarmament with ways to “adjust deterrence to changed circumstances,” as one participant argued. Therefore, it remains important that possessors of nuclear weapons become more serious about nuclear disarmament, for example, by building on the Prague Agenda developed by U.S. President Barack Obama.⁵ Holding out for the prospect of nuclear disarmament until “the conditions are right” appears to no longer be sufficient to convince many non-nuclear weapon states that the NPT bargain is still relevant. At the same time, non-nuclear weapon states also bear responsibility for progress toward a world that is free of nuclear weapons.⁶

Some of the ideas aimed at increasing the credibility of disarmament commitments include a proposal for a U.S. time-bound commitment to ratify the CTBT;

a new Russian-U.S. agreement on lower levels of strategic and non-strategic weapons; additional security assurances to non-nuclear weapon states; and the irreversible withdrawal of weapons-grade fissile materials from military programs.

Constraining the Re-emergence of Nuclear Weapons

At the same time, Russian-U.S. relations have significantly deteriorated. Nuclear competition in Asia as well as the turmoil in the Middle East make it unlikely that nuclear weapon states in these regions will seriously pursue nuclear cuts any time soon. Therefore, measures should be pursued to prevent unconstrained nuclear arms races between Russia and the United States, as well as in Asia and the Middle East. Thus, the CTBT could be applied provisionally, making the treaty legally binding on state parties even though formal requirements for entry-into-force have not been fulfilled. The proposal to develop a commission of NATO and Russia to analyze arms control issues would fall under this rubric, as well as any U.S.-Russian Joint Presidential Statement on Ballistic Missile Defense, and a strategic dialogue between NATO and Russia on strategic stability. Attempts to constrain nuclear arms races could also take place in dialogues between “unequal” competitors, for example India and Pakistan, or China and the United States. A core purpose of such dialogues would be to develop a common understanding of deterrence relationships with a view to overcoming them. Some of the transparency and confidence-building instruments developed in Europe, such as the Open Skies Treaty, may also be adapted to security needs in other regions. In East Asia, collective efforts to contain and reverse North Korea’s nuclear program should be increased while also keeping implications for the NPT in mind.

Sidestep Nuclear Deterrence Relationships

Some ideas were aimed at addressing problems relevant to the role of nuclear weapons but not directly affecting nuclear postures. Bilaterally, China and the United States could thus improve military-to-military relations by conducting training and exercises to help in case of submarine emergencies. The United States and Russia could develop a transparency agreement to reduce misperceptions

about the purpose and capabilities of missile defense systems.

In regions such as the Middle East, regional centers of excellence on nuclear safety and security could provide frameworks to jointly discuss relevant problems and develop technological solutions for them.

Multilaterally, member states of the IAEA could decide, with EU funding, to create a Center for Nuclear Disarmament Verification. The IPNDV should be made more inclusive and relevant. Participants agreed that the impact of cyber warfare on strategic stability is another problem that should – and could – be addressed in a dialogue among nuclear and non-nuclear weapon states.

Flexible Formats

Given the continuing paralysis of the existing disarmament machinery, there is an obvious need to find new settings in which to take specific ideas forward. The starting point of the conference – not shared by all participants – was that efforts to reduce the role and number of nuclear weapons would have to involve at least some nuclear weapon states. That, however, leaves much flexibility for the format of a “joint enterprise.” Generally speaking, states can act jointly in the context of catalyst groups – clubs, informal negotiation processes, and formal and informal legal agreements can play a role in nuclear disarmament. Policy-makers also have to consider difficult trade-offs in terms of participation (ranging from unilateral disarmament commitments to multilateral accords) and the legal character of cooperative endeavors (ranging from voluntary commitments to legally binding treaties).

The United Nations Security Council (UNSC) has assumed a greater role in discussions on nuclear disarmament. This could be exploited further.⁷ Thus, the UNSC has recently adopted a resolution to support the CTBT and strengthened the norms against nuclear testing.⁸

Novel formats for disarmament discussions could include focused conversations between select groups of nuclear and non-nuclear weapon states.⁹ In the Middle East, a forum could be set up, with U.S.-Russian co-chairmanship and the membership of five key regional countries (Egypt, Iran, Israel, Saudi Arabia, Turkey) to discuss regional security issues, possibly leading to discussions on issues about WMD. New

formats may also be useful to address tangential issues such as cyber security as well as nuclear safety and security. Notably, new actors – including from the private sector and civil society – could be useful and brought in to address some of these governance problems.

The Role of Germany and Other Middle Powers

The growing radicalization of the debate about the role of nuclear weapons and nuclear disarmament leaves Germany and other middle powers in a difficult position. Germany supports nuclear disarmament and has frequently expressed its frustration about the slow pace of efforts by the nuclear weapon states.

At the same time, Germany supports NATO's deterrence and defense posture through nuclear sharing, which "continues to be an integral part of NATO's nuclear policy and planning."¹⁰ Compared to 2009–2010, when some held high hopes for a reduction in the role of nuclear weapons in European security, the debate in NATO has shifted. Berlin is now more concerned with preventing a tit-for-tat response by NATO to Russia's nuclear provocations than with trying to forge a new consensus among policy-makers on a reduction of the role of nuclear weapons.

Thus, German policy on nuclear deterrence and nuclear disarmament will continue to oscillate between the goal of reducing the role of nuclear weapons and alliance solidarity. Anything else would amount to a break with existing German arms control, disarmament, and non-proliferation policies, which would risk Berlin isolating itself from partners and allies and harming the credibility of German arms control policy.¹¹

Against the background of the increasing number of crises in the neighborhood of Germany and Europe, Germany aims to increase efforts to pursue its foreign and security policy goals through the European Union and other international institutions. From a German perspective, the nuclear non-proliferation regime, based on the NPT, is still the best basis for developing ideas to pursue an inclusive agenda and a "joint enterprise."

So what can Germany do to advance nuclear disarmament while not damaging alliance relationships?

First, it should continue to express and explain the dilemmas that countries such as Germany find themselves in. Such statements run counter to the simplistic arguments on both sides of the debate –

either denying or praising the role of nuclear weapons in security policies. Berlin can engage countries on both ends of the debate. This means, on the one hand, that Germany should participate in possible talks on a nuclear weapons ban treaty while clearly articulating the limits of its engagement. It also means that Germany should aim to prevent a tit-for-tat response by NATO to Russia's nuclear provocations.

Second, Germany should aim to limit the damage caused by extremist arguments to the nuclear order. Thus, in negotiations on a nuclear weapons ban treaty, Germany should aim to strengthen ties between the NPT and a ban treaty. Among other things, a ban treaty should directly and openly recognize that it complements and strengthens the nuclear disarmament and non-proliferation regime, based on the NPT. A ban treaty, for example, could stipulate that only NPT state parties are eligible to become members. These and other possible steps could help to reduce the risk of the ban treaty establishing a competing disarmament paradigm.

Third, Germany will have to be flexible in seeking like-minded states as partners in pursuing its arms control goals. The EU and NATO will continue to be Berlin's most important frameworks for coordinating with allies and partners. To foster a debate on nuclear disarmament in Brussels, the EU could decide to update its 2003 Strategy against Proliferation of WMD.¹² Such a discussion would be useful against the background of the EU's recent split on the humanitarian initiative and the fact that the EU's 2016 Global Strategy does not talk much about the EU's contribution to nuclear disarmament. Germany's push in 2010 to increase NATO's profile on disarmament, arms control, and non-proliferation has led to the creation of a new arms control committee. This body could be used to facilitate among NATO allies possible ways and means to engage Russia on nuclear arms control. The Non-Proliferation and Disarmament Initiative (NPDI) will continue to be an important forum in which to discuss next steps on the arms control agenda. The five NPT-nuclear weapon states and permanent members of the UNSC (P5) have briefed the NPDI on the outcome of their nuclear consultations. Thus, NPDI+P5 consultations could take place regularly, their substance expanded, and these discussions could be complemented by regular high-level meetings on nuclear disarmament, arms control, and non-proliferation. Germany's G20 presidency in 2017 could also offer opportunities for pursuing arms control issues, most likely on tangential issues such as nuclear

safety and security, reducing the risks posed by cyber warfare, or strategic stability. On these and other issues, the overlap of interests may be larger than on issues related directly to the role of nuclear weapons.

Fourth, the set of issues identified during the conference provide a rich menu for substantive discussions in these and other fora. The meeting showed that the arms control agenda is not exhausted. The problem continues to be a lack of serious engagement by the nine states possessing nuclear weapons. Ultimately, the responsibility for making a joint enterprise on nuclear disarmament a reality rests on their shoulders.

1 George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn. "A World Free of Nuclear Weapons", *Wall Street Journal*, 4 January 2007, 15 November 2016.

<http://www.nuclearsecurityproject.org/publications/a-world-free-of-nuclear-weapons>.

2 James E. Goodby and Steven Pifer. "Creating the Conditions for a World without Nuclear Weapons." In *The War That Must Never Be Fought. Dilemmas Of Nuclear Deterrence*, eds. George P. Shultz and James E. Goodby (Stanford, CA: Hoover Institution Press, 2015): 473-501, 478-479.

3 On 27 October 2016, the First Committee of the UN General Assembly approved Resolution L.41, which calls for negotiations in 2017 on a legally binding instrument to prohibit nuclear weapons. See: United Nations General Assembly. *Taking forward multilateral nuclear disarmament negotiations*. A/C.1/71/L.41. Last accessed 2 November 2016.

4 Meetings at SWP take place under Chatham House rule.

5 Barack Obama. *Remarks of President Barack Obama*. Prague, 5 April 2009, last accessed 4 November 2010.

<http://prague.usembassy.gov/obama.html>.

6 Scott Douglas Sagan and James M. Acton. *Shared responsibilities for nuclear disarmament. A global debate* (Cambridge, MA: American Academy of Arts and Sciences, 2010).

7 Such efforts could build on United Nations Security Council (28.04.2004): Resolution 1540 (2004). S/Res/1540 (2004) and United Nations Security Council (24.09.2009): Resolution 1887 (2009). S/Res/1887/2009.

8 UN Security Council. *Resolution 2310 (2016). Adopted by the Security Council at its 7776th meeting, on 23 September 2016*. S/RES/2310 (2016), unpublished manuscript, last modified 25 October 2016, accessed 25 October 2016. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N16/297/21/PDF/N1629721.pdf?OpenElement> (accessed 25 October 2016).

9 The Non-proliferation and Disarmament Initiative and the five nuclear weapon states have met at the Preparatory Committee meetings in 2013 and 2014 to the NPT Review Conference 2015 as well as at the p5-Conference in London in February 2015.

10 Federal Ministry of Defence. *White Paper 2016 on German Security Policy and the Future of the Bundeswehr* (Berlin, 2016), 64-65. Accessed 15 November 2015. <http://bit.ly/2dMgs0D>.

11 Oliver Meier. *Germany and the Role of Nuclear Weapons. Between Prohibition and Revival*. SWP Comments 02, January 2016, accessed 15 November 2016. http://www.swp-berlin.org/fileadmin/contents/products/comments/2016C02_mro.pdf.

12 Council of the European Union. *EU strategy against proliferation of Weapons of Mass Destruction*. 15708/03. Brussels, 10 December 2003, accessed 10 April 2012.

<http://register.consilium.europa.eu/pdf/en/03/st15/st15708.en03.pdf>. On 27 October 2016, the European Parliament urged the European External Action Service to update the 2003 WMD Strategy "with a view to making the EU a driving force in strengthening and taking forward multilateral nuclear disarmament and non-proliferation agreements". See: European Parliament. *Nuclear security and non-proliferation. European Parliament resolution of 27 October 2016 on nuclear security and nonproliferation (2016/2936(RSP))* P8_TA-PROV(2016)0424, last modified 2 November 2016, accessed 2 November 2016.

<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P8-TA-2016-0424+0+DOC+XML+V0//EN&language=EN>.

Textbox 3: Proposals from the Conference

Disarmament and Asymmetric Deterrence Relationships

- ▶ The United States and China should initiate a bilateral strategic dialogue on issues of pressing concern, such as the impact of conventional hypersonic weapons, nuclear alert levels, launch-on-warning postures, as well as on submarine components.
- ▶ The United States and China should pursue joint training and exercises on submarine rescue and emergency responses, which might offer opportunities for the nuclear navies to engage with each other and build military-to-military relationships.
- ▶ Pakistan and India should pursue an open dialogue with a view on establishing a regional confidence, transparency and predictability regime. The two states could agree on a South Asian version of the Open Skies Treaty, augmented with transparency measures along the lines of the Vienna Document from the Organization for Security and Co-operation in Europe.

Reviving the US-Russian arms control dialogue

- ▶ The United States and Russia should resume negotiations to cut their nuclear arsenals to a total aggregate number of 2,200 active weapons each, with a sublimit of 1,000 deployed strategic warheads, specifically including hypersonic glide vehicles.
- ▶ The United States and Russia should adopt a verifiable treaty on zero deployed non-strategic nuclear weapons, perhaps also including geographic restrictions.
- ▶ The NATO-Russia Council should be reinvigorated by acknowledging the structural problems in the NATO-Russia relationship and through creating a NATO-Russia commission to analyze arms control issues, such as e.g. strategic balance, missile defense, and hypersonic glide technology.

Missile defenses and nuclear reductions

- ▶ The United States and Russia should negotiate and implement a transparency agreement.
- ▶ The United States and Russia should issue a joint presidential statement on the nature and role of ballistic missile defenses.
- ▶ All relevant states should initiate bilateral as well as plurilateral dialogues on strategic stability.

Novel conventional weapons and nuclear deterrence

- ▶ Best practices for protecting critical infrastructures need to be developed in order to ward off cyber operations.
- ▶ Research experts as well as the private sector need to be included in consultative processes.
- ▶ A coalition of like-minded states should convene to define common high standards and secure critical infrastructures.

Regional security and nuclear disarmament in the Middle East

- ▶ States in the region should adopt an open-ended, voluntary track 1.5 process which aims to develop codes of conduct on guidelines for nuclear security, to adopt no-first-use commitments on chemical, biological, radiological, nuclear, and explosives (CBRNE) materials, and to improve cooperation on preventing CBRNE acquisition by non-state actors.
- ▶ Five key countries in the region (Egypt, Iran, Israel, Saudi-Arabia, Turkey) should convene a Regional Security Forum with U.S.-Russian co-chairmanship in order to discuss regional security issues, possibly leading to discussion on WMD issues.
- ▶ States in the region should create a regional center of excellence on nuclear safety and security as well as other technology issues.

Textbox 3: Proposals from the Conference (ctd.)

Extended nuclear deterrence: Reliance on nuclear weapons and security assurances

- ▶ The five NPT nuclear weapon states should reaffirm negative security assurances under the NPT and shorten the list of exceptions. Furthermore, NPT-nuclear weapon states should reaffirm their support for existing nuclear weapon-free zones, and sign and ratify the respective protocols.
- ▶ NATO should engage Russia on strategic stability in Europe and discuss the concept of crisis stability, the relationship between conventional and nuclear forces, and the role of escalation and de-escalation.
- ▶ All countries concerned should proactively contain and roll back North Korea's nuclear weapons program by non-military means, in conjunction with allies and partners, maintaining the US positive security assurances to its allies in a credible way as well as enhancing dialogue on the roles, obligations and consequences for NPT parties in the region.

Reducing proliferation risks

- ▶ The IPNDV should be more inclusive, transparent and representative – regarding regions, actors such as non-governmental organizations, and technical expertise – and should focus on technical rather than political issues.
- ▶ The nuclear armed states, individually or collectively, should conclude agreements with the IAEA for credible verification of the irreversible removal of fissile material from nuclear weapons programs, e.g. the U.S. and Russia could dispose of their weapon programming units under IAEA supervision.
- ▶ The EU should create a funding mechanism for and help create an IAEA Centre for Nuclear Disarmament Verification.

Making Progress Toward Entry-into-force of the CTBT

- ▶ The CTBT should be provisionally applied.
- ▶ The United Nations Security Council as well as the General Assembly should adopt a resolution on the CTBT, making its entry into force crucial and enhancing sanctions on nuclear testing.
- ▶ The United States should issue a political statement, committing itself to time-bound pursuit of ratifying the CTBT.

Annex: Conference Agenda



Federal Foreign Office



Reviving nuclear disarmament: paths towards a joint enterprise

16 – 17 June 2016

German Institute for International and Security Affairs (SWP),
Ludwigkirchplatz 3–4, 10719 Berlin

Successful efforts to revitalize nuclear disarmament will have to be comprehensive, inclusive and guided by a long-term vision. Against the background of discussions in the Open-Ended Working Group in Geneva and the debate about the role of nuclear deterrence in Europe and other regions, this conference wants to discuss opportunities for progress towards a reduced role of nuclear weapons in international security.

The meeting will provide an opportunity for officials and experts from nuclear weapon states and non-nuclear weapon states to jointly identify hurdles for progress on arms control and to discuss ways to tackle such obstacles. Discussions during breakout sessions will focus on specific disarmament challenges, such as maintaining strategic stability, missile defenses, novel conventional capabilities, regional conflicts, extended deterrence relationships and proliferation risks. The aim of the meeting is to identify elements of a nuclear arms control agenda that would find support among different constituencies in nuclear weapon states and non-nuclear weapon states alike, in the coming years leading up to the next NPT review conference in 2020.

June 16, 2016

Welcoming Remarks

Panel 1: The state of play: an assessment of the nuclear arms control and disarmament landscape

US-Russian arms control agenda

The Open-Ended Working Group on effective nuclear disarmament measures

The role of NATO in nuclear arms control, transparency and confidence building

The NPT after the review conference

As the Chatham House Rule applies to all SWP meetings, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed. As a matter of confidentiality, photographs, video or audio recordings as well as all kinds of activities on social media are not allowed during our meetings.

Panel 2: Perspectives on a reduced role of nuclear weapons in international security

A view from a nuclear weapon state

The humanitarian initiative perspective

A view from a nuclear weapon state

A view from a nuclear ally

Breakout Sessions

Breakout session 1: Disarmament and asymmetric deterrence relationships

Arms control works best under conditions of relative parity. However, many relations among nuclear possessor states are asymmetric in terms of capabilities, postures and alliances. This session will focus on asymmetric deterrence relationships in Asia. Participants will be asked to identify ways to pursue arms control and disarmament under such conditions.

Ensuring stability with different nuclear postures: US-China

Managing a trilemma: Pakistan-India-China

Breakout session 2: Reviving the US-Russian arms control dialogue

Better relations between Russia and the United States as the largest nuclear weapon possessor states are key for significant steps towards a nuclear weapons-free world. Under what conditions would Moscow and Washington be willing to consider further nuclear cuts? Should the next round of nuclear arms control talks be bilateral or involve other topics? Participants will be asked to identify ways to revitalize the US-Russian arms control dialogue.

Moving beyond the New START treaty

Revitalizing bilateral nuclear arms control

Breakout session 3: Missile defenses and nuclear reductions

Missile defenses could, in theory, facilitate nuclear disarmament. Yet, different states view missile defenses from specific perspectives: as a hedge against unforeseen developments and threats, as a tool to manipulate strategic stability or as an instrument for cooperation. Under such conditions, what are the implications of missile defenses for nuclear arms control? Participants will be asked to identify ways to reduce the risks of new offensive-defensive arms races.

Agenda

Strategic stability and missile defense

Missile defense as a hedge

The potential for cooperation on missile defenses

Breakout session 4: Novel conventional weapons and nuclear deterrence

Technological advances in conventional weapons, both kinetic and non-kinetic, can affect nuclear stability. What is the interrelationship between advanced conventional weapons and nuclear deterrence? What measures can be taken to reduce destabilizing effects? Under what conditions could improved conventional weapons facilitate arms control? Participants will be asked to develop ideas to reduce the destabilizing effects of novel conventional weapons.

Implications of Conventional Prompt Global Strike weapons for nuclear stability

The interrelationship between cyber warfare and nuclear stability

Panel 3: Feedback from breakout sessions and evaluation of policy proposals

June 17, 2016

Panel 4: A new type of multilateralism? New arms control formats and coalitions

Nuclear disarmament will eventually have to involve all nuclear possessor states. Novel formats such as the Open-Ended Working Group in Geneva, the Nuclear Security Summits aim to sidestep the political deadlock paralyzing established multilateral arms control institutions. At the same time, new groupings of like-minded states such as the Non-proliferation and Disarmament Initiative (NPDI) are becoming more important. What are the advantages and drawbacks of these developments? What lessons can be learned from more informal approaches, such as the Nuclear Security Summits? How can alternative narratives, like the debate about the humanitarian impact of nuclear weapons, help to advance nuclear disarmament?

Clubs, coalitions or cartels? Plurilateral efforts to shape the nuclear disarmament agenda

Informal multilateral enterprises: What can we learn from the Nuclear Security Summit process?

Breakout Sessions

Breakout session 5: Regional security and nuclear disarmament

Regional security problems can affect nuclear arms control and non-proliferation regimes, as witnessed during the 2015 NPT review conference. Yet, improvements in regional security may also bolster support global efforts to reduce the role of nuclear weapons. This breakout session will focus on the Middle East to discuss the interrelationship between regional crises and the arms control agenda. Participants will also evaluate the implications of the nuclear accord with Iran on the nuclear non-proliferation regime.

Interrelations between regional security and nuclear disarmament

The NPT and a Zone free of WMD in the Middle East

Building on the Iran nuclear accord

Breakout session 6: Extended nuclear deterrence: reliance on nuclear weapons and security assurances

The impact of security assurances on nuclear disarmament efforts is ambivalent. The value of negative security assurances has been called into question after Russia's violation of the 1994 Budapest Memorandum. Extended nuclear deterrence and positive security assurances are seen as a way to prevent nuclear proliferation. For example, NATO's nuclear sharing arrangements have been criticized as being incompatible with the spirit of the NPT, yet at the same time seen as a way to increase regional stability. Participants will try to identify ways to reduce the role of nuclear weapons without damaging alliance relationships.

Strengthening negative security assurances

Reassurance without nuclear weapons: Desirable? Feasible?

The role of positive security assurances

Breakout session 7: Reducing proliferation risks

Nuclear weapons are seen by many nuclear possessor states as a hedge against existing and future proliferation threats. Reducing the risks of proliferation is therefore perceived as a precondition for further nuclear reductions. Participants will debate how new initiatives such as the International Partnership for Nuclear Disarmament Verification (IPNDV) and established institutions, like the International Atomic Energy Agency (IAEA), can help to smooth the path towards nuclear disarmament.

Reinforcing verification capacities: the IPNDV and other new initiatives

Strengthening the role of the IAEA in arms control, non-proliferation and disarmament

Breakout session 8: The CTBT as an instrument to reduce the role of nuclear weapons

The Comprehensive Nuclear-Test-Ban Treaty is the most important multilateral instrument on the nuclear arms control agenda. Yet, 20 years after the treaty has been opened for signature the CTBT has still not entered into force. Participants of this session will debate how the CTBT may best be used to strengthen non-proliferation and arms control and what steps can be taken to make progress towards entry-into-force.

Making progress towards EIF: the role of the United Nations and high-level initiatives

Regional initiatives to take the nuclear test ban forward

The role of the CTBT as a non-proliferation and arms control instrument

Panel 5: Feedback from breakout sessions and evaluation of policy proposals

Panel 6: Shaping a future nuclear disarmament agenda: What topics to pursue in which format?

This session sum up discussions, with perspectives from selected conference participants.