

Part I Report

**Surveying Trends of Nuclear Disarmament,
Non-Proliferation and Nuclear Security in 2017**

Chapter 1. Nuclear Disarmament¹

(1) STATUS OF NUCLEAR FORCES (ESTIMATES)

As of December 2017, eight countries have declared that they have nuclear weapons. According to Article IV-3 of the Nuclear Non-Proliferation Treaty (NPT), “a nuclear-weapon State is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967.” China, France, Russia, the United Kingdom, and the United States meet this requirement, and have acceded to the NPT as nuclear-weapon states (NWS) as defined by the treaty. The three other countries that have tested nuclear weapons and declared having nuclear weapons are India, Pakistan and North Korea. India and Pakistan have never been parties to the NPT. Israel, a non-NPT state, has maintained a policy of “nuclear ambiguity” by neither confirming nor denying having nuclear weapons, although it is widely considered that it has them (no evidence has yet been found that Israel has conducted a nuclear test). In this report, these three additional states that have publicly declared or are believed to possess nuclear weapons are referred to as “other nuclear-armed states.” In 2003 North Korea declared withdrawal from the NPT, and acquisition of nuclear weapons.

The number of nuclear weapons, which grew to approximately 70,000 at the peak of the Cold War

era, has been reduced steadily since the late 1980s. According to the estimates produced by the Stockholm International Peace Research Institute (SIPRI), however, an estimated 14,935 nuclear weapons still exist on the earth, 4,150 nuclear warheads among them are deployed, and the U.S. and Russian nuclear stockpiles together constitute more than 90 percent of the total.² Compared to the approximately 7,600 nuclear weapons that were eliminated between 2010 and 2017, the 460 nuclear weapons eliminated between 2016 and 2017 indicates that the pace of reduction has been slowing. It is widely estimated that China, India and Pakistan have each added about 10 warheads annually for the past several years (see Tables 1-1 and 1-2).

Among nuclear-armed states, France declared it possesses 300 nuclear weapons,³ and the United Kingdom announced plans to reduce its total nuclear stockpiles to not more than 180 by the mid-2020s. Other countries have not declassified the exact number of nuclear weapons in their arsenal.⁴ Meanwhile, the United States has declassified information more actively. For example, right before the end of the Obama administration in January 2017, Vice President Joseph R. Biden announced that the United States dismantled approximately 500 nuclear warheads in 2016, and totally 2,226 warheads since 2009. He also stated that the number of the U.S.

[1] This chapter is written by Hirofumi Tosaki.

[2] Stockholm International Peace Research Institute, *SIPRI Yearbook 2017: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2017), chapter 11.

[3] In addition, France reports that “[i]t has no undeployed weapons. All of its weapons are deployed and operational.” NPT/CONF.2015/10, March 12, 2015.

[4] On this point, Bruno Tertrais explains the reasons as following: “Stockpiles include weapons which are not entirely functional (when exactly does an atomic device become a ‘nuclear weapon?’), or which are used for non-destructive testing. As a result, giving an exact number can be difficult, misleading, and/or be accurate just for a given day.” Bruno Tertrais, “Comments on Hiroshima Report of March 2013,” *Hiroshima Report Blog: Nuclear Disarmament, Nonproliferation and Nuclear Security*, October 29, 2013, <http://hiroshima-report.blogspot.jp/2013/10/op-ed-bruno-tertrais-comments-on.html>.

Table 1-1: Number of nuclear weapons—2010-2017

	2010	2011	2012	2013	2014	2015	2016	2017
China	~240	~240	~240	~250	~250	~260	~260	~270
France	~300	~300	~300	~300	~290	~290	~300	~300
Russia	~12,000	~11,000	~10,000	~8,500	~8,000	~7,500	~7,290	~7,000
U.K. ^a	~225	~225	~225	~225	~225	~215	~215	~215
U.S.	~9,600	~8,500	~8,000	~7,700	~7,300	~7,260	~7,000	~6,800
India	60~80	80~100	80~100	90~110	90~110	90~110	~100-120	120-130
Pakistan	70~90	90~110	90~110	100~120	100~120	100~120	~110-130	130-140
Israel	~80	~80	~80	~80	~80	~80	~80	~80
North Korea	?	?	?	6~8	~8	~8	~10	10-20
Total	~22,600	~20,530	~19,000	~17,270	~16,383	~15,850	~15,395	~14,935

Sources: Stockholm International Peace Research Institute (SIPRI), *SIPRI Yearbook 2010: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2010), chapter 8; SIPRI, *SIPRI Yearbook 2011: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2011), chapter 7; SIPRI, *SIPRI Yearbook 2012: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2012), chapter 7; SIPRI, *SIPRI Yearbook 2013: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2013), chapter 7; SIPRI, *SIPRI Yearbook 2014: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2014), chapter 6; SIPRI, *SIPRI Yearbook 2015: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2015), chapter 11; SIPRI, *SIPRI Yearbook 2016: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2016), Chapter 16; SIPRI, *SIPRI Yearbook 2017: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2017), Chapter 11.

a) The United Kingdom, according to a document obtained under the freedom of information act, “has been decommissioning and breaking down Trident nuclear warheads at a rate of three per year, with a goal of reducing domestic stocks to ‘no more than 180’ by the mid-2020s,” at Burghfield in Berkshire (Rob Edwards, “UK’s Nuclear Weapons being Dismantled Under Disarmament Obligations,” *Guardian*, August 11, 2013, <http://www.theguardian.com/uk-news/2013/aug/11/uk-nuclear-weapons-dismantled-trident>). While the SIPRI estimated that the United Kingdom possessed 225 nuclear weapons from 2010 through 2014, it could be assumed that it had reduced the number of nuclear weapons gradually.

Table 1-2: The status of nuclear forces (estimates, as of January 2017)

	Total nuclear stockpile	Breakdown			Nuclear warheads	Delivery vehicles	
U.S.	~6,800	Retired / Awaiting dismantlement ~2,800					
		Operational ~4,000	Non-deployed ~2,200				
			Deployed ~1,800	Non-strategic 300			
				Strategic ~3,700	ICBM	970	400
			SLBM	1,920	264		
			Strategic bomber	810	60		
Russia	~7,000	Retired / Awaiting dismantlement (Non-strategic) ~2,700 (1,850)					
		Operational 4,300	Non-deployed (Non-strategic) 2,350 (1,850)				
			Deployed ~1,950	Strategic ~2,460	ICBM	1,076	316
		SLBM			768	176	
			Strategic bomber	616	50		
U.K.	~215	Deployed 120		SLBM	215	48	
France	~300	Deployed 280		SLBM	240	48	
				Attack aircraft (including carrier based aircraft)	50	50	
China	~270				Land-based ballistic missile	170	150
					SLBM	48	48
					Attack aircraft	20	20
					Cruise missile	n/a	¹⁵⁰ ~350
India	120~130				Land-based ballistic missile	68	68
					Attack aircraft	48	48
					SLBM	2	2
Pakistan	130~140				Land-based ballistic missile	92	92
					Attack aircraft	36	36
					Cruise missile	12	12
Israel	~80				Ballistic missile		
					Attack aircraft		
N. Korea	10~20						
World	~14,935	(Deployed) (4,150)					

ICBM : Inter-Continental Ballistic Missile SLBM : Submarine Launched Ballistic Missile

Source: Stockholm International Peace Research Institute, *SIPRI Yearbook 2017: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2017), chapter 11.

nuclear warheads in service is 4,018,⁵ which means that the United States eliminated 1,255 warheads during the Obama administration.

(2) COMMITMENT TO ACHIEVING A WORLD WITHOUT NUCLEAR WEAPONS

A) Approaches toward a world without nuclear weapons

According to the preamble of the NPT, states parties “[declare] their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to undertake effective measures in the direction of nuclear disarmament, [and urge] the co-operation of all States in the attainment of this objective.” Article VI of the Treaty stipulates that “[e]ach of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.”

As mentioned in the previous *Hiroshima Reports*, no country, including the nuclear-armed states, openly opposes the goal of the total elimination of nuclear weapons or the vision of a world without nuclear weapons. The commitment to nuclear disarmament has been reiterated in various fora, including the NPT review process and the UN General Assembly (UNGA). At the World Economic Forum in Davos in January 2017, Chinese President Xi Jinping stated: “Nuclear weapons should be completely

prohibited and destroyed over time to make the world free of nuclear weapons.”⁶ However, such statements do not necessarily mean that nuclear-armed states actively pursue realization of a world without nuclear weapons. The stalemate in nuclear disarmament continued again in 2017. Furthermore, Christopher Ford, Senior Director for Weapons of Mass Destruction and Counterproliferation on the U.S National Security Council (then), stated in March that review of U.S. policies by the new administration would include “whether the goal of a world without nuclear weapons is in fact a realistic objective in the near-to-medium term in light of current trends in the international security environment.”⁷

As for approaches to nuclear disarmament, the five NWS and India have argued for a step-by-step approach; non-nuclear-weapon states (NNWS) allied with the United States (nuclear umbrella states) have proposed a progressive approach based on building-block principles; and the Non-Aligned Movement (NAM) countries have called for launching negotiations on a phased program for the complete elimination of nuclear weapons within a specified time frame.⁸ At the 2017 NPT PrepCom, Japan stated that it would “continue to strive so that countries holding different approaches [would] engage in discussions on practical nuclear disarmament measures in a constructive manner,” and introduced the following three actions which Japan would take as a first step: establishing an eminent persons group on nuclear disarmament;⁹ hosting the Regional Conference for States in South East Asia, the Pacific and the Far East Region (SEAPFE), with a view to contributing to the entry into force of the CTBT; and building an international network between Youth

[5] “Remarks by the Vice President on Nuclear Security,” Washington, DC., January 11, 2017, <https://obamawhitehouse.archives.gov/the-press-office/2017/01/12/remarks-vice-president-nuclear-security>.

[6] China’s Xi calls for a world without nuclear weapons,” *South China Morning Post*, January 17, 2017, <http://www.scmp.com/news/china/diplomacy-defence/article/2063383/chinas-xi-calls-world-without-nuclear-weapons>.

[7] “Trump administration to review goal of world without nuclear weapons: aide,” *Reuters*, March 21, 2017, <https://www.reuters.com/article/us-usa-trump-nuclear/trump-administration-to-review-goal-of-world-without-nuclear-weapons-aide-idUSKBN16S1M6>.

[8] Regarding each country’s approach, see the *Hiroshima Report 2017*.

[9] The first meeting of the Group of Eminent Persons for Substantive Advancement of Nuclear Disarmament was held in Hiroshima in November 2017.

Communicators and the CTBTO Youth Group, in order to spread awareness of the humanitarian consequences of atomic bombings across national borders and generations.¹⁰

B) Voting behavior on UNGA resolutions on nuclear disarmament proposals by Japan, NAC and NAM

In 2017, the UNGA again adopted a resolutions titled “United action with renewed determination towards the total elimination of nuclear weapons”¹¹ proposed by Japan and others; “Towards a nuclear-weapon-free world: accelerating the implementation of nuclear disarmament commitments”¹² proposed by the New Agenda Coalition (NAC); and “Nuclear disarmament”¹³ by NAM members. The voting behavior of the countries surveyed in this project on the three resolutions at the UNGA in 2017 is presented below.

- “United action with renewed determination towards the total elimination of nuclear weapons”
 - Proposing: Australia, Germany, Japan, Poland, Turkey, UAE, the U.K., the U.S. and others
 - 156 in favor, 4 Against (China, Russia, North Korea and Syria), 24 Abstentions (Austria, Brazil, Egypt, India, Indonesia, Iran, Israel, South Korea, New Zealand, Nigeria, Pakistan, South Africa and others)
- “Towards a nuclear-weapon-free world: accelerating the implementation of nuclear disarmament commitments”
 - Proposing: Brazil, Egypt, Mexico, New Zealand, South Africa and others

- 137 in favor, 31 Against (Belgium, China, France, Germany, India, Israel, North Korea, Poland, Russia, Turkey, the U.K. and the U.S.), 16 Abstentions (Australia, Canada, Japan, South Korea, the Netherlands, Norway, Pakistan and others)
- “Nuclear disarmament”
 - Proposing: Indonesia, the Philippines and others
 - 119 in favor, 41 Against (Australia, Belgium, Canada, France, Germany, Israel, South Korea, the Netherlands, Norway, Poland, Russia, Switzerland, Turkey, the U.K., the U.S. and others), 20 Abstentions (Austria, India, Japan, North Korea, New Zealand, Pakistan, South Africa, Sweden and others)

Regarding the resolution titled “United action towards the total elimination of nuclear weapons,” among nuclear-armed states, France and the United Kingdom changed their positions from the previous year when they abstained, and voted in favor in 2017. On the other hand, some of the co-sponsors of the resolution in 2016 (including Austria, Belgium, Canada, Chile, Nigeria, Norway, the Philippine, Sweden and Switzerland) did not do so in 2017. The number of countries voting in favor of the 2017 resolution also slightly decreased from the previous one. Japan argued that “[t]his resolution provides a common denominator on a wide-range of issues related to nuclear disarmament and non-proliferation.”¹⁴ However, proponents of the Treaty on the Prohibition of Nuclear Weapons (TPNW), including the NGO and *Hibakusha*, criticized that the resolution did not mention the treaty and that the following points, among others, were an unacceptable

[10] “Statement by H.E. Mr. Fumio Kishida, Minister for Foreign Affairs,” General Debate, First Session of the Preparatory Committee for the 2020 NPT Review Conference, May 2, 2017.

[11] A/RES/72/50, December 4, 2017.

[12] A/RES/72/39, December 4, 2017.

[13] A/RES/72/38, December 4, 2017.

[14] “Statement by Japan,” Thematic Debate on Nuclear Disarmament, United Nations General Assembly, October 12, 2017.

step backward from the 2016 resolution¹⁵ (emphasis added):

- Changing from “[r]eaffirms...the unequivocal undertaking of the nuclear-weapon States to accomplish the total elimination of their nuclear arsenals, leading to nuclear disarmament” to “[r]eaffirms...the unequivocal undertaking of the nuclear-weapon States to fully implement the Treaty on the Non-Proliferation of Nuclear Weapons, towards a safer world for all and a peaceful and secure world free of nuclear weapons”; and
- Deleting the word “any” in the 2017 resolution phrasing which read: “[e]xpressing deep concern at the catastrophic humanitarian consequences of any use of nuclear weapons”.

C) Humanitarian consequences of nuclear weapons

Since the 2015 NPT Review Conference, the Humanitarian Group, which focuses on the humanitarian dimensions of nuclear weapons, has emphasized the significance of starting negotiations of a legally binding instrument on prohibiting nuclear weapons. The result was the adoption of the TPNW in 2017.

At the 2017 UNGA, Austria and other co-sponsors, as in the previous year, proposed a resolution titled “Humanitarian consequences of nuclear weapons.”¹⁶ The voting behavior of countries surveyed in this project on this resolution is presented below.

- Proposing : Austria, Brazil, Chili, Egypt, Indonesia, Kazakhstan, Mexico, New Zealand, Nigeria, Saudi Arabia, South Africa, Sweden, Switzerland and others
- 141 in favor, 15 Against (France, Israel, South Korea, Poland, Russia, Turkey, the U.K., the

U.S. and others), 27 Abstentions (Australia, Belgium, Canada, China, Germany, North Korea, the Netherlands, Norway, Pakistan and others)

Furthermore, the voting behavior of the resolution titled “Ethical imperatives for a nuclear-weapon-free world”¹⁷ led by South Africa was:

- Proposing: Austria, Brazil, Kazakhstan, Mexico, Nigeria, South Africa and others
- 130 in favor, 37 Against (Australia, Belgium, Canada, France, Germany, Israel, South Korea, the Netherlands, Norway, Poland, Russia, Turkey, the U.K., the U.S. and others), 15 Abstentions (China, India, Japan, North Korea, Pakistan, Sweden, Switzerland and others)

[15] See, for example, Masakatsu Ota, “Japan Waters Down Text of Annual Anti-nuclear Resolution to Imply Acceptable Use of Nukes,” *Japan Times*, October 21, 2017, <https://www.japantimes.co.jp/news/2017/10/21/national/politics-diplomacy/u-s-pressure-japan-waters-text-anti-nuclear-resolution/#.We6DqluoOUL>.

[16] A/RES/72/30, December 4, 2017.

[17] A/RES/72/37, December 4, 2017.

Table 1-3: Voting behavior on selected UNGA resolutions in 2017

	China	France	Russia	U.K.	U.S.	India	Israel	Pakistan	Australia	Austria	Belgium	Brazil
United action towards the total elimination of nuclear weapons	×	○	×	○	○	△	△	△	○	△	○	△
Towards a nuclear-weapon-free world	×	×	×	×	×	×	×	△	△	○	×	○
Nuclear disarmament	○	×	×	×	×	△	×	△	×	△	×	○
Taking forward multilateral nuclear disarmament negotiations	×	×	×	×	×	×	×	×	×	○	×	○
Follow-up to the advisory opinion of the ICJ	○	×	×	×	×	△	×	○	×	○	×	○
Convention on the Prohibition of the Use of Nuclear Weapons	○	×	△	×	×	○	×	○	×	×	×	○
Humanitarian consequences	△	×	×	×	×	○	×	△	△	○	△	○
Ethical imperatives	△	×	×	×	×	△	×	△	×	○	×	○

	Canada	Chile	Egypt	Germany	Indonesia	Iran	Japan	Kazakhstan	South Korea	Mexico	Netherlands	New Zealand
United action towards the total elimination of nuclear weapons	○	○	△	○	△	△	○	○	△	○	○	△
Towards a nuclear-weapon-free world	△	○	○	×	○	○	△	○	△	○	△	○
Nuclear disarmament	×	○	○	×	○	○	△	○	×	○	×	△
Taking forward multilateral nuclear disarmament negotiations	×	○	○	×	○	○	×	○	×	○	×	○
Follow-up to the advisory opinion of the ICJ	△	○	○	×	○	○	△	○	×	○	×	○
Convention on the Prohibition of the Use of Nuclear Weapons	×	○	○	×	○	○	△	○	×	○	×	×
Humanitarian consequences	△	○	○	△	○	○	○	○	×	○	△	○
Ethical imperatives	×	○	○	×	○	○	△	○	×	○	×	○

	Nigeria	Norway	Philippine	Poland	Saudi Arabia	South Africa	Sweden	Switzerland	Syria	Turkey	UAE	North Korea
United action towards the total elimination of nuclear weapons	△	○	○	○	○	△	○	○	×	○	○	×
Towards a nuclear-weapon-free world	○	△	○	×	○	○	○	○	○	×	○	×
Nuclear disarmament	○	×	○	×	○	△	△	×	○	×	○	△
Taking forward multilateral nuclear disarmament negotiations	○	×	○	×	○	○	○	○	?	×	○	△
Follow-up to the advisory opinion of the ICJ	○	×	○	×	○	○	○	○	○	×	○	?
Convention on the Prohibition of the Use of Nuclear Weapons	○	×	○	×	○	○	×	×	○	×	○	△
Humanitarian consequences	○	△	○	×	○	○	○	○	○	×	○	△
Ethical imperatives	○	×	○	×	○	○	△	△	○	×	○	△

[○: Favor, ×: Against, △: Abstention, ?:Not voting]

(3) TREATY ON THE PROHIBITION OF NUCLEAR WEAPONS (TPNW)

In accordance with the resolution, titled “Taking forward multilateral nuclear disarmament negotiations,”¹⁸ adopted at the UN General Assembly in 2016, the United Nations Conference to Negotiate a Legally Binding Instrument to Prohibit Nuclear Weapons, Leading towards Their Elimination (hereinafter Negotiation Conference), was convened in March and June-July 2017 in New York. On the first day of the Negotiation Conference, Austria, one of the countries which have taken initiative for its convening, stated: “I am proud and humbled to see such a large number of States assembled in this hall this morning. It shows the broad, the global support for a prohibition of [nuclear weapons].”¹⁹

Nearly all the countries and NGOs that participated in the Negotiation Conference were proponents of establishing a treaty banning nuclear weapons. There existed different opinions among the participants regarding concrete obligations and measures which they considered should be stipulated in a treaty, such as: whether the threat to use nuclear weapons, in addition to any actual use, should explicitly be prohibited; whether a “nuclear test explosion”, which is banned by the CTBT, or a “nuclear test” which can be interpreted to include other than explosive tests, should be prohibited in a negotiated treaty; and whether a ban on transit of nuclear weapons should be included in the treaty. Nevertheless, such differences did not erode their belief that legislating norm in the form of a treaty prohibiting nuclear weapons, in light of their humanitarian consequences is an essential step toward total elimination of nuclear weapons. Nor did the above differences diminish enthusiasm for

concluding a treaty during the Negotiation Conference. Under the strong leadership of the chairperson of the negotiation conference, Costa Rican ambassador Elayne Whyte Gómez, the TPNW was adopted on July 7, the last day of the Negotiation Conference, with 122 in favor, one against (the Netherlands) and one abstention (Singapore).²⁰

The TPNW consists of a preamble and 20 articles. Its preamble states, inter alia, that states parties are: “deeply concerned about the catastrophic humanitarian consequences that would result from any use of nuclear weapons, and recognizing the consequent need to completely eliminate such weapons, which remains the only way to guarantee that nuclear weapons are never used again under any circumstances”; “considering that any use of nuclear weapons would be contrary to the rules of international law applicable in armed conflict, in particular the principles and rules of international humanitarian law”; “mindful of the unacceptable suffering of and harm caused to the victims of the use of nuclear weapons (*hibakusha*), as well as of those affected by the testing of nuclear weapons”; and “recognizing that a legally binding prohibition of nuclear weapons constitutes an important contribution towards the achievement and maintenance of a world free of nuclear weapons, including the irreversible, verifiable and transparent elimination of nuclear weapons, and determined to act towards that end.”

Article 1 of the treaty stipulates that each state party undertakes never under any circumstances to: (a) develop, test, produce, manufacture, acquire, possess or stockpile nuclear weapons and other nuclear explosive devices (hereinafter nuclear weapons); (b) transfer them; (c) receive them; (d) use or

[18] A/RES/71/258, December 23, 2016.

[19] “Statement by Austria,” United Nations Conference to Negotiate a Legally Binding Instrument to Prohibit Nuclear Weapons, Leading towards Their Total Elimination, March 27, 2017.

[20] Regarding the decision making of the negotiation conference, its rules of procedure stipulated: “[the Negotiation] Conference shall make its best endeavors to ensure that the work of the Conference is accomplished by consensus,” but “[I]f the President of the Conference determines that all efforts to reach consensus have been exhausted, the decisions of the Conference on all matters of substance shall be taken by a two-thirds majority of the Member States participating at the Conference present and voting.”

threaten to use them ; (e) assist, encourage or induce anyone to engage in any of the activities prohibited to a state party under the treaty, (f) seek or receive any assistance from anyone to engage in any such activity; and (g) allow any stationing, installation or deployment of any nuclear weapons in its territory or at any place under its jurisdiction or control. The TPNW also stipulates the following obligations and measures:

- Declarations (Article 2): Each state party shall submit to the UN Secretary-General a declaration on: (a) whether it owned, possessed or controlled nuclear weapons and eliminated its nuclear-weapon program; (b) whether it owns, possesses or controls any nuclear weapons; (c) whether there are any nuclear weapons in its territory or in any place under its jurisdiction or control that are owned, possessed or controlled by another state;
- Safeguards (Article 3): Each state party shall, at a minimum, maintain its IAEA safeguards obligations; and each state party which has not yet done so shall conclude and bring into force an IAEA Comprehensive Safeguards Agreement;
- Procedure to establish verification measures for eliminating nuclear weapons program (Article 4);
- National implementation (Article 5);
- Victim assistance and environmental remediation (Article 6), and international cooperation and assistance (Article 7);
- Meetings of states parties and review conferences (Article 8);
- Costs (Article 9), amendments (Article 10), and settlement of disputes (Article 11);
- Universality: encouraging a state to accede to

the treaty (Article 12);

- Opening for signature at the UN Headquarters on September 20, 2017 (Article 13), and entering into force 90 days after the 50th instrument of ratification has been deposited (Article 15); and
- Reservations (Article 16), duration and withdrawal (Article 17), relationship with other agreements (Article 18), depositary (Article 19), and authentic texts (Article 20).

On September 20, 51 countries signed the TPNW. By the end of 2017, 56 countries (including Austria, Brazil, Chile, Indonesia, Mexico, New Zealand, Nigeria, the Philippines and South Africa) have signed, and three countries among them have ratified. Austria, one of the countries which led the establishment of the TPNW, stated at the UN General Assembly that “the overwhelming majority of States have come to the conclusion that their security is better served without nuclear weapons, than with them,” and “based on the knowledge of the grave humanitarian consequences of nuclear weapon explosions, more and more States have come to the conclusion that the continued existence of nuclear weapons would not be advantageous or desirable in any way, but poses a threat to national as well as collective security, even human survival, and should end.”²¹

Nuclear-armed/umbrella states, which were against or abstained from UN General Assembly Resolution 71/258 in 2016, did not participate in the Negotiation Conference of the TPNW, except the Netherlands.²² Outside of the conference room on the initial day of the Negotiation Conference in March 2017, the U.S. Ambassador to the UN, Nikki Haley, together with, inter alia, the French, the U.K. and South Korean

[21] “Statement by Austria,” General Debate, UN General Assembly, October 3, 2017.

[22] China and India participated in the Organizational Session of the Negotiation Conference on February 18 where rules of procedure of the Conference were discussed but did not join the conference itself. India explained that its concerns about a “noncomprehensive approach” to nuclear disarmament and the absence of international verification measures are why it abstained on the resolution establishing these negotiations in the UN General Assembly. Allison Pytlak and Ray Acheson, “States Discuss Rules for Nuclear Ban Negotiations,” *Reaching Critical Will*, February 16, 2017, <http://www.reachingcriticalwill.org/disarmament-fora/nuclear-weapon-ban/reports/11377-states-discuss-rules-for-nuclear-ban-negotiations>.

ambassadors, expressed opposition to the negotiation of a treaty, stating that “There is nothing I want more for my family than a world with no nuclear weapons. But we have to be realistic. Is there anyone that believes that North Korea would agree to a ban on nuclear weapons?”²³ China stated that it “consistently upholds and actively advocates a final comprehensive ban on and total destruction of nuclear weapons, which is fundamentally in line with the purposes of negotiations on the nuclear weapon ban treaty,” but “also believes that realizing disarmament, which cannot be achieved overnight, must be pressed ahead in a gradual and incremental way following the principle of safeguarding global strategic stability and compromising the security of no country.” Then, China argued that its decision not to participate in the Negotiation Conference was “made to maintain the current international arms control and disarmament regime and move ahead nuclear disarmament in a gradual and incremental way. It demonstrates China’s responsible attitude towards maintaining global strategic balance and stability. Therefore, whether we show up at the negotiating table or not, there is no change to China’s position on supporting a final comprehensive ban on and total destruction of nuclear weapons.”²⁴

NWS also criticized the negotiation of a nuclear weapons ban treaty at the 2017 NPT Preparatory Committee (PrepCom). Russia, for instance, stated: “Many NPT Parties are tempted to reach complete nuclear disarmament overnight. While understanding the motivation that pushed them to start negotiating the prohibition of nuclear weapons, we believe they

took the wrong path that endangers the viability of the NPT regime. We know that the sponsors of the negotiation process have different opinion and expect that a nuclear weapons ban treaty would complement or even strengthen the Non-Proliferation Treaty. We cannot accept this logic.”²⁵ The United Kingdom argued:

Productive results on nuclear disarmament can only be achieved through a consensus-based approach that takes account of the global security context. Negotiating an international ban on nuclear weapons will not bring us closer to the goal of a world without nuclear weapons. A ban will not improve the international security environment or increase trust and transparency. Nor will it address the technical and procedural challenges of nuclear disarmament verification. Pursuing a consensus based step-by-step approach to multilateral disarmament through building necessary mutual trust between states, and through putting into place the key international architecture to help build the conditions for further disarmament, offers the most realistic and effective route towards our shared goal of a world without nuclear weapons.²⁶

As for nuclear-umbrella states, Australia, for example, said it would not join the Negotiation Conference because it considered that “the proposed treaty to ban nuclear weapons does not offer a practical path to effective disarmament or enhanced security.”²⁷ Japan, which did not join the negotiation, made the following statement on the initial day of the Negotiation

[23] Michelle Nichols, “U.S., Britain, France, Others Skip Nuclear Weapons Ban Treaty Talks,” *Reuters*, March 27, 2017, <https://www.reuters.com/article/us-nuclear-un/u-s-britain-france-others-skip-nuclear-weapons-ban-treaty-talks-idUSKBN16Y1QI>.

[24] “Foreign Ministry Spokesperson Hua Chunying’s Regular Press Conference,” Ministry of Foreign Affairs of China, March 20, 2017, http://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/t1447146.shtml.

[25] “Statement by Russia,” General Debate, First Session of the Preparatory Committee for the 2020 NPT Review Conference, May 2, 2017.

[26] “Statement by the United Kingdom,” General Debate, First Session of the Preparatory Committee for the 2020 NPT Review Conference, May 3, 2017.

[27] “Australia to Boycott Global Summit on Treaty to Ban Nuclear Weapons,” *Guardian*, February 17, 2017, <https://www.theguardian.com/world/2017/feb/17/australia-to-boycott-global-summit-on-treaty-to-ban-nuclear-weapons>.

Conference in March:

A ban treaty, if it does not lead to an actual reduction of a single nuclear warhead, would be of little significance. In fact, efforts to make such a treaty without the involvement of nuclear-weapon states will only deepen the schism and division not only between nuclear-weapon states and non-nuclear-weapon states, but also among non-nuclear-weapon states, which will further divide the international community. Therefore, our common goal will be pushed away, a goal of reaching a world free of nuclear weapons. Even if such a ban treaty is agreed upon, we don't think that it would lead to the solution of real security issues, such as the threat by North Korea. This is why we voted against the UN General Assembly resolution 71/258 last year.

From discussions and considerations so far, it has become clear that the ban treaty concept has been unable to obtain understanding and involvement of nuclear-weapon states. Furthermore, this negotiation has not been formulated to pursue nuclear disarmament measures that will actually lead to the elimination of nuclear weapons, in cooperation with the nuclear weapon states. Regrettably, given the present circumstances, we must say that it would be difficult for Japan to participate in this Conference in a constructive manner and in good faith.²⁸

As expected, the nuclear-armed/umbrella states which did not participate in the Negotiation Conference reaffirmed their positions of not signing the TPNW. On July 7 when the treaty was concluded,

France, the United Kingdom and the United States jointly issued the following statement:

This initiative clearly disregards the realities of the international security environment. Accession to the ban treaty is incompatible with the policy of nuclear deterrence, which has been essential to keeping the peace in Europe and North Asia for over 70 years. A purported ban on nuclear weapons that does not address the security concerns that continue to make nuclear deterrence necessary cannot result in the elimination of a single nuclear weapon and will not enhance any country's security, nor international peace and security...A ban treaty also risks undermining the existing international security architecture which contributes to the maintenance of international peace and security.²⁹

Three non-NPT countries and North Korea made the following statements at the UN General Assembly.

- India: "India did not participate in the negotiations leading to the adoption of the Treaty on the Prohibition of Nuclear Weapons. India, therefore, cannot be a party to the treaty, and shall not be bound by any of the obligations that may arise from it."³⁰
- Pakistan: "This initiative faltered by ignoring the fundamental security considerations that underpin nuclear disarmament...[I]t only led us to the conclusion that the launch of such initiatives outside the CD, on a non-consensus basis and without all the key stakeholders on board, no matter how well intentioned and justified, would not lead to any real change on ground."³¹
- Israel: "[T]he treaty does not create, contribute

[28] "Statement by Japan," the High-level Segment of the United Nations conference to negotiate a legally binding instrument to prohibit nuclear weapons, leading towards their total elimination, March 27, 2017, New York.

[29] "Joint Press Statement from the Permanent Representatives to the United Nations of the United States, United Kingdom, and France Following the Adoption of a Treaty Banning Nuclear Weapons," July 7, 2017, <https://usun.state.gov/remarks/7892>.

[30] "Statement by India," General Debate, UN General Assembly, October 9, 2017.

[31] "Statement by Pakistan," Thematic Debate on Nuclear Weapons, UN General Assembly, October 13, 2017.

to the development of, or indicate the existence of customary law related to the subject or the content of the Treaty.”³²

- North Korea: “The DPRK agrees with the primary focus of the [Nuclear Ban Treaty (NBT)] on total elimination of nuclear weapons; however, since the U.S. that poses nuclear threat and blackmail on the DPRK rejects the NBT, the DPRK is not in position to accede to the treaty.”³³

Furthermore, some countries indicated that they would need to consider whether or not to sign the TPNW in spite of their concurrence with it. For example, the Swedish ambassador for disarmament said, “Despite the complexity of the matter, and the unprecedentedly limited time at our disposal, Sweden has voted in favor of the adoption of this treaty...At the same time, we recognize that there are crucial elements of this treaty that do not meet what my delegation was aiming for.”³⁴ The Swiss permanent representative to the CD also said after the vote, “Switzerland is committed to the goal of a world free of nuclear weapons, but also sees risks that this treaty may weaken existing norms and agreements and create parallel processes and structures which may further contribute to polarization rather than reduce it.”³⁵ As of the end of 2017, neither country had signed the TPNW.

After the opening for signature of the TPNW, the International Campaign to Abolish Nuclear Weapons (ICAN), which had taken an initiative for its conclusion, received the Nobel Peace Prize for 2017 “for its work

to draw attention to the catastrophic humanitarian consequences of any use of nuclear weapons and for its ground-breaking efforts to achieve a treaty-based prohibition of such weapons.”³⁶ At the Nobel Prize Award Ceremony on December 10, Beatrice Fihn, Executive Director of the ICAN, emphasized that nuclear weapons “can just as easily be destroyed by placing them in a humanitarian context,” pointed out that “[t]he risk for nuclear weapons use is even greater today than at the end of the Cold War,” and stated that “there is only one way to prevent the use of nuclear weapons: prohibit and eliminate them.”³⁷ Accepting the Nobel prize along with Fihn, ICAN activist and *hibakusha* Setsuko Thurlow insisted that nuclear “weapons are not a necessary evil; they are the ultimate evil.”³⁸

Besides, parliaments of Norway, Sweden and Italy adopted their respective resolutions to require their respective governments for exploring to sign the TPNW. Each government will submit a report to its parliament regarding possible consequences of its accession to the treaty.

At the UN General Assembly on December 4, a resolution titled “Taking forward multilateral nuclear disarmament negotiations,” which reaffirmed the importance of the TPNW and called for signing and ratifying it was adopted as a result of the following voting behavior:³⁹

- Proposing: Austria, Brazil, Chile, Indonesia, Kazakhstan, Mexico, New Zealand, Philippines, South Africa and others
- 125 in favor, 39 against (Australia, Belgium,

[32] “Statement by Israel,” General Debate, UN General Assembly, October 3, 2017.

[33] “Statement by North Korea,” General Debate, UN General Assembly, October 6, 2017.

[34] Alicia Sanders-Zakre, “States Hesitate to Sign Nuclear Ban Treaty,” *Arms Control Today*, Vol. 47, No. 7 (September 2017), p. 32.

[35] Ibid.

[36] Norwegian Nobel Committee, “The Nobel Peace Prize for 2017,” October 6, 2017, https://www.nobelprize.org/nobel_prizes/peace/laureates/2017/press.html.

[37] “International Campaign to Abolish Nuclear Weapons (ICAN): Nobel Lecture,” the Nobel Peace Prize 2017, December 10, 2017, https://www.nobelprize.org/nobel_prizes/peace/laureates/2017/ican-lecture_en.html.

[38] Ibid.

[39] A/RES/72/31, December 4, 2017.

Canada, China, France, Germany, India, Israel, Japan, the Netherlands, South Korea, Norway, Pakistan, Poland, Russia, Turkey, the U.K., the U.S. and others), 14 abstentions (North Korea and others)

The UNGA resolution titled “Follow-up to the advisory opinion of the International Court of Justice on the Legality of the Threat or Use of Nuclear Weapons” was also adopted, as was done in previous years.⁴⁰ It says that “by commencing multilateral negotiations leading to an early conclusion of a nuclear weapons convention” all states should implement the obligation in Article VI of the NPT. The voting behavior in 2017 is presented below:

- Proposing: Indonesia and others
- 131 in favor, 31 Against (Australia, Belgium, France, Germany, South Korea, the Netherlands, Norway, Poland, Russia, Turkey, the U.K., the U.S. and others), 18 Abstentions (Canada, India, Japan and others) *North Korea did not vote

In addition, an UNGA resolution titled “Convention on the Prohibition of the Use of Nuclear Weapons,” requesting “to the Conference on Disarmament to commence negotiations in order to reach agreement on an international convention prohibiting the use or threat of use of nuclear weapons under any circumstances,” was also proposed and adopted.⁴¹ Voting behavior on this resolution was as follows:

- Proposing: India and others
- 123 in favor, 50 Against (Australia, Austria, Belgium, Canada, France, Germany, Israel, South Korea, the Netherlands, New Zealand, Norway, Poland, Sweden, Switzerland, Turkey, the U.K., the U.S. and others), 10 Abstentions (Japan, North Korea, Russia and others)

[40] A/RES/72/58, December 4, 2017.

[41] A/RES/72/59, December 4, 2017.

[Column 1] Treaty on the Prohibition of Nuclear Weapons and Future of Nuclear Disarmament

Mahmoud Karem

At the outset I wish to praise the excellent work for the cause of a world free of nuclear weapons, disarmament, and non-proliferation done by the Hiroshima Prefecture in its annually published “*Hiroshima Report*”, and the 2011 Plan for “Global peace”. No one is more fit to achieve these pioneering objectives as the brave people of Hiroshima, Japan’s legends of the *hibakusha*, and the painful living memories of the first use of nuclear weapons against Humanity.

I also wish to praise the excellent work done in Hiroshima and Nagasaki in educating the youth, students with the scourge of a nuclear war and how to avert it.

Now it is necessary to historically address the question; why now a Treaty on the Prohibition of Nuclear Weapons (TPNW) and the Future of Nuclear Disarmament?

When the Nuclear Non-Proliferation Treaty (NPT) was signed in 1968, the euphoria and hope at the time was very high despite the inherent imbalances in the treaty between nuclear-weapon states and non-nuclear-weapon states. The world believed that article VI will be realized and its objectives reached in a relatively short period of time. However, the long history of repeated international crisis with the possibility of escalating into a global war closely linked to an aggressive doctrine of first use of nuclear weapons, all raised international frustration over the fact that little is being done to honor the obligations enshrined in Article VI by the nuclear-weapon states. Yes, important arms control agreements and some

reductions were reached but juxtaposed against a long period of time, fifty years to be exact, these achievements seemed little and albeit insufficient.

Part of this international frustration also went back to several issues:

1) Calls for reversing military expenditures on modernizing nuclear weapons remained unheeded, exceeding \$100 billion per year depriving social and economic developmental needs of humanity.

2) Despite global developmental aspirations the impact of the nuclear arms race was never reversed contradicting the objectives of the 2015-2030 UN Sustainable Development Goals.

3) The nuclear weapons states could not realize the urgent need for reversing military expenditures and allocating them to solving persistent global problems such as water security, protecting the environment, climate change, poverty, spread of epidemics, food and energy security. Instead, the world continued to live under the fear that a regional conflict and a possible confrontation between nuclear-weapon states may exacerbate quickly into a nuclear exchange. In the same time nuclear weapon states continued to operate from hair trigger alerts, threatening first use options, and forcing these doctrines on countries under extended nuclear deterrence, thereby involving those non-nuclear-weapon states in conflicts thousands of miles away from them.

4) This all underscored the fact that deterrence policy anchored on rationality may not always succeed as we have seen in the case of the regional conflict in the Korean peninsula. The fear now is that leaders who can launch nuclear missiles may not be rational enough to take rational decisions, let alone allow for a war by accident.

5) This led many states in three international

conferences to highlight the humanitarian impact of use of nuclear weapons, and no people in the world can present a moving example in this regard, other than the people of Hiroshima and Nagasaki.

In conclusion, the TPNW must be evaluated in a proper context. It sends a distress signal to world conscious that continuing with the status quo is not permissible given global challenges. Therefore, the future path of nuclear disarmament should be based on several issues:

1) A strong political will from nuclear reliant states to join the negotiations as a measure to convince NWS to cooperate.

2) The need to address at present, several compromise solutions such as, a “framework agreement” to secure a broad agreement at the beginning leaving the details to further negotiations, consonant with the convention on climate change. Another idea is holding an NPT amendment conference and adding a nuclear disarmament protocol that would also cover fissile material, nuclear weapons free zones, WMD’s, de-alerting, stockpile reductions, and retirement of nuclear weapons placed in foreign countries. Further on, a no first use pledge signed and deposited in the UNSC and announced by all nuclear weapons states in an international nuclear disarmament summit that replicates efforts done previously in nuclear security summits.

3) My own preference is to consider all that under the umbrella of a new UNGA special session devoted to disarmament (SSOD) before 2020.

Finally, nuclear-weapons states should demonstrate political will and show the world that they are serious and determined to reduce their nuclear stockpiles within an agreed to timeframe towards achieving General and Complete nuclear disarmament.

Dr. Mahmoud Karem
Former Ambassador of Egypt to Japan

[Column 2] A Personal Evaluation of the Treaty Prohibiting Nuclear Weapons (TPNW), and Possible Pathways to Move Nuclear Disarmament Forward Following the Adoption of the TPNW

Tim Caughley

This evaluation of the TPNW is in two parts, headed “cause” and “effect”.

1. Cause

The negotiation of the TPNW was influenced by a variety of factors. Many non-nuclear-weapon states were concerned that the sanctity of the NPT was being jeopardized by the lack of sustained action on the part of NPT nuclear weapon states to reduce their nuclear arsenals. Courses of action agreed by all that Treaty’s parties towards the elimination of nuclear armaments were gaining little or no traction.

The NPT has long been dogged by tension between its five nuclear-armed parties and those 186 nations that have bound themselves never to possess nuclear weapons in the expectation that such arms would eventually be eliminated. The five NPT possessors and states allied to them see the road to a nuclear free world as requiring the banning of nuclear-weapons testing (via the CTBT) and a treaty banning production of fissile material (FMT).

But paralysis surrounds both steps, frustrating progress towards elimination. The CTBT’s entry into force and negotiation of a FMT are both blocked by states that possess nuclear weapons. Absent any recognition by possessors that multilateral nuclear disarmament had stalled, the international community reached a crossroads. The nuclear disarmament agenda could be surrendered to the possessors of nuclear weapons to take the next steps at their own pace (e.g., ratifying the CTBT; negotiating

a FMT in the CD (or elsewhere); implementing key actions agreed by them at NPT Review Conferences). Or the vacuum would be addressed in other ways.

Concern expressed universally in 2010 by NPT parties about the humanitarian impact of nuclear weapons was harnessed to draw attention not only to the risks surrounding nuclear weapons but also to the chronic impasse just mentioned. Momentum, driven by a broad coalition of non-nuclear states, civil society and inter-governmental organizations including the UN and Red Cross Movement, quickly developed for prohibiting nuclear weapons as a fresh step. Its supporters were not persuaded by the rationale—put forward by nuclear-armed states and their allies—that nuclear disarmament had become a casualty of today’s fraught global security situation. To prohibition advocates, that argument was tantamount to a justification for nuclear weapons, and inconsistent with the NPT and its non-proliferation ethos.

With this standoff now deeply engrained, the decision of the UN General Assembly in October 2016 to undertake negotiation of what became the TPNW was well supported but far from consensual. The resulting treaty was adopted less than a year later with 122 in favour, one against (Netherlands) and one abstaining (Singapore). But those 50-plus UN member states that in 2016 had opposed or abstained on the call for a prohibition, largely opted out of the negotiation.

2. Effect

The TPNW has thus had a difficult and controversial birth. Assessment of its impact requires four acknowledgements:

- a prohibition of nuclear weapons is an essential step among measures needed for a nuclear-weapon free world (it already has counterparts banning chemical and biological arms);
- while the intention of the architects of the TPNW was that its terms exclude no state, support for

it from weapons-possessors and their allies that chose not to participate in its negotiation will nonetheless be hard won;

- given the time-consuming process of ratifying treaties, it is too early to assess—based on the level of formal support from states that have so far signed (56) or ratified the TPNW (5)—how effective it will be legally; and
- although it augments rather than supplants the NPT, the TPNW’s most valuable impact may be to precipitate moves to tackle the divide that is corroding the NPT. The TPNW’s emergence underlines a disturbing reality—a continuing lack of any coherence in charting the way forward for multilateral nuclear disarmament.

It is vital that nuclear-armed states and non-possessors acknowledge this last reality. Exploring scope for common ground might focus first on *methods* for bridging the gap (e.g., format for talks, informal expert groups, procedural framework for elimination). Next, issues of substance could be pursued (mitigating risk, identifying confidence-building measures, threat reduction, etc). In either case, these efforts must begin in earnest and with urgency – the recent moving of the hands of the symbolic Doomsday Clock to 2 Minutes to Midnight shows that the threat of a nuclear war through accident, miscalculation or intent has risen to an alarming level.

Mr. Tim Caughley

*Senior Fellow, United Nations Institute for
Disarmament Research (UNIDIR)*

[Column 3] The Treaty on the Prohibition of Nuclear Weapons and the Future of Nuclear Disarmament

Yasuyoshi Komizo

1. Background on the Adoption of TPNW

The cold war ended more than 25 years ago, but we are still struggling with causes of conflict. While globalization proceeds, the sense of belonging to the same human family remains yet to be developed, and economic/social imbalance keeps expanding. Thus divisions, distrust, and conflicts among people remain the unfortunate reality. Furthermore, recent rise of intolerance and protectionism add risks of turning conflicts into armed confrontation. Nearly 15,000 nuclear weapons still exist in such a volatile world. Nuclear weapons are claimed to be weapons of deterrence, but they may be actually used as a result of accidents and/or miscalculations. The concept of nuclear deterrence is also contagious. It invites the danger of nuclear proliferation, as in the case of North Korea. The international community has begun to realize that the existence of nuclear weapons itself constitutes a security risk of the world. Former U.S. Secretary of Defense William Perry has stated that “the risk of nuclear catastrophe is greater today than during the Cold War.”¹

Despite strong opposition by major powers, the UN Conference adopted the Treaty on the Prohibition of Nuclear Weapons (TPNW) in July 2017. This happened under the background of heightened international awareness of the inhumanity of nuclear weapons and risks of their actual use, which is widely spreading among civil society groups and non-nuclear weapons states.

Reflecting the basis of such awareness, the Preamble to the TPNW clearly notes the testimonies and earnest appeals for the nuclear abolition by the *hibakusha* of Hiroshima and Nagasaki. The collective turning point for this reawakening to the horrors of nuclear weapons came with the three “International Conferences on the Humanitarian Impact of Nuclear Weapons” held in 2013 and 2014. Participants in these Conferences came to realize that there had been numerous nuclear accidents and repeated cases placing nations on the verge of nuclear war. With such alarming knowledge, they listened to the testimony of the *Hibakusha*. This combination awakened the participants of the risks that anyone can become a victim of nuclear catastrophes, and it brought about a strong sense of ownership among large numbers of non-nuclear weapon states in nuclear disarmament negotiations.

2. The Nature of TPNW

Article 1 of the TPNW prohibits nuclear weapons, both comprehensively and indiscriminately. Other aspects of the TPNW should also be noted: The Preamble states to the effect that the TPNW reaffirms and builds upon relevant existing international laws, reaffirms the role of the NPT as the cornerstone of nuclear disarmament and nonproliferation, and recognizes that a legally binding prohibition constitutes an important contribution towards the elimination of nuclear weapons. The last point is particularly important, since currently nuclear-weapon States (NWS) and nuclear umbrella states (hereinafter referred to collectively as “nuclear dependent states”) oppose the treaty. In order for the prohibition to contribute effectively towards the elimination of nuclear weapons, the TPNW encourages all states, including nuclear dependent states, to join the TPNW (Article 12); it also incorporates measures to enable wider participation of states.

[1] William J.Perry, “The Risk of Nuclear Catastrophe Is Greater Today Than During the Cold War,” *Huffington Post*, https://www.huffingtonpost.com/william-jperry/nuclear-catastrophe-risk_b_9019558.html.

For example, while a “verification” clause is indispensable for nuclear disarmament treaties, reliable verification clauses cannot be drafted without participation of the NWS. In order to cope with this difficulty in drafting a verification clause, the TPNW adopted a type of framework-agreement approach, in line with recommendations made by Mayors for Peace (A/CONF.229/2017/NGO/WG.15). More specifically, Article 4 (on the total elimination of nuclear weapons) provides only a general outline in regard to the related verification measures, while Article 8 (Meeting of States Parties) includes in its mandate the consideration of specific measures of disarmament verification. States including nuclear dependent states that are not yet parties to the TPNW can participate in the deliberation of these meetings as observers.

3. Path towards Nuclear Disarmament

The TPNW has been adopted. Yet nuclear-dependent states oppose the treaty, arguing that it does not address security concerns. Instead, they propose a “step-by-step” approach as the only realistic measure. The problem is that there has not been any tangible progress in recent years. On the other hand, the risk of the nuclear weapons use as well as their humanitarian consequences have become much more widely recognized in the international community, and the very existence of nuclear weapons has become a serious security concern. The Nobel Peace Prize awarded last year to ICAN is clearly a reflection of such a trend.

The path we need to take is clear. Both supporters and opponents of the TPNW are under the NPT’s Article VI obligation to undertake to pursue nuclear disarmament negotiations in good faith. An immediate step should be for both camps, despite their differences, to come together and engage in dialogue focused on identifying and implementing practical nuclear disarmament measures. Through such efforts, further steps towards a nuclear-weapons-free world will become clearer.

In order to overcome the notion of “nuclear deterrence”, intensive efforts are needed worldwide, especially among nuclear-weapon States, to turn mutual distrust into mutual understanding. Even the difficult issues of Ukraine and North Korea can be made specific test cases for a fundamental shift from “confrontational security” to “cooperative security.” Nuclear deterrence does not at all contribute to—and in many ways detracts from—the settlement of contemporary issues such as terrorism and refugees that originate from mutual distrust and confrontation. Global cooperation beyond these differences is indispensable to cope with climate change and other global security challenges. We sincerely expect the political leadership in all countries to support progress in achieving a nuclear-weapons-free world. We hope they will learn and follow the decisive leadership precedents of advancing nuclear disarmament at a peak of international tension, such as the cases between John F. Kennedy and Nikita Khrushchev, and between Mikhail Gorbachev and Ronald Reagan. Mayors for Peace will not spare any efforts, together with a wide range of civil society partners, to promote mutual understanding and cooperation in the global community, transcending differences in national boundaries, religions and cultures.

Mr. Yasuyoshi Komizo
Chairperson,
Hiroshima Peace Culture Foundation

[Column 4] The TPNW and the Future of the Nuclear Non-Proliferation and Disarmament Regime

Masahiko Asada

On July 7, 2017, the Treaty on the Prohibition of Nuclear Weapons (TPNW) was adopted by an overwhelming majority of 122 votes in favor, one against and one abstention. From a standpoint solely based on this fact, one may have an impression that an epoch-making treaty to ban nuclear weapons was concluded, reflecting the “collective will” of the international community as a whole. This is not the case, however; the 122 States do not include any of the nuclear-armed States —neither the nuclear-weapon States (NWS) under the Nuclear Non-Proliferation Treaty (NPT) nor other nuclear weapon possessor States— or non-nuclear-weapon States (NNWS) allied with NWS (nuclear-allied NNWS). This fact generates concern that the TPNW may create, or further expand, a grave “division” in the international community.

Such a division may be created and/or expanded not only between nuclear-armed States and NNWS, but also between nuclear-allied NNWS and non-aligned (NAM) NNWS. In fact, such divisions may have already emerged prior to the conclusion of the treaty. While only five States (the United States, the United Kingdom, France, Russia and Israel) voted against the United Nations General Assembly (UNGA) resolution entitled “Taking forward multilateral nuclear disarmament negotiations” in 2014, as many as 35 States (seven times more), including most of nuclear-armed States and nuclear-allied NNWS, voted against the 2016 version of the resolution according to which the UN conference to negotiate a TPNW was decided to convene. It could be said that the decision to start the negotiation and the conclusion of the TPNW resulted in pushing nuclear-

allied NNWS towards the nuclear-armed States’ side by pressuring them to give up their reliance on extended nuclear deterrence, notwithstanding those NNWS had, at least in surface appearance, taken similar lines with the NAM countries in terms of pursuing nuclear disarmament.

The TPNW, which was ratified by just five signatories as of January 2018, will enter into force in due course with the necessary ratifications of 50 States. According to the treaty, the TPNW process will start with the convening of the first meeting of States Parties within one year of its entry into force, which will be followed by further such meetings on a biennial basis. It would be natural that many of the NAM countries will emphasize the significance of the TPNW, which they took the initiatives to make. It is also easily expected that they would prefer the TPNW to the NPT, due particularly to the lack of progress in nuclear disarmament within the framework of the NPT. In such a case, a division between nuclear-allied NNWS and non-aligned NNWS, as well as one between nuclear-armed states and NNWS, will inevitably be further deepened. It would be more than unfortunate for nuclear disarmament should many NAM States lose interest in the NPT, and such a trend would seriously undermine the NPT process as a universal forum in which both NWS and NNWS participate.

One positive aspect of the adoption of the TPNW would be that it has dramatically demonstrated NAM countries’ frustrations over a lack of conspicuous progress in nuclear disarmament both multilaterally (since the adoption of the CTBT) and bilaterally (after the entry into force of the U.S.-Russian New START). It is of great importance that the NAM countries continue to get NWS to recognize the imperative of their efforts in nuclear disarmament within the NPT process, while reaffirming the paramount value of the NPT even after the entry into force of the TPNW.

Dr. Masahiko Asada

Professor,

Graduate School of Law, Kyoto University

[Column 5] Treaty on the Prohibition of Nuclear Weapons and the Future of Nuclear Disarmament

Anton Khlopkov

I first visited Hiroshima and Nagasaki in December 2016 – almost 20 years after I began to study nuclear physics. I probably should have paid that visit a lot sooner. The Hiroshima Peace Memorial Museum and the Nagasaki Atomic Bomb Museum are must-see places for everyone involved in nuclear issues, nonproliferation, and arms control. They cannot leave anyone indifferent. They are a stark reminder of the destructive power of nuclear weapons and nuclear energy used for military purposes. They also enable a deeper understanding of the nonproliferation crises we are facing today, as well as the history and roots of those crises. For example, when I visited the memorial in Hiroshima, I was taken aback that of the 120,000 people who died in the nuclear bombing on August 6, 1945, some 20,000 were Korean.

I am delighted that the Hiroshima and Nagasaki prefectures have recently been hosting a much greater number of various seminars, forums and conferences that draw experts – beginners as well as experienced professionals – specializing in nuclear nonproliferation, arms control, and international security. Visiting the two museums and meeting the *hibakusha* is an integral part of such events. These efforts are an important long-term investment in upholding peace and security, and advancing the cause of nuclear disarmament.

The goal of nuclear disarmament is impossible to

achieve overnight, because a world free of nuclear weapons does not equal the world as we know it, minus nuclear weapons. Unfortunately, such an approach – in other words, the idea of immediate mechanical renunciation of nuclear weapons – is pursued by the authors of the Treaty on the Prohibition of Nuclear Weapons (TPNW).

Nuclear weapons are deeply integrated into the complex, multi-tier, and multi-component national security systems of the nuclear-weapon states and their allies. One simply cannot mechanically snatch one of the crucial blocks from the foundation of that multi-tier pyramid without risking the whole construct teetering and perhaps falling over. What we can do, however, is use a phased, step-by-step approach to reduce the reliance of the construct on that particular block. In the longer term, we should try to re-design the construct, which is just as steady as the one we have now, but which does not rely on nuclear weapons as one of its key blocks – a construct in which the nuclear weapons block is replaced by something else.

Over the past 30 years, Russia and the United States have reduced their nuclear arsenals by 85%. Additionally, it is safe to say that Moscow and Washington have accumulated a wealth of experience in negotiating and implementing legally-binding commitments on nuclear arms reductions. With sufficient political will, that experience will enable them not only to make progress towards further reductions of their nuclear arsenals, but also to expedite the negotiations to that effect. Talks on the START I treaty, signed in 1991, took more than six years to complete. In contrast, the New START treaty, signed in Prague in 2010, took only 10 months to negotiate.

What, then, should be the nuclear disarmament priorities for the foreseeable future? As the possessors of largest nuclear arsenals, the United States and

Russia have a special responsibility to maintain strategic stability and reduce nuclear risks. But this is not a task for Russia and the United States alone – or even just for the five official nuclear-weapon states. This task requires multilateral efforts, undertaken either jointly or in parallel, depending on the specific issue.

Talking of Russia and the United States, the primary objective is to preserve and strengthen the already existing arms control architecture. The New START Treaty expires in 2021. The INF Treaty is facing difficult time. These and many other related issues require a resumption of regular, systemic dialogue between official representatives of the two states in the format of inter-agency delegations. Such dialogue would enable Russia and the United States to preserve the already concluded agreements and lay the ground for new steps towards nuclear disarmament.

Also, it is high time for all other nuclear-weapon and nuclear-armed states to make their own practical contribution to the nuclear disarmament process. They could start, for example, by making unilateral announcements of their first – perhaps symbolic – steps to reduce their arsenals.

The non-nuclear-weapon states should also make tangible steps to create an environment that would be conducive to further nuclear disarmament measures. Speaking especially of the nuclear-umbrella states, these countries should reduce the role of foreign nuclear weapons in upholding their own national security. The countries that host foreign nuclear weapons in their territory should move steadily towards those weapons' withdrawal. The non-nuclear-weapon states that have stockpiles of weapons-usable nuclear materials in their territory should consider the possibility of irreversible disposition of such materials – preferably using an economically sustainable technology (in other words,

by using those materials as nuclear fuel).

Complete nuclear disarmament could not be done “at one stroke”, as authors of the TPNW propose. It requires long-term investments and multilateral efforts and should proceed on the basis of increasing rather than reducing strategic stability.

Mr. Anton Khlopkov

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(4) REDUCTION OF NUCLEAR WEAPONS

A) Reduction of nuclear weapons

THE NEW START

Russia and the United States continue to undertake reductions of their strategic nuclear weapons under the New Strategic Arms Reduction Treaty (New START). Since the entry into force of the Treaty in February 2011, neither side has alleged non-compliance.

The status of their strategic (nuclear) delivery vehicles and warheads under the New START has been periodically updated in the U.S. State Department homepage (see Table 1-4 below). The United States also declared the number of each type of its strategic delivery vehicles (see Table 1-5). According to the data as of September 2015, the number of U.S. deployed strategy warheads fell below the upper limit stipulated in the New START for the first time. Furthermore, the data as of September 2017 revealed that the number of U.S. deployed strategic delivery vehicles and deployed/non-deployed strategic delivery vehicles/launchers, besides deployed strategic warheads, also fell below the limit. On the other hand, according to the data as of September 2017, the number of Russia's deployed strategic warheads has decreased to a level slightly exceeding the upper limit under the New START.

Since the treaty's entry into force, Russia and the United States have implemented the on-site

inspections stipulated in it.⁴² Neither side has asserted any non-compliance.

U.S. President Donald Trump, inaugurated in January 2017, has been critical of the New START. It was reported that in his first telephone call with Russian President Vladimir Putin in February, President Trump denounced the treaty that caps their deployment of nuclear warheads as a bad deal for the United States.⁴³ Reacting negatively to Putin's suggestion that the two countries begin work to extend the treaty, Trump said that the New START "[is] a one-sided deal [...and] another bad deal that the country made...We're going to start making good deals."⁴⁴ On the other hand, at his confirmation hearing on January 11, 2017, U.S. Secretary of State Rex Tillerson stated that it was important for the United States to "stay engaged with Russia, hold them accountable to commitments made under the New START and also ensure our accountability as well."⁴⁵ By the end of 2017, the U.S. government had not appeared to be seriously contemplating a withdrawal from the treaty. According to Russian media, extending the treaty was discussed at a September 2017 meeting of the biannual Bilateral Consultation Committee (BCC) established under the New START to discuss implementation matters.⁴⁶ American media did not report any such discussion. Russia and the US also exchanged views on wide range of issues regarding strategic stability at the Strategic Stability Talks launched in October 2017.⁴⁷

[42] "New START Treaty Inspection Activities," U.S. Department of State, <https://2009-2017.state.gov/t/avc/newstart/c52405.htm>.

[43] Jonathan Landay and David Rohde, "Exclusive: In Call with Putin, Trump Denounced Obama-era Nuclear Arms Treaty – Sources," *Reuters*, February 10, 2017, <http://www.reuters.com/article/us-usa-trump-putin-idUSKBN15O2A5>.

[44] Steve Holland, "Trump Wants to Make Sure U.S. Nuclear Arsenal at 'Top of the Pack,'" *Reuters*, February 23, 2017, <https://www.reuters.com/article/us-usa-trump-exclusive/trump-wants-to-make-sure-u-s-nuclear-arsenal-at-top-of-the-pack-idUSKBN1622IF>.

[45] Jonathan Landay and David Rohde, "In Call with Putin."

[46] "Russia, US Start Consultations on Extending START Treaty – Diplomat," *Tass*, September 12, 2017, <http://tass.com/politics/965274>.

[47] "Russia and US Beginning Strategic Stability Dialogue – Diplomat," *Tass*, July 20, 2017, <http://tass.com/world/957005>; "U.S., Russian Strategic Stability Talks Begin," *Arms Control Today*, Vol. 49, No. 8 (October 2017), p. 29.

Table 1-4: Russian and U.S. strategic (nuclear) delivery vehicles and warheads under the New START

<U.S.>

Year and month	Deployed strategic (nuclear) warheads (Aggregate limits : 1,550)	Deployed strategic (nuclear) vehicles (Aggregate limits : 700)	Deployed/non-deployed strategic delivery vehicles/launchers (Aggregate limits : 800)
2011.2	1,800	882	1,124
2011.9	1,790	822	1,043
2012.3	1,737	812	1,040
2012.9	1,722	806	1,034
2013.3	1,654	792	1,028
2013.9	1,688	809	1,015
2014.3	1,585	778	952
2014.9	1,642	794	912
2015.3	1,597	785	898
2015.9	1,538	762	898
2016.3	1,481	741	878
2016.9	1,367	681	848
2017.3	1,411	673	820
2017.9	1,393	660	800

<Russia>

Year and month	Deployed strategic (nuclear) warheads (Aggregate limits : 1,550)	Deployed strategic (nuclear) vehicles (Aggregate limits : 700)	Deployed/non-deployed strategic delivery vehicles/launchers (Aggregate limits : 800)
2011.2	1,537	521	865
2011.9	1,566	516	871
2012.3	1,492	494	881
2012.9	1,499	491	884
2013.3	1,480	492	900
2013.9	1,400	473	894
2014.3	1,512	498	906
2014.9	1,643	528	911
2015.3	1,582	515	890
2015.9	1,648	526	877
2016.3	1,735	521	856
2016.9	1,796	508	847
2017.3	1,765	523	816
2017.9	1,561	501	790

Due to the Treaty's counting rules, the number of warheads cited above does not accurately reflect the actual situation of nuclear forces in both countries. The New START Treaty counts a heavy bomber as one delivery system and one nuclear warhead, despite the fact that the bombers can actually load 6-20 warheads. Also, according to its counting rule stipulated in the Treaty, for ICBMs and SLBMs, the number of warheads shall be the number of reentry vehicles emplaced on deployed ICBMs and on deployed SLBMs.

Sources: U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, October 25, 2011, <https://2009-2017.state.gov/t/avc/rls/176096.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, April 6, 2012, <https://2009-2017.state.gov/t/avc/rls/178058.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, October 3, 2012, <https://2009-2017.state.gov/t/avc/rls/198582.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, April 3, 2013, <https://2009-2017.state.gov/t/avc/rls/207020.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, October 1, 2013, <https://2009-2017.state.gov/t/avc/rls/215000.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, April 1, 2014, <https://2009-2017.state.gov/t/avc/rls/224236.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, October 1, 2014, <https://2009-2017.state.gov/t/avc/rls/232359.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, July 1, 2015, <https://2009-2017.state.gov/t/avc/rls/240062.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, October 1, 2015, <https://2009-2017.state.gov/t/avc/rls/247674.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, October 1, 2016, <https://2009-2017.state.gov/t/avc/rls/2016/262624.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, January 1, 2017, <https://2009-2017.state.gov/t/avc/rls/2016/266384.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, July 1, 2017, <https://www.state.gov/t/avc/newstart/272337.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, January 12, 2018, <https://www.state.gov/t/avc/newstart/277439.htm>.

Table 1-5: U.S. strategic (nuclear) delivery vehicles**<ICBMs and ICBM Launchers>**

Year and month		Deployed ICBM	Non-deployed ICBM	Deployed and Non-deployed Launchers of ICBMs	Deployed launchers of ICBMs	Non-deployed launchers of ICBMs	Test Launchers
2012.9	MM-III	449	263	506	449	57	6
	PK	0	58	51	0	51	1
	Total	449	321	557	449	108	7
2013.3	MM-III	449	256	506	449	57	6
	PK	0	58	51	0	51	1
	Total	449	314	557	449	108	7
2013.9	MM-III	448	256	506	448	58	6
	PK	0	57	51	0	51	1
	Total	448	313	557	448	109	7
2014.3	MM-III	449	250	506	449	57	6
	PK	0	56	1	0	1	1
	Total	449	306	507	449	58	7
2014.9	MM-III	447	251	466	447	19	6
	PK	0	56	1	0	1	1
	Total	447	307	467	447	20	7
2015.3	MM-III	449	246	454	449	5	4
	Total	449	246	454	449	5	4
2015.9	MM-III	441	249	454	441	13	4
	Total	441	249	454	441	13	4
2016.3	MM-III	431	225	454	431	23	4
	PK	n/a	n/a	n/a	n/a	n/a	n/a
	Total	431	225	454	431	23	4
2016.9	MM-III	416	270	454	416	38	4
	PK	n/a	n/a	n/a	n/a	n/a	n/a
	Total	416	270	454	416	38	4
2017.3	MM-III	405	278	454	405	49	4
	Total	405	278	454	405	49	4
2017.9	MM-III	399	281	454	399	55	4
	Total	399	281	454	399	55	4

MM-III: Minuteman III PK: Peacekeeper

<SLBMs and SLBM Launchers>

Year and month		Deployed SLBMs	Non-deployed SLBMs	Deployed and Non-deployed Launchers of SLBMs	Deployed launchers of SLBMs	Non-deployed launchers of SLBMs	Test Launchers
2012.9	Trident II	239	180	336	239	97	0
	Total	239	180	336	239	97	0
2013.3	Trident II	232	176	336	232	104	0
	Total	232	176	336	232	104	0
2013.9	Trident II	260	147	336	260	76	0
	Total	260	147	336	260	76	0
2014.3	Trident II	240	168	336	240	96	0
	Total	240	168	336	240	96	0
2014.9	Trident II	260	151	336	260	76	0
	Total	260	151	336	260	76	0
2015.3	Trident II	248	160	336	248	88	0
	Total	248	160	336	248	88	0
2015.9	Trident II	236	190	336	236	100	0
	Total	236	190	336	236	100	0
2016.3	Trident II	230	199	324	230	94	0
	Total	230	199	324	230	94	0
2016.9	Trident II	209	210	320	209	111	0
	Total	209	210	320	209	111	0
2017.3	Trident II	220	203	300	220	80	0
	Total	220	203	300	220	80	0
2017.9	Trident II	212	215	280	212	68	0
	Total	212	215	280	212	68	0

<Heavy Bombers>

Year and month		Deployed Heavy Bombers	Non-deployed Heavy Bombers	Test Heavy Bombers	Heavy Bombers Equipped for Non-nuclear Armament
2012.9	B-2A	10	10	1	0
	B-52G	30	0	0	0
	B-52H	78	13	2	0
	Total	118	23	3	0
2013.3	B-2A	10	10	1	0
	B-52G	24	0	0	0
	B-52H	77	14	2	0
	Total	111	24	3	0
2013.9	B-2A	11	9	1	0
	B-52G	12	0	0	0
	B-52H	78	12	2	0
	Total	101	21	3	0
2014.3	B-2A	11	9	1	0
	B-52H	78	11	2	0
	Total	89	20	3	0

2014.9	B-2A	10	10	1	0
	B-52H	77	12	2	0
	Total	87	22	3	0
2015.3	B-2A	12	8	1	0
	B-52H	76	12	3	0
	Total	88	20	4	0
2015.9	B-2A	12	8	1	0
	B-52H	73	15	2	0
	Total	85	23	3	0
2016.3	B-2A	12	8	1	0
	B-52H	68	12	2	8
	Total	80	20	3	8
2016.9	B-2A	10	10	1	0
	B-52H	46	8	2	33
	Total	56	18	3	33
2017.3	B-2A	12	8	1	0
	B-52H	36	10	2	41
	Total	48	18	3	41
2017.9	B-2A	11	9	1	0
	B-52H	38	8	2	41
	Total	49	17	3	41

Sources: U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, November 30, 2012, <http://2009-2017.state.gov/t/avc/rls/201216.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, July 1, 2013, <http://2009-2017.state.gov/t/avc/rls/201216.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, January 1, 2014, <http://2009-2017.state.gov/t/avc/rls/201216.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, January 1, 2014, <http://2009-2017.state.gov/t/avc/rls/201216.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, July 1, 2014, <http://2009-2017.state.gov/t/avc/rls/201216.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, October 1, 2016, <https://2009-2017.state.gov/t/avc/rls/2016/262624.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, January 1, 2017, <https://2009-2017.state.gov/t/avc/rls/2016/266384.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, July 1, 2017, <https://www.state.gov/t/avc/newstart/272337.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, January 12, 2018, <https://www.state.gov/t/avc/newstart/277439.htm>.

**REDUCTIONS OF NON-STRATEGIC
NUCLEAR WEAPONS AND ALLEGATIONS
OF NON-COMPLIANCE OF THE INF
TREATY**

After the conclusion of the New START in 2010, there has been little meaningful progress on U.S.-Russian mutual nuclear reductions, particularly regarding non-strategic nuclear weapons. Russia has repeatedly called on the United States and other NATO member states, as a first step, to repatriate all U.S. non-strategic nuclear weapons stored in Europe.

There is little prospect of resolving the allegations of Russian non-compliance with the Intermediate-range Nuclear Forces (INF) Treaty, which the United States officially brought up in July 2014. According to the report, titled “Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments”, issued by the U.S. Department of State in July 2017, “[t]he United States has determined that in 2016, the Russian Federation... continued to be in violation of its obligations under the INF Treaty not to possess, produce, or flight-test a ground-launched cruise missile (GLCM) with a range capability of 500 kilometers to 5,500 kilometers, or to possess or produce launchers of such missiles,” and pointed out the INF Treaty’s provisions related to the allegations of Russia’s non-compliance.⁴⁸

In this report, the United States revealed that it “requested to convene a session of the INF Treaty’s implementation body, the Special Verification Commission (SVC)” in 2016 (for the first time since October 2003), and raised the issue of Russia’s violation at the SVC session in November 2016.⁴⁹ The

United States reported to have “provided detailed information to the Russian Federation over the course of these bilateral and multilateral engagements, more than enough information for the Russian side to identify the missile in question and engage substantively on the issue of its obligations under the INF Treaty,” as follows:⁵⁰

- Information pertaining to the missile and the launcher, including Russia’s internal designator for the mobile launcher chassis and the names of the companies involved in developing and producing the missile and launcher;
- Information on the violating GLCM’s test history, including coordinates of the tests and Russia’s attempts to obfuscate the nature of the program;
- The violating GLCM has a range capability between 500 and 5,500 kilometers; and
- The violating GLCM is distinct from the R-500/SSC-7 GLCM or the RS-26 ICBM.

According to a news article in February 2017, Russia has two battalions of SCC-8 GLCMs (each battalion equipped with four launchers): one is located at Russia’s missile test site at Kapustin Yar in southern Russia near Volgograd; and the other was shifted in December 2016 from that test site to an operational base elsewhere in the country.⁵¹

For its part, Russia dismissed the U.S. claims and asserted that it is the United States that has violated the INF Treaty, claiming that:

- U.S. tests of target-missiles for missile defense have similar characteristics to intermediate-range missiles;

[48] U.S. Department of State, “Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments,” April 2017, <https://www.state.gov/t/avc/rls/rpt/2017/270330.htm>. Regarding the issues that the United States has pointed out, see the *Hiroshima Report 2015* and the *Hiroshima Report 2016*.

[49] The SVC was also held in December 2017.

[50] U.S. Department of State, “Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments.”

[51] Michael R. Gordon, “Russia Deploys Missile, Violating Treaty and Challenging Trump,” *New York Times*, February 14, 2017, <https://www.nytimes.com/2017/02/14/world/europe/russia-cruise-missile-arms-control-treaty.html>.

- U.S. production of armed drones falls within the definition of ground-launched cruise missiles in the Treaty; and
- The Mk-41 launch system, which the United States intends to deploy in Poland and Romania in accordance with the European Phased Adaptive Approach of the BMD, can also launch intermediate-range cruise missiles.

The United States denies the Russian argument about U.S. violation of the INF Treaty. However, as a countermeasure to Russia's alleged violation, in November 2017, the U.S. Congress passed legislation requiring the Department of Defense to establish a program to begin development of a conventional, road-mobile GLC Mand authorized \$58 million for this research, which is not prohibited by the treaty.⁵² In addition, the U.S. State Department announced in December 2017 that while "the United States continues to seek a diplomatic resolution through all viable channels, including the INF Treaty's Special Verification Commission (SVC)...the U.S. Department of Defense is commencing INF Treaty-compliant research and development (R&D) by reviewing military concepts and options for conventional, ground-launched, intermediate-range missile systems." At the same time, the United States clarified that it "is prepared to immediately cease this R&D if the Russian Federation returns to full and verifiable compliance with the Treaty."⁵³

Meanwhile, the possibility of Russia's withdrawal from the INF Treaty has been a concern, since Russia has not concealed a complaint about the situation where only Russia (as well as the United States) is

prohibited from possessing a certain class of missiles under the treaty, while its neighbors, including China, possess them without any restrictions. However, Mikhail Ulyanov, Director of the Foreign Ministry Department for Non-Proliferation and Arms Control, denied Russia would withdraw.⁵⁴

OTHER NUCLEAR-WEAPON/ARMED STATES

Among nuclear-armed states other than Russia and the United States, France and the United Kingdom have reduced their nuclear weapons unilaterally. The United Kingdom, which previously announced plans to reduce its nuclear forces to no more than 120 operationally available warheads and a total stockpile of no more than 180 warheads by the mid 2020s, declared in January 2015 that it had completed the reduction of the number of deployed warheads on each of its Nuclear-Powered Ballistic Missile Submarine (SSBN) from 48 to 40 as committed to in 2010, and the total number of operationally available warheads has therefore been reduced to 120.⁵⁵

Among the five NWS, China has neither declared any concrete information on the number of deployed or possessed nuclear weapons, nor any plan for their reduction, while reiterating that it keeps its nuclear arsenal at the minimum level required for its national security.⁵⁶ Although it is widely estimated that China has not dramatically increased its nuclear arsenal numerically, it is not considered to have commenced action to reduce its nuclear weapons; rather China is likely to continue actively bolstering its nuclear arsenal qualitatively.

[52] Kingston Reif, "Hill Wants Development of Banned Missile," *Arms Control Today*, Vol. 47, No. 10 (December 2017), p. 35.

[53] Bureau of Arms Control, Verification and Compliance, U.S. Department of State, "INF Treaty: At a Glance," Fact Sheet, December 8, 2017, <https://www.state.gov/t/avc/rls/2017/276361.htm>.

[54] "Russia: the US Intends to Withdraw from Open Skies Treaty," *UAWire*, September 26, 2017, <https://uawire.org/russia-the-us-intends-to-withdraw-from-open-skies-treaty>.

[55] "UK Downsizes Its Nuclear Arsenal," *Arms Control Today*, Vol. 45, No. 2 (March 2015), http://www.armscontrol.org/ACT/2015_03/News-Brief/UK-Downsized-Its-Nuclear-Arsenal.

[56] NPT/CONF.2015/32, April 27, 2015.

As for India, Pakistan, Israel and North Korea, there is no information, statement or analysis which suggests any reduction of their nuclear weapons or capabilities. To the contrary, as noted below, they are expanding their nuclear programs.

B) A concrete plan for further reduction of nuclear weapons

In 2017, there were no new proposals by nuclear-armed states to take new, concrete measures for further reductions of their nuclear arsenals. The new U.S. administration indicated it would not conclude a concrete policy on nuclear weapons reduction until its nuclear posture review is completed. In the meantime, Russia and the United States have made no move toward further reductions of their strategic and non-strategic nuclear arsenals. Russia has insisted that the rest of the nuclear-armed states should participate in any future nuclear weapons reductions

However, China, France and the United Kingdom have not changed their positions that further significant reduction of Russian and U.S. nuclear arsenals is needed, so as to commence a multilateral process of nuclear weapons reductions. For instance, China argued that “[c]ountries possessing the largest nuclear arsenals bear special and primary responsibility for nuclear disarmament and should take the lead in substantially reducing those arsenals in a verifiable, irreversible and legally binding manner, thus creating the conditions necessary for the ultimate goal of general and comprehensive nuclear disarmament. When conditions are ripe, other nuclear-weapon States should also join the multilateral negotiations on nuclear disarmament.”⁵⁷ However, it has not mentioned the extent of reductions in U.S. and Russian nuclear weapons, by which China would then participate in a process of multilateral nuclear

weapons reduction. Regarding this point, France clearly stated in February 2015: “If the level of the other arsenals, particularly those of Russia and the United States, were to fall one day to a few hundred weapons, France would respond accordingly, as it always has.”⁵⁸

Nuclear-armed states have not presented concrete plans for nuclear weapons reduction. On the contrary, they have undertaken to modernize and/or strengthen their nuclear arsenals in the unstable international and regional security situation, as mentioned later. The United States implicitly criticized such actions of others, noting that: “[T]wo NPT nuclear weapon states are now expanding their nuclear arsenals and developing new kinds of capabilities, some of them potentially quite destabilizing. Both have also contributed to rising regional tensions.”⁵⁹

C) Trends on strengthening/modernizing nuclear weapons capabilities

While nuclear-armed states have reiterated their commitments to promoting nuclear disarmament, they continue to modernize and/or strengthen their nuclear weapons capabilities.

CHINA

It is believed that China is actively modernizing its nuclear forces, details or numbers of which have never been declassified.

In its Annual Report on the Chinese Military in 2017, the U.S. Department of Defense reported that China is estimated to possess approximately 75-100 ICBMs—DF-5A, DF-5B (MIRVed), DF-31/31A and DF-4. In the maritime, China has four operational JIN-class SSBN (Type 094) armed with JL-2 SLBMs and a

[57] NPT/CONF.2020/PC.I/WP.36, May 9, 2017.

[58] “Statement by France,” General Debate, First Session of the Preparatory Committee for the 2020 NPT Review Conference, May 3, 2017.

[59] “Statement by the United States,” Cluster 1, First Session of the Preparatory Committee for the 2020 NPT Review Conference, May 4, 2017.

next generation Type 096 SSBN armed with a follow-on JL-3 SLBM will likely begin construction in the early-2020s.⁶⁰ The United States also estimates that “China maintains nuclear-capable delivery systems in its missile forces and navy and is developing a strategic bomber that officials expect to have a nuclear mission.”⁶¹

In January 2017, it was reported that China had deployed MIRVed ICBM DF-41, capable of carrying 10-12 nuclear warheads.⁶² China reportedly conducted a flight test of the MIRV'd ICBM DF-5C in the same month,⁶³ although China did not confirm it was MIRVed.⁶⁴

FRANCE

In 2017 no significant movement was reported regarding nuclear modernization by France. It introduced new M-51 SLBMs in 2010, with an estimated range of 8,000 km. They were loaded in the fourth Le Triomphant-class SSBN. The previous three Le Triomphant-class SSBNs remain equipped with M-45 SLBMs that have a range of 6,000km. France plans to replace those M-45s with M-51s by 2017-2018.⁶⁵

In a speech on nuclear policies in February 2015, President François Hollande announced France would replace the last remaining Mirage 2000N

fighters with Rafales, carrying the ASMPA (improved air-to-ground medium-range missile system), by 2018. He said he had instructed the Atomic Energy Commission to prepare the necessary adaptations of its nuclear warheads ahead of the end of their operational life, without nuclear testing; and he underlined France’s commitment not to produce new types of nuclear weapon. He also declassified in this speech that the French nuclear deterrent consists of 54 middle-range ALCMs and three sets of 16 SLBMs.⁶⁶

RUSSIA

Russia continued to develop new types of strategic nuclear forces to replace its aging systems. As mentioned in the *Hiroshima Report 2017*, Russia planned to start deployment of the RS-28 (Sarmat) in 2018, which Russia has developed as a successor of the SS-18 heavy ICBMs. Russia also seeks to reintroduce a train-mobile ICBM by 2020, and reportedly plans to conduct its flight test in 2019.⁶⁷ In addition, Russia continues to build the Borei-class SSBNs.

Russia’s Minister of Defense Sergei Shoigu announced in February 2017 that 90 percent of Russia’s strategic nuclear forces will be armed with modern weaponry by 2020, and over 60 percent of the Strategic Missiles Forces will be armed with new weapon systems by late 2020.⁶⁸ However, due to economic difficulties, it is considered that Russia’s modernizing nuclear

[60] U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2017*, May 2017, pp. 24, 31.

[61] *Ibid.*, p. 61.

[62] “China Deploys Intercontinental Missiles Near Russian Border – Media,” *Tass*, January 24, 2017, <http://tass.com/world/926888>.

[63] Bill Gertz, “China Tests Missile with 10 Warheads,” *Washington Free Beacon*, January 31, 2017, <http://freebeacon.com/national-security/china-tests-missile-10-warheads/>.

[64] “China Says Its Trial Launch of DF-5C Missile Normal,” *China Military*, February 6, 2017, http://english.chinamil.com.cn/view/2017-02/06/content_7477866.htm.

[65] See, for example, “France Submarine Capabilities,” Nuclear Threat Initiative, August 15, 2013, <http://www.nti.org/analysis/articles/france-submarine-capabilities/>.

[66] François Hollande, “Nuclear Deterrence—Visit to the Strategic Air Forces,” February 19, 2015, <http://basedoc.diplomatie.gouv.fr/vues/Kiosque/FranceDiplomatie/kiosque.php?fichier=baen2015-02-23.html#Chapitre1>.

[67] “Russia to Conduct Flight Tests of Missile for ‘Nuclear Train’ in 2019,” *Sputnik News*, January 19, 2017, <https://sputniknews.com/russia/201701191049778679-russia-nuclear-missile-test/>.

[68] Franz-Stefan Gady, “Russia to Arm 90 Percent of Strategic Nuclear Forces with Modern Weaponry by 2020,” *Diplomat*, February 23, 2017, <https://thediplomat.com/2017/02/russia-to-arm-90-percent-of-strategic-nuclear-forces-with-modern-weaponry-by-2020/>.

forces will not be implemented as planned.

THE UNITED KINGDOM

In October 2015, the United Kingdom decided to construct a new class of four SSBNs as replacements of the existing Vanguard-class SSBNs. Their construction has already started.

In July 2016, the U.K. Parliament approved the government decision to maintain the U.K.'s nuclear deterrent beyond the early 2030s, with subsequent October 2016 commencement of the construction phase for a new Dreadnought-class of four SSBNs, as replacements for the existing Vanguard-class SSBNs, at a projected cost of £31 billion (with additional £10 billion contingency). The first new SSBN is expected to enter into service in the early 2030s. In parallel, the United Kingdom is participating in the U.S. current service-life extension program for the Trident II D5 missile. It is reported that a U.K. decision on a replacement warhead has been deferred until 2019/2020.⁶⁹

THE UNITED STATES

Since the timing of renewal of the U.S. strategic delivery vehicles, which began deployment during the Cold War, is coming closer, the United States has contemplated development of succeeding ICBMs, SSBNs and strategic bombers (and LRSOs for use thereon).⁷⁰ In addition, with heightening U.S. threat perceptions vis-à-vis, among others, North Korea and

Russia, interest in non-strategic nuclear forces has also been increasing both inside and outside of the U.S. administration.

Soon after his inauguration in January 2017, President Trump strongly suggested a possibility of strengthening the U.S. nuclear forces, saying: "I am the first one that would like to see ... nobody have nukes, but we're never going to fall behind any country even if it's a friendly country, we're never going to fall behind on nuclear power. It would be wonderful, a dream would be that no country would have nukes, but if countries are going to have nukes, we're going to be at the top of the pack."⁷¹ While concrete policies on nuclear weapons modernization under the Trump administration have been contemplated along with its nuclear posture reviews, the U.S. National Security Strategy (NSS) that was released in December 2017 stated: "The United States must maintain the credible deterrence and assurance capabilities provided by our nuclear Triad and by U.S. theater nuclear capabilities deployed abroad. Significant investment is needed to maintain a U.S. nuclear arsenal and infrastructure that is able to meet national security threats over the coming decades."⁷²

Meanwhile, the U.S. Air Force announced new contracts for initial development of LRSO (\$1.8 billion) and GBSO (\$700 million) in August.⁷³ In addition, the U.S. Navy awarded a \$5.1 billion contract to General Dynamics Electric Boat for Integrated

[69] Claire Mills and Noel Dempsey, "Replacing the UK's nuclear deterrent: Progress of the Dreadnought class," UK Parliament, House of Commons Briefing Paper, June 19, 2017.

[70] Regarding the U.S. nuclear modernization program, see, for instance, "U.S. Nuclear Modernization Program," Fact Sheet and Brief, Arms Control Association, December 2016, <https://www.armscontrol.org/factsheets/USNuclearModernization>.

[71] Steve Holland, "Trump Wants to Make Sure U.S. Nuclear Arsenal at 'Top of the Pack,'" *Reuters*, February 23, 2017, <https://www.reuters.com/article/us-usa-trump-exclusive/trump-wants-to-make-sure-u-s-nuclear-arsenal-at-top-of-the-pack-idUSKBN1622IF>.

[72] United States of America, "National Security Strategy," December 2017, p. 30.

[73] David E. Sanger and William J. Broad, "Trump Forges Ahead on Costly Nuclear Overhaul," *New York Times*, August 27, 2017, <https://www.nytimes.com/2017/08/27/us/politics/trump-nuclear-overhaul.html>. Some experts have argued against development of dual-capable LRSO because of lack of necessity for its nuclear posture, as well as a possibility of misperception of nuclear attack by an opponent (even if the missile mounts a conventional warhead). See, for example, William J. Perry and Andy Weber, "Mr. President, Kill the New Cruise Missile," *Washington Post*, October 15, 2015, https://www.washingtonpost.com/opinions/mr-president-kill-the-new-cruise-missile/2015/10/15/e3e2807c-6ecd-11e5-9bfe-e59f5e244f92_story.html.

Product and Process Development (IPPD), including the design, completion, component and technology development and prototyping efforts, of the Columbia Class SSBNs in September.⁷⁴

An estimated cost of procuring strategic nuclear forces has been increasing. The Congressional Budget Office (CBO) estimated that over the 2017-2026 period, the plans for nuclear forces specified in the 2017 budget requests by the Departments of Defense and Energy would cost a total of \$400 billion, which is 15 percent higher than the CBO's most recent estimate.⁷⁵ Furthermore, the CBO estimated in October 2017 that maintenance and development of nuclear forces would cost \$1.2 trillion over the 2017-2046 period: more than \$800 billion to operate and sustain (that is, incrementally upgrade) nuclear forces and about \$400 billion to modernize them.⁷⁶

INDIA

India seems to be energetically pursuing developments toward constructing a strategic nuclear triad, that is: ICBMs, SLBMs and nuclear bombers. The nation's second strategic nuclear submarine Aridhant was launched in November 2017. India reportedly plans to build a bigger and more potent version of the indigenous nuclear submarine in the immediate future.⁷⁷ As for ICBMs, however, contrary

to earlier predictions, as of the end of 2017 the mobile-ICBM Agni 5 had not been reported to have started operation.

ISRAEL

It is unclear whether the Israeli Jericho III IRBM remains under development or is already deployed. Along with the land- and air-based components of its nuclear deterrent, Israel is also believed to have deployed a nuclear-capable SLCM. It has signed a memorandum of understanding (MoU) relating to the purchase of three additional Dolphin-class submarines from Germany, which are capable to load the SLCM mentioned above.⁷⁸

PAKISTAN

Pakistan has prioritized development and deployment of nuclear-capable short- and medium-range missiles for ensuring deterrence vis-à-vis India. In January 2017, Pakistan conducted the first flight test of MIRVed IRBM Ababeel, with a range of 2,200 km.⁷⁹ A U.S. think tank also assessed that "Pakistan has constructed a hardened, secure, underground complex in Baluchistan Province that could serve as a ballistic missile and nuclear warhead storage site."⁸⁰

[74] "Navy Awards Contract for Columbia Class Submarine Development," *America's Navy*, September 21, 2017, http://www.navy.mil/submit/display.asp?story_id=102534.

[75] Congressional Budget Office, "Projected Costs of U.S. Nuclear Forces, 2017 to 2026," February 2017, <https://www.cbo.gov/sites/default/files/115th-congress-2017-2018/reports/52401-nuclearcosts.pdf>.

[76] Congressional Budget Office, "Approaches for Managing the Costs of U.S. Nuclear Forces, 2017 to 2046," October 2017. See also "New CBO Report Warns of Skyrocketing Costs of U.S. Nuclear Arsenal," Arms Control Association, October 31, 2017, <https://www.armscontrol.org/pressroom/2017-10/new-cbo-report-warns-skyrocketing-costs-us-nuclear-arsenal>.

[77] Franz-Stefan Gady, "India Launches Second Ballistic Missile Sub," *Diplomat*, December 13, 2017, <https://thediplomat.com/2017/12/india-launches-second-ballistic-missile-sub/>; Dinakar Peri and Josy Joseph, "A Bigger Nuclear Submarine is Coming," *The Hindu*, October 15, 2017, <http://www.thehindu.com/news/national/a-bigger-nuclear-submarine-is-coming/article19862549.ece>.

[78] "Israel Signs MoU to Purchase Dolphin-class Submarines from Germany," *Naval Technology*, October 25, 2017, <https://www.naval-technology.com/news/newsisrael-signs-mou-to-purchase-dolphin-class-submarines-from-germany-5956187/>.

[79] "Pakistan Conducts First Flight Test of Nuclear-capable 'Ababeel' Missile," *Indian Express*, January 24, 2017, <http://indianexpress.com/article/world/pakistan-nuclear-missile-test-4489709/>.

[80] David Albright, Sarah Burkhard, Allison Lach and Frank Pabian, "Potential Nuclear Weapons-related Military Area in Baluchistan, Pakistan," Institute for Science and International Security, August 10, 2017, <http://isis-online.org/isis-reports/detail/potential-nuclear-weapons-related-military-area-in-baluchistan-pakistan/>.

NORTH KOREA

Nuclear weapons

North Korea conducted nuclear- and missile-related activities in 2017 as aggressively as previous years. The most noteworthy event was an underground nuclear test on September 3, which North Korea claimed was a hydrogen bomb. While it is uncertain whether the hydrogen bomb was used, as announced by North Korea, its explosive power was estimated to be about 160 kt, which was far beyond that of the North's past nuclear tests. According to state media, the claimed "H-bomb, the explosive power of which is adjustable from tens kiloton to hundreds kiloton, is a multi-functional thermonuclear nuke with great destructive power which can be detonated even at high altitudes for super-powerful [electro magnetic pulse (EMP)] attack according to strategic goals... All components of the H-bomb were homemade and all the processes ranging from the production of weapons-grade nuclear materials to precision processing of components and their assembling were put on the Juche basis, thus enabling the country to produce powerful nuclear weapons as many as it wants."⁸¹

It is also not certain whether North Korea has succeeded in miniaturizing nuclear warheads able to fit into the nosecone of its missiles. The U.S. Defense Intelligence Agency (DIA) assesses, however, that "North Korea has produced nuclear weapons for

ballistic missile delivery, to include delivery by ICBM-class missiles,"⁸² which would appear to mean that North Korea already succeeded in miniaturization. The North has not demonstrated missile re-entry technology, but it is considered likely that this can be mastered within a year or two, if not earlier.

Regarding the number of North Korea's nuclear weapons, a reputable U.S. think tank estimates that, based on the estimated amount of fissile material produced by the North (33 kg of separated plutonium and 175-645 kg of weapon-grade uranium), it possessed 13 to 30 nuclear weapons by the end of 2016 and that it is currently expanding its nuclear weapons at a rate of about 3-5 weapons per year. Accordingly, through 2020, North Korea is projected to have 25-50 nuclear weapons.⁸³

Fissile Material

Because North Korea has not accepted external monitoring of its nuclear activities since 2002, the actual situation of its activities for further manufacturing of nuclear weapons is unclear. Based on its nuclear testing and announcements, however, as well as other evidence, there is no doubt that North Korea is aggressively expanding its nuclear program. In March 2017, IAEA Director-General Yukiya Amano stated that North Korea had doubled the size of its uranium-enriching facility in Yongbyon in recent years.⁸⁴ In September, he said that there were indications that the Yongbyon Experimental Nuclear

[81] "Kim Jong Un Gives Guidance to Nuclear Weaponization," *KCNA*, September 3, 2017, <http://www.kcna.co.jp/item/2017/201709/news03/20170903-01ee.html>.

[82] Joby Warrick, Ellen Nakashima and Anna Fifield, "North Korea Now Making Missile-ready Nuclear Weapons, U.S. Analysts Say," *Washington Post*, August 8, 2017, https://www.washingtonpost.com/world/national-security/north-korea-now-making-missile-ready-nuclear-weapons-us-analysts-say/2017/08/08/e14b882a-7b6b-11e7-9d08-b79f191668ed_story.html.

[83] David Albright, "North Korea's Nuclear Capabilities: A Fresh Look," Institute for Science and International Security, April 28, 2017, <http://isis-online.org/isis-reports/detail/north-koreas-nuclear-capabilities-a-fresh-look/10>.

[84] Jay Solomon, "North Korea Has Doubled Size of Uranium-enrichment Facility, IAEA Chief Says," *Wall Street Journal*, March 20, 2017, <https://www.wsj.com/articles/north-korea-has-doubled-size-of-uranium-enrichment-facility-iaea-chief-says-1490046264>.

Power Plant could be operating.⁸⁵ While North Korea maintains that this reactor is intended for civil nuclear energy purposes, it could be used to produce fissile material for weapons. Of direct relevance to weapons production, U.S. experts analyzed from satellite imagery that “[t]he Radiochemical Laboratory operated intermittently and there have apparently been at least two unreported reprocessing campaigns to produce an undetermined amount of plutonium that can further increase North Korea’s nuclear weapons stockpile.⁸⁶

Missiles

In addition to its nuclear weapons, North Korea’s ballistic missile-related activities in 2017 were also extraordinarily active.

On March 6, North Korea simultaneously launched four Scud-ER MRBMs, which flew approximately 1,000 km into the Sea of Japan, three of them landing in Japan’s EEZ. North Korea announced that “[i]nvolved in the drill were Hwasong artillery units of the KPA Strategic Force tasked to strike the bases of the U.S. imperialist aggressor forces in Japan in contingency.”⁸⁷ On May 14, according to North Korea, with “aim[ing] at verifying the tactical and technological specifications of the newly-developed ballistic rocket capable of carrying a large-size

heavy nuclear warhead,” it conducted a test launch of Hwasong-12 IRBM, which “hit the targeted open waters 787 km away after flying to the maximum altitude of 2,111.5 km along its planned flight orbit.”⁸⁸ Furthermore, on August 29 and September 15, the North repeated Hwasong-12 flight tests which passed over Japan in normal orbit and landed in the Pacific Ocean, flying 2,700 km in August and 3,700 km in September respectively.⁸⁹ These tests proved that its Hwasong-12 has the ability of reaching Guam. In addition, in the September test, North Korea showed a capability to shorten the time of preparation of launching missiles by directly firing from the mobile launcher.

North Korea demonstrated an ICBM capability in a latter half of 2017. In January 2017, it stated: “The DPRK’s ICBM development is part of its efforts for bolstering its capability for self-defense to cope with the ever more undisguised nuclear war threat from the U.S...The ICBM will be launched anytime and anywhere determined by the supreme headquarters of the DPRK.”⁹⁰ On July 4, North Korea launched a Hwasong-14 ICBM, which “was boosted to the maximum height of 2,802 km and traveled 933 km distance,” according to the North.⁹¹ A U.S. expert estimates that “[i]f the data is correct, preliminary trajectory reconstructions indicate that if the missile

[85] “IAEA Says Indications Show DPRK’s Nuclear Reactor Could be Operating,” *Xinhua*, September 11, 2017, http://news.xinhuanet.com/english/2017-09/11/c_136601162.htm. In January 2017, a U.S. think tank also pointed out a possibility of resumption of this nuclear reactor. See Jack Liu and Joseph S. Bermudez Jr., “North Korea’s Yongbyon Nuclear Facility: Operations Resume at the 5 MWe Plutonium Production Reactor,” *38 North*, January 27, 2017, <http://38north.org/2017/01/yongbyon012717/>.

[86] Joseph S. Bermudez Jr., Mike Eley, Jack Liu and Frank V. Pabian, “North Korea’s Yongbyon Facility: Probable Production of Additional Plutonium for Nuclear Weapons,” *38 North*, July 14, 2017, <http://www.38north.org/2017/07/yongbyon071417/>.

[87] “Kim Jong Un Supervises Ballistic Rockets Launching Drill of Hwasong Artillery Units of KPA Strategic Force,” *KCNA*, March 7, 2017, <http://www.kcna.co.jp/item/2017/201703/news07/20170307-01ee.html>.

[88] “Kim Jong Un Guides Test-Fire of New Rocket,” *KCNA*, May 15, 2017, <http://www.kcna.co.jp/item/2017/201705/news15/20170515-01ee.html>.

[89] Before this test, four North Korean ballistic missiles—Taepodong-1 in 1998, Unha-2 in 2009, Unha-3 in 2012 and Kwangmyongsong-4 in 2016—passed over Japan.

[90] “DPRK’s ICBM Development Is to Cope with U.S. Nuclear War Threat: FM Spokesman,” *KCNA*, January 8, 2017, <http://www.kcna.co.jp/item/2017/201701/news08/20170108-09ee.html>.

[91] “Report of DPRK Academy of Defence Science,” *KCNA*, July 4, 2017, <http://www.kcna.co.jp/item/2017/201707/news04/20170704-21ee.html>.

were fired on a more efficient trajectory it would reach a range of anywhere from 6,700 to 8,000 km.”⁹² North Korea stated that:

The test-launch was aimed to confirm the tactical and technological specifications and technological features of the newly developed inter-continental ballistic rocket capable of carrying large-sized heavy nuclear warhead and to finally verify all technical features of the payload of the rocket during its atmospheric reentry including the heat-resisting features and structural safety of the warhead tip of ICBM made of newly developed domestic carbon compound material, in particular.

...[T]he inner temperature of the warhead tip was maintained at 25 to 45 degrees centigrade despite the harsh atmospheric reentry conditions of having to face the heat reaching thousands of degrees centigrade, extreme overload and vibration, the nuclear warhead detonation control device successfully worked, and the warhead accurately hit the targeted waters without any structural breakdown at the end of its flight.⁹³

North Korea conducted a test flight of Hwasong-14 again on July 28, which was announced to have reached an altitude of 3,724.9 km and flew 998 km for 47 minutes and 12 seconds before landing⁹⁴ in Japan’s EEZ. These tests demonstrated that the Hwasong-14 has an ability of reaching the U.S

homeland if it is launched in a normal orbit. On the other hand, governmental officials and experts of Japan, the United States and South Korea analyze that the re-entry vehicle from that launch failed to successfully re-enter the atmosphere.⁹⁵

Most ominously, on November 29 North Korea launched a much larger new, ICBM, called the Hwasong-15, which soared to an altitude of 4,475 km and flew a distance of 950 km for 53 minutes before making an accurate landing in the preset waters in Japan’s EEZ in the Sea of Japan, according to North Korea. If it had flown a normal rather than a lofted trajectory, it could reach the entire U.S. homeland. The North praised the successful test and stated: “With this system, the DPRK has become possessed of another new-type inter-continental ballistic rocket weaponry system capable of carrying super-heavy nuclear warhead and attacking the whole mainland of the U.S....[T]he day was a significant day when the historic cause of completing the state nuclear force, the cause of building a rocket power was realized, adding that the day, on which the great might of putting the strategic position of the DPRK on a higher stage was given birth, should be specially recorded in the history of the country.”⁹⁶ U.S. experts estimated that “the Hwasong-15 can deliver a 1,000-kg payload to any point on the US mainland. North Korea has almost certainly developed a nuclear warhead that weighs less than 700 kg, if not one considerably lighter.”⁹⁷ On the other hand, a U.S. governmental official stated that the North had problems with re-

[92] John Schilling, “North Korea Finally Tests an ICBM,” *38 North*, July 5, 2017, <http://www.38north.org/2017/07/jschilling070517/>.

[93] “Kim Jong Un Supervises Test-launch of Inter-continental Ballistic Rocket Hwasong-14,” *KCNA*, July 5, 2017, <http://www.kcna.co.jp/item/2017/201707/news05/20170705-01ee.html>.

[94] “Kim Jong Un Guides Second Test-fire of ICBM Hwasong-14,” *KCNA*, July 29, 2017, <http://www.kcna.co.jp/item/2017/201707/news29/20170729-04ee.html>.

[95] Michael Elleman, “Video Casts Doubt on North Korea’s Ability to Field an ICBM Re-entry Vehicle,” *38 North*, July 31, 2017, <http://www.38north.org/2017/07/melleman073117/>; John Schilling, “What Next for North Korea’s ICBM?” *38 North*, August 1, 2017, <http://www.38north.org/2017/08/jschilling080117/>.

[96] “Kim Jong Un Guides Test-fire of ICBM Hwasong-15,” *KCNA*, November 29, 2017, <http://www.kcna.co.jp/item/2017/201711/news29/20171129-14ee.html>.

[97] Michael Elleman, “The New Hwasong-15 ICBM: Significant Improvement That May be Ready as Early as 2018,” *38 North*, November 30, 2017, <http://www.38north.org/2017/11/melleman113017/>.

entry technologies, in addition to guiding ballistic missiles.⁹⁸

North Korea's SLBM developments are also likely advanced. It conducted a test launch of Pukguksong-2 on May 21. After the test, Workers' Party of Korea chairman Kim Jong Un approved the deployment and mass-production of this weapon system.⁹⁹ North Korea also reportedly continues active development of SLBMs¹⁰⁰ and construction of a new ballistic missile submarine.¹⁰¹

(5) DIMINISHING THE ROLE AND SIGNIFICANCE OF NUCLEAR WEAPONS IN NATIONAL SECURITY STRATEGIES AND POLICIES

A) The current status of the roles and significance of nuclear weapons

No NWS announced new policies regarding the role of nuclear weapons in 2017,¹⁰² but the United States indicated it would do so early in 2018 as a result of its nuclear posture review. Meanwhile, its NSS in December 2017 mentioned that “[w]hile nuclear deterrence strategies cannot prevent all conflict, they are essential to prevent nuclear attacks, non-nuclear

strategic attacks, and large-scale conventional aggression.”¹⁰³ Each nuclear-armed state emphasizes that the role of its nuclear weapons is defensive, including deterrence vis-à-vis an attack against its vital interests.

As an issue on the role of nuclear weapons, it should be noted since 2014, that Russia has engaged in repeated nuclear saber-rattling. The tone of Russia's nuclear provocation did become more sober in 2017, however. Still, Russian strategic bombers continue, inter alia, approaching and violating the airspace of European NATO countries. Russia also deploys the nuclear-capable Iskander-M SLBM in Kaliningrad, which was launched during its military exercise Zapad-2017.¹⁰⁴

Again in 2017, North Korea made many provocative statements regarding nuclear weapons, including the following:

- “In case of a nuclear war on the peninsula, Japan that houses logistic bases, launching bases and sortie bases of the U.S. forces will be put under radioactive clouds before any country.”¹⁰⁵
- “All the military attack means of the DPRK including nuclear weapons that have already been deployed for an actual war are leveled at the U.S. imperialist aggression forces' bases

[98] Barbara Starr and Ray Sanchez, “North Korea's New ICBM Likely Broke Up Upon Re-entry, US Official Says,” *CNN*, December 3, 2017, <http://edition.cnn.com/2017/12/02/asia/north-korea-missile-re-entry/index.html>.

[99] “Kim Jong Un Supervises Test-fire of Ballistic Missile,” *KCNA*, May 22, 2017, <http://www.kena.co.jp/item/2017/201705/news22/20170522-01ee.html>.

[100] See, for example, Joseph S. Bermudez, Jr., “North Korea's Submarine-launched Ballistic Missile Program Advances: Second Missile Test Stand Barge Almost Operational,” *38 North*, December 1, 2017, <https://www.38north.org/2017/12/namp0120117/>.

[101] Ankit Panda, “The Sinpo-C-Class: A New North Korean Ballistic Missile Submarine Is under Construction,” *Diplomat*, October 18, 2017, <https://thediplomat.com/2017/10/the-sinpo-c-class-a-new-north-korean-ballistic-missile-submarine-is-under-construction/>. See also Joseph S. Bermudez Jr., “North Korea's Submarine Ballistic Missile Program Moves Ahead: Indications of Shipbuilding and Missile Ejection Testing,” *38 North*, November 16, 2017, <http://www.38north.org/2017/11/sinpo111617/>.

[102] For each nuclear-armed states' basic nuclear policy, see the *Hiroshima Report 2017*.

[103] United States of America, “National Security Strategy,” December 2017, p. 30.

[104] “Iskander-M Missile Hits Target in Kazakhstan at Zapad-2017 Drills,” *Tass*, September 18, 2017, <http://tass.com/defense/966182>; Maggie Tennis, “Russia Showcases Military Capabilities,” *Arms Control Today*, Vol. 47, No. 9 (November 2017), p. 24.

[105] “Reckless Acts of Precipitating Ruin,” *Rodong Sinmun*, May 3, 2017, http://www.rodong.rep.kp/en/index.php?strPageID=SF01_02_01&newsID=2017-05-03-0005.

in Japan as well as the U.S. mainland. And they are waiting for the moment to launch annihilating blows.”¹⁰⁶

- “The KPA Strategic Force is now carefully examining the operational plan for making an enveloping fire at the areas around Guam with medium-to-long-range strategic ballistic rocket Hwasong-12 in order to contain the U.S. major military bases on Guam including the Anderson Air Force Base in which the U.S. strategic bombers, which get on the nerves of the DPRK and threaten and blackmail it through their frequent visits to the sky above south Korea, are stationed and to send a serious warning signal to the U.S.”¹⁰⁷
- “The KPA will start the Korean-style preemptive retaliatory operation of justice to wipe out the group of despicable plot-breeders once a slight sign of the U.S. provocation scheming to dare carry out a ‘beheading operation’ against the supreme headquarters of the Korean revolution out of wild calculation is detected. The Korean-style earlier preemptive attack will burn up all the objects in the areas under the control of the first and third field armies of the puppet forces including Seoul the moment the U.S. reckless attempt at preemptive attack is spotted, and will lead to the all-out attack for neutralizing the launch bases of the U.S. imperialist aggression forces in the Pacific operational theatre together with the simultaneous strike at the depth of the whole of the southern half.”¹⁰⁸
- “Onodera, who took the post of [Japan’s]

defence minister on August 4, officially made public the stand by saying at a press conference that the Japan Defence Ministry is examining the ‘possession of ability for attacking enemy bases aimed at mounting a preemptive attack at the missile bases of the north’ as a measure for countering the DPRK’s ballistic rocket launch. The DPRK has already acquired the capabilities of reducing the Japanese archipelago to ashes in a second once it makes up its mind. The Japanese reactionaries should clearly understand that their mean, frivolous and mischievous act will only face merciless telling blow by the nuclear fist and that in that case the whole Japanese archipelago might be buried in the Pacific.”¹⁰⁹

- “The Hwasong-12 rockets to be launched by the KPA will cross the sky above Shimane, Hiroshima and Koichi Prefectures of Japan. They will fly 3,356.7 km for 1,065 seconds and hit the waters 30 to 40 km away from Guam.”¹¹⁰
- “The behaviors of Japs, sworn enemy of the Korean nation, are enraging us. The wicked Japs should not be pardoned as they have not yet made a sincere apology for the never-to-be-condoned crimes against our people but acted disgustingly, dancing to the tune of the U.S. ‘sanctions.’ A telling blow should be dealt to them who have not yet come to senses after the launch of our ICBM over the Japanese archipelago. The four islands of the archipelago should be sunken into the sea by the nuclear bomb of Juche. Japan is no longer needed to exist near us. This is the voices of the

[106] “Japan Should Practice Self-Control”, *KCNA*, May 20, 2017. <http://www.kcna.co.jp/index-e.htm>.

[107] “U.S. Should Be Prudent under Present Acute Situation: Spokesman for KPA Strategic Force”, *KCNA*, August 9, 2017, <http://www.kcna.co.jp/index-e.htm>.

[108] “U.S. War Hysteria Will Only Bring Miserable End of American Empire: Spokesman for KPA General Staff”, *KCNA*, August 9, 2017, <http://www.kcna.co.jp/index-e.htm>.

[109] “Japanese Reactionaries Should Not Go Frivolous before Merciless Nuclear Fist”, *KCNA*, August 9, 2017, <http://www.kcna.co.jp/index-e.htm>.

[110] “KPA Will Take Practical Action: Commander of Strategic Force”, *KCNA*, August 10, 2017, <http://www.kcna.co.jp/index-e.htm>.

enraged Korean army and people.”¹¹¹

- Kim Jong Un stated in January 2018: “[O]ur Republic has at last come to possess a powerful and reliable war deterrent, which no force and nothing can reverse...The whole of its mainland is within the range of our nuclear strike and the nuclear button is on my office desk all the time; the United States needs to be clearly aware that this is not merely a threat but a reality.”¹¹²

On the other hand, amid increasing tension on the North Korean issue, the United States dispatched B-1 and B-52 strategic bombers to the Korean Peninsula for conducting respective joint exercises with Japan and South Korea, aiming to bolster deterrence against the North and reassurance for its allies in Northeast Asia. In September, the U.S. Department of Defense announced that B-1B strategic bombers “flew in international airspace over waters east of North Korea. This is the farthest north of the Demilitarized Zone (DMZ) any U.S. fighter or bomber aircraft have flown off North Korea’s coast in the 21st century.”¹¹³ Additionally, President Trump threatened North Korea repeatedly, saying for instance:

- “North Korea best not make any more threats to the United States. They will be met with fire and fury like the world has never seen.” (Twitter, August 8, 2017)
- “The United States has great strength and

patience, but if it is forced to defend itself or its allies, we will have no choice but to totally destroy North Korea. Rocket Man is on a suicide mission for himself and for his regime. The United States is ready, willing and able, but hopefully this will not be necessary.”¹¹⁴

- “We are totally prepared for the second option, not a preferred option...But if we take that option, it will be devastating, I can tell you that, devastating for North Korea. That’s called the military option. If we have to take it, we will.”¹¹⁵
- “North Korean Leader Kim Jong Un just stated that the ‘Nuclear Button is on his desk at all times.’ Will someone from his depleted and food starved regime please inform him that I too have a Nuclear Button, but it is a much bigger & more powerful one than his, and my Button works!” (Twitter, January 2, 2018)

B) Commitment to “sole purpose,” no first use, and related doctrines

In 2017, no nuclear-armed state changed or transformed its policies regarding no first use (NFU) or the “sole purpose” of nuclear weapons. Among the NWS, only China has highlighted a NFU policy.¹¹⁶ There are expectations that the Trump Administration will change the previous U.S. administration’s policy that “[t]he fundamental role of [its] nuclear weapons remains to deter nuclear attack on the United States

[111] “KAPPC Spokesman on DPRK Stand toward UNSC “Sanctions Resolution””, *KCNA*, September 13, 2017, <http://www.kcna.co.jp/index-e.htm>.

[112] “Kim Jong Un’s 2018 New Year’s Address,” January 1, 2018, <https://www.ncnk.org/node/1427>.

[113] U.S. Department of Defense, “U.S. Flies B1-B bomber Mission off of North Korean Coast,” September 23, 2017, <https://www.defense.gov/News/News-Releases/News-Release-View/Article/1322213/us-flies-b1-b-bomber-mission-off-of-north-korean-coast/>.

[114] “Remarks by President Trump to the 72nd Session of the United Nations General Assembly,” September 19, 2017, <https://www.whitehouse.gov/briefings-statements/remarks-president-trump-72nd-session-united-nations-general-assembly/>.

[115] Steve Holland and Idrees Ali, “Trump: Military Option for North Korea not Preferred, But would be ‘Devastating,’” *Reuters*, September 25, 2017, <https://www.reuters.com/article/us-northkorea-missiles/trump-military-option-for-north-korea-not-preferred-but-would-be-devastating-idUSKCN1Co26A>.

[116] However, the United States considers that “[t]here is some ambiguity...over the conditions under which China’s NFU policy would apply.” U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2017*, May 2017, p. 60.

and its Allies and partners.”¹¹⁷

Among the other nuclear-armed states, India maintains a NFU policy despite reserving an option of nuclear retaliation vis-à-vis a major biological or chemical attack against it. On the other hand, Pakistan, which has developed short-range nuclear weapons to counter the “Cold Start doctrine” adopted by the Indian Army,¹¹⁸ does not exclude the possibility of using nuclear weapons against an opponent’s conventional attack. Pakistan Foreign Minister Khawaja Mohammad Asif has warned that if India launched a surgical strike on the country’s nuclear installations, nobody should expect restraint from Islamabad either.¹¹⁹ Against a background of such a nuclear posture by Pakistan, it has been reported that India may review its NFU policy. However, the Indian government denies any plan to change its existing nuclear policies.¹²⁰

While North Korea had previously announced NFU of nuclear weapons, it declared a change to this policy in 2016. Foreign Minister Ri Yong Ho stated in September 2017: “We will take preventive measures by merciless pre-emptive action in case the U.S. and its vassal forces show any sign of conducting a kind of ‘decapitating’ operation on our headquarters or military attack against our country...However, we do

not have any intention at all to use or threaten to use nuclear weapons against the countries that do not join in the U.S. military actions against the DPRK.”¹²¹

C) Negative security assurances

No NWS changed its negative security assurance (NSA) policy in 2017: China is the only NWS that has declared an unconditional NSA for NNWS; other NWS add some conditionality to their NSA policies. The United Kingdom and the United States declared they would not to use or threaten to use nuclear weapons against NNWS that are parties to the NPT and in compliance with their non-proliferation obligations. The U.K.’s additional condition is that: “while there is currently no direct threat to the United Kingdom or its vital interests from States developing capabilities in other weapons of mass destruction, for example chemical and biological, we reserve the right to review this assurance if the future threat, development and proliferation of these weapons make it necessary.”¹²²

In 2015, France slightly modified its NSA commitment, which is that: “France will not use nuclear weapons against states not armed with them that are signatories of the NPT and that respect their international obligations for non-proliferation of weapons of mass destruction.”¹²³ However, it preserves an additional

[117] U.S. Department of Defense, “Report on Nuclear Employment Strategy,” June 19, 2013, p. 4.

[118] “Short-range Nuclear Weapons to Counter India’s Cold Start Doctrine: Pakistan PM,” *Live Mint*, September 21, 2017, <http://www.livemint.com/Politics/z8zop6Ytu4bPiksPMLW49L/Shortrange-nuclear-weapons-to-counter-Indias-cold-start-do.html>.

[119] “Pakistan Warns India Against Targeting Its Nuclear Installations,” *Economic Times*, October 10, 2017, <http://economictimes.indiatimes.com/news/defence/pakistan-warns-india-against-targeting-its-nuclear-installations/articleshow/60967586.cms>.

[120] Max Fisher, “India, Long at Odds with Pakistan, May Be Rethinking Nuclear First Strikes,” *New York Times*, March 31, 2017, <https://www.nytimes.com/2017/03/31/world/asia/india-long-at-odds-with-pakistan-may-be-rethinking-nuclear-first-strikes.html>. See also Rajesh Rajagopalan, “India’s Nuclear Strategy: A Shift to Counterforce?” Observer Research Foundation, March 30, 2017, <http://www.orfonline.org/expert-speaks/india-nuclear-strategy-shift-counterforce/>; Yashwant Raj, “India Could Strike Pakistan with Nuclear Weapons If Threatened, Says Expert,” *Hindustan Times*, March 21, 2017, <http://www.hindustantimes.com/india-news/india-could-strike-pakistan-with-nuclear-weapons-if-threatened-says-expert/story-P5N8QuKOldxAJ9UPjboijM.html>.

[121] Jesse Johnson, “North Korea Foreign Minister Warns of ‘Pre-Emptive Action’ As U.S. Bombers Fly off Korean Peninsula,” *Japan Times*, September 24, 2017, <https://www.japantimes.co.jp/news/2017/09/24/asia-pacific/north-korea-foreign-minister-warns-pre-emptive-action-u-s-bombers-fly-off-korean-peninsula/#.WloDNJOFgWo>.

[122] NPT/CONF.2015/29, April 22, 2015.

[123] In its report submitted to the 2014 PrepCom (NPT/CONF.2015/PC.III/14, April 25, 2014), France stated that it “has given security assurance to all non-nuclear-weapon States that comply with their non-proliferation commitments.”

condition that its commitment does not “affect the right to self-defence as enshrined in Article 51 of the United Nations Charter.”¹²⁴ Russia maintains the unilateral NSA under which it will not use or threaten to use nuclear weapons against the NNWS parties to the NPT unless it or its allies are invaded or attacked by a NNWS in cooperation with a NWS.

Except under protocols to the nuclear-weapon-free zone (NWFZ) treaties, NWS have not provided legally-binding NSAs. At various fora, including the NPT review process, the CD and the UN General Assembly, NNWS, mainly the NAM states, urged NWS to provide legally-binding security assurances. At the 2017 NPT PrepCom, Iran proposed to adopt a separate “decision on negative security assurances” at the upcoming 2020 NPT RevCon, in which the Conference confirms that: all the NWS unequivocally undertake to refrain, under any and all circumstances and without discrimination or exception of any kind, from the use or threat of use of nuclear weapons against any NNWS party to the NPT; and all the NWS solemnly undertake to pursue negotiations on providing universal, legally binding, effective, unconditional, non-discriminatory and irrevocable security assurances to all NPT NNWS against the use or threat of use of nuclear weapons under all circumstances, within the CD, and bring them to a conclusion no later than 2023.¹²⁵ Among NWS, only China argues that the international community should negotiate and conclude at an early date an international legal instrument on providing unconditional NSAs. Meanwhile, France stated that it “considers [the] commitment [in its statement in April 1995] legally binding, and has so stated.”¹²⁶

As written in the previous *Hiroshima Reports*, while one of the purposes of the NSAs provided by NWS

to NNWS is to alleviate the imbalance of rights and obligations between NWS and NNWS under the NPT, India, Pakistan and North Korea also offered NSAs to NNWS. India declared that it would not use nuclear weapons against NNWS, except “in the event of a major attack against India, or Indian forces anywhere, by biological or chemical weapons, India will retain the option of retaliating with nuclear weapons.” Pakistan has declared an unconditional NSA. In addition, North Korea has stated an NSA to NNWS so long as they do not join nuclear weapons states in invading or attacking it.

D) Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones

The protocols to the nuclear-weapon-free zone (NWFZ) treaties include the provision of legally-binding NSAs. At the time of writing, only the Protocol of the Treaty for the Prohibition of Nuclear Weapons in Latin America and Caribbean (the Treaty of Tlatelolco) has been ratified by all NWS, as shown in Table 1-6 below. No new progress regarding additional ratifications by NWS has made in 2017. Among others, as for the Protocol to the Southeast Asian NWFZ Treaty, the five NWS have continued consultation with the state parties to the Treaty to resolve remaining differences, but they have yet to sign the Protocol.¹²⁷

Some NWS have stated reservations or added interpretations to the protocols of the NWFZ treaties when signing or ratifying them. NAM and NAC have called for the withdrawal of any related reservations or unilateral interpretative declarations that are incompatible with the object and purpose of such

[124] NPT/CONF.2015/10, March 12, 2015.

[125] NPT/CONF.2020/PC.I/WP.4, March 20, 2017.

[126] NPT/CONF.2015/PC.III/14, April 25, 2014.

[127] As mentioned in the *Hiroshima Report 2016*, both ASEAN member states and NWS implied that they continued consultations over possible reservations by NWS.

treaties.¹²⁸ However, it seems unlikely that NWS will accept such a request. Upon ratification of the Protocol to the CANWFZ Treaty, for example, Russia made a reservation of providing its NSA in the event of an armed attack against Russia by a state party to the Treaty jointly with a state possessing nuclear weapons. Russia also “reserves the right not to

consider itself bound by the Protocol, if any party to the Treaty ‘allows foreign military vessels and aircraft with nuclear weapons or other nuclear explosive devices aboard to call at its ports and landing at its aerodromes, or any other form of transit of nuclear weapons or other nuclear explosive devices through its territory.’”¹²⁹

Table 1-6: The status of signature and ratification of protocols to NWFZ treaties on NSAs

	China	France	Russia	U.K.	U.S.
Treaty of Tlatelolco	○	○	○	○	○
Treaty of Rarotonga	○	○	○	○	△
Southeast Asian NWFZ (SEANWFZ) Treaty					
Treaty of Pelindaba	○	○	○	○	△
Central Asia NWFZ (CANWFZ) Treaty	○	○	○	○	△

[○: Ratified △: Signed]

E) Relying on extended nuclear deterrence

The United States and its allies, including NATO countries, Australia, Japan and South Korea, maintained their respective policies on extended nuclear deterrence. Currently, the United States deploys approximately 150 B-61 nuclear gravity bombs in five NATO countries (Belgium, Germany, Italy, the Netherlands and Turkey), and thus maintains nuclear sharing arrangements with them, including supported by NATO’s Nuclear Planning Group. While no U.S. nuclear weapon is deployed outside of American territory, except in the European NATO countries mentioned above, the United States

established consultative mechanisms on extended deterrence with Japan and South Korea. In 2017, as the security environment has deteriorated in Europe and Asia, each alliance has sought to strengthen the reliability of extended (nuclear) deterrence. However, there were few concrete changes in their policies on extended nuclear deterrence.

In the meantime, faced with North Korea’s rapid nuclear development, it was reported that “a senior national security aide to then-President Park Geun-hye raised the issue of redeploying American nuclear weapons with a U.S. National Security Council staff member, only to be turned down” in October 2016.¹³⁰

[128] NPT/CONF.2015/WP.4, March 9, 2015. See also the UNSCR regarding the Tlatelolco Treaty (A/RES/71/27, December 5, 2016).

[129] “Putin Submits Protocol to Treaty on Nuclear-Free Zone in Central Asia for Ratification,” *Tass*, March 12, 2015, <http://tass.ru/en/russia/782424>.

[130] Hiroshi Minegishi, “South Korea Leaves Door Open to US Nuclear Weapons,” *Nikkei Asia Review*, September 12, 2017, <https://asia.nikkei.com/Spotlight/North-Korea-crisis/South-Korea-leaves-door-open-to-US-nuclear-weapons>.

U.S. Secretary of Defense Jim Mattis acknowledged that he and South Korea's Defense Minister Song Young-moo discussed reintroduction of U.S. tactical nuclear weapons on the Korean Peninsula in August 2017,¹³¹ but there was no indication that the US has any intention to do this. South Korean President Moon Jae-in stated in September 2017: "I do not agree that South Korea needs to develop our own nuclear weapons or relocate tactical nuclear weapons."¹³²

Japan has denied any intention to review its Three Non-Nuclear Policy (not possessing, not producing and not permitting the introduction of nuclear weapons, in line with Japan's Peace Constitution), including contemplating a possibility of deploying U.S. nuclear weapons in Japan's territory.

On the matter of the NATO nuclear sharing arrangement, especially the U.S. deployment of its tactical nuclear weapons in five NATO countries, some NNWS criticize this situation as a clear violation of non-proliferation obligations under Article I of the NPT by those transferor NWS and under Article II by those recipient NNWS.¹³³ Russia and China have called on NATO to withdraw the U.S. tactical nuclear weapons from the European NATO countries, and to end the nuclear sharing policy.

(6) DE-ALERTING OR MEASURES FOR MAXIMIZING DECISION TIME TO AUTHORIZE THE USE OF NUCLEAR WEAPONS

In 2017, there were no significant changes in nuclear-armed states' policies on alert and/or operational status of their respective nuclear forces.¹³⁴ Russian and U.S. strategic ballistic missiles have been on high alert status,¹³⁵ either launch on warning (LOW) or launch under attack (LUA). Forty U.K. nuclear warheads and 80 French ones are also kept on alert under their continuous SSBN patrols, albeit at lower readiness levels than those of the two nuclear superpowers.¹³⁶ It is assumed that China's nuclear forces are not on a hair-trigger alert posture because it keeps nuclear warheads de-mated from delivery vehicles.¹³⁷ There is little definitive information regarding the alert status of other nuclear-armed states' nuclear forces. In February 2014, Pakistan stated that it "would not delegate advance authority over nuclear arms to unit commanders, even in the event of crisis with India, [... and] all weapons are under the central control of the National Command Authority, which is headed by the prime minister."¹³⁸ It is widely considered that India's nuclear forces are not on a high alert status.

A number of NNWS have urged the NWS to alter their

[131] Dan Lamothe, "Pentagon Chief Says He Was Asked About Reintroducing Tactical Nuclear Weapons in South Korea," *Washington Post*, September 18, 2017, <https://www.washingtonpost.com/news/checkpoint/wp/2017/09/18/pentagon-chief-says-he-was-asked-about-reintroducing-tactical-nuclear-weapons-in-south-korea/>.

[132] "President Moon Rules Out Deployment of Nuclear Weapons in South Korea," *NK News*, September 14, <https://www.nknews.org/2017/09/president-moon-rules-out-deployment-of-nuclear-weapons-in-south/?c=1505385412246>.

[133] "Statement by Iran," Cluster 1, First Session of the Preparatory Committee for the 2020 NPT Review Conference, May 5, 2017; "Statement by Egypt," Cluster 1, First Session of the Preparatory Committee for the 2020 NPT Review Conference, May 5, 2017.

[134] See also the *Hiroshima Report 2017*.

[135] Hans M. Kristensen, "Reducing Alert Rates of Nuclear Weapons," Presentation to NPT PrepCom Side Event, Geneva, April 24, 2013; Hans M. Kristensen and Matthew McKinzie, "Reducing Alert Rates of Nuclear Weapons," United Nations Institute for Disarmament Research, 2012.

[136] See Kristensen, "Reducing Alert Rates of Nuclear Weapons"; Kristensen and McKinzie, "Reducing Alert Rates of Nuclear Weapons."

[137] On the other hand, it has also been pointed out that China may be going to take a higher alert posture along with deployment of new SSBNs and MIRVed ICBMs.

[138] Elaine M. Grossman, "Pakistani Leaders to Retain Nuclear-Arms Authority in Crises: Senior Official," *Global Security Newswire*, February 27, 2014, <http://www.nti.org/gsn/article/pakistani-leaders-retain-nuclear-arms-authority-crises-senior-official/>.

alert posture. Among them, Chile, Malaysia, Nigeria, New Zealand and Switzerland, as the “De-alerting Group,” proactively proposed to reduce alert levels. At the 2017 NPT PrepCom, the Group urged the NWS to urgently implement “previously agreed commitments on de-alerting [sic] and take steps to rapidly reduce operational readiness—unilaterally, bilaterally or otherwise.”¹³⁹

Proponents of de-alerting have often argued that such measures are useful to prevent accidental use of nuclear weapons.¹⁴⁰ On the other hand, NWS emphasize that they have taken adequate measures for preventing accidental use, and express confidence regarding the safety and effective control of their nuclear arsenals.¹⁴¹ Besides, India and Pakistan extended their bilateral Agreement on Reducing the Risk of Accidents Relating to Nuclear Weapons in February 2017. Pakistan, which values SRBM forces for deterrence vis-à-vis India, emphasizes that its nuclear weapons and fissile material are unlikely to fall under the control of any extremist element since their nuclear arsenals are under robust, safe and complete civilian command-and-control system through the Nuclear Command Authority (NCA).¹⁴²

In November 2017, the U.S. Senate Foreign Relations Committee held a hearing on the matter of presidential authority to order the use of nuclear weapons. It was

confirmed that the U.S. President has the authority to defend the country in accordance with the U.S. Constitution when the United States suffers actual or imminent nuclear attacks. Interestingly, former Commander of the U.S. Strategic Command Robert Kehler testified that “the United States military doesn’t blindly follow orders. A presidential order to employ U.S. nuclear weapons must be legal... The basic legal principles of military necessity, distinction, and proportionality apply to nuclear weapons just as they do to every other weapon.”¹⁴³ In addition, Commander of the U.S. Strategic Command John E. Hyten stated separately that he would resist any “illegal” presidential order to launch a strike and present alternatives.¹⁴⁴

(7) CTBT

A) Signing and ratifying the CTBT

As of December 2017, 166 of the 183 signatories have deposited their instruments of ratification of the Comprehensive Nuclear-Test-Ban Treaty (CTBT). No countries newly signed or ratified it in 2017. Among the 44 states listed in Annex 2 of the CTBT, whose ratification is a prerequisite for the treaty’s entry into force, five states (China, Egypt, Iran, Israel and the United States) have signed but not ratified, and three

[139] “Statement by Sweden on Behalf of the De-alerting Group,” Cluster 1, First Session of the Preparatory Committee for the 2020 NPT Review Conference, May 4, 2017.

[140] For example, Patricia Lewis, et.al., published a report, in which they studied 13 cases of inadvertent near misuse of nuclear weapons, and concluded, *inter alia*, that “the world has, indeed, been lucky.” They argue, “For as long as nuclear weapons exist, the risk of an inadvertent, accidental or deliberate detonation remains. Until their elimination, vigilance and prudent decision-making in nuclear policies are therefore of the utmost priority. Responses that policy-makers and the military should consider include buying time for decision-making, particularly in crises; developing trust and confidence-building measures; refraining from large-scale military exercises during times of heightened tension; involving a wider set of decision-makers in times of crisis; and improving awareness and training on the effects of nuclear weapons.” Patricia Lewis, Heather Williams, Benoît Pelopidas and Sasan Aghlani, “Too Close for Comfort: Cases of Near Nuclear Use and Options for Policy,” *Chatham House Report*, April 2014.

[141] See the *Hiroshima Report 2017*.

[142] “Short-Range Nuclear Weapons to Counter India’s Cold Start Doctrine: Pakistan PM,” *Live Mint*, September 21, 2017, <http://www.livemint.com/Politics/z8zop6Ytu4bPiksPMLW49L/Shortrange-nuclear-weapons-to-counter-Indias-cold-start-do.html>.

[143] U.S. Senate Foreign Relations Committee, “Authority to Order the Use of Nuclear Weapons,” November 14, 2017, <https://www.foreign.senate.gov/hearings/authority-to-order-the-use-of-nuclear-weapons-111417>.

[144] Rob Crilly, “US Nuclear Commander Would Resist ‘Illegal’ Presidential Order for Strike,” *Telegraph*, November 18, 2017, <http://www.telegraph.co.uk/news/2017/11/18/us-nuclear-commander-would-resist-illegal-order-strike/>.

(India, North Korea and Pakistan) have not even signed. Among the countries surveyed, Saudi Arabia and Syria, have not signed the CTBT either.

As for efforts to promote CTBT entry into force during 2017, the 10th Conference on Facilitating Entry into Force of the CTBT, or Article XIV Conference, was held on September 20. Participating countries adopted the Final Declaration, in which they, inter alia: condemned in the strongest terms the nuclear tests conducted by North Korea; urged holdouts to sign and ratify the CTBT without further delay; and called on maintaining the moratorium on nuclear weapons test explosions.¹⁴⁵ Prior to this conference, as Co-Coordination of the Article XIV process on facilitating entry into force of the CTBT, Japanese and Kazakhstani Foreign Ministers, together with the Executive Secretary of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), issued the Joint Appeal for revitalizing efforts for early entry into force of the treaty.¹⁴⁶ In addition, the NPDI proposed at the 2017 NPT PrepCom that “[i]n order to support defusing regional tensions, regionally coordinated ratifications [of the CTBT] could be considered.”¹⁴⁷

As for outreach activities for promoting the Treaty’s entry into force, a document, “Activities Undertaken by Signatory and Ratifying States Under Measure (K) of the Final Declaration of the 2015 Article XIV Conference in the Period June 2015-May 2017,”¹⁴⁸ distributed at the Article XIV Conference, summarized activities conducted by ratifying and signatory states. It highlighted:

- Bilateral activities related to Annex 2 states

(conducted by Australia, Austria, Belgium, Brazil, Canada, France, Japan, Mexico, New Zealand, Russia, Turkey, UAE, the U.K. and others);

- Bilateral activities related to non-Annex 2 states (conducted by Australia, Austria, Belgium, Brazil, Canada, France, Japan, Mexico, New Zealand, Russia, Turkey, the U.K. and others);
- Global-level activities (conducted by Australia, Belgium, Brazil, Canada, France, Japan, Mexico, New Zealand, Russia, Turkey, UAE, the U.K., the U.S. and others); and
- Regional-level activities (conducted by Australia, Belgium, Brazil, Canada, France, Japan, Mexico, New Zealand, Turkey, UAE and others).

B) Moratoria on nuclear test explosions pending CTBT’s entry into force

The five NWS plus India and Pakistan maintain a moratorium on nuclear test explosions. Israel, which has kept its nuclear policy opaque, has not disclosed the possibility of conducting nuclear tests.

Despite a prohibition of nuclear testing by North Korea under repeated UNSC resolutions, it refuses to declare a moratorium; instead, the North conducted a nuclear test in 2017, as detailed in section E.

C) Cooperation with the CTBTO Preparatory Commission

Regarding the countries surveyed in this study, the

[145] CTBT-Art.XIV/2017/WP.1, September 20, 2017.

[146] “Joint Appeal by Mr. FUMIO KISHIDA, Minister for Foreign Affairs of Japan, Mr. KAIRAT ABDRAKHMANOV, Minister for Foreign Affairs of Kazakhstan and Dr. LASSINA ZERBO, Executive Secretary of the CTBTO PrepCom,” May 2, 2017, https://www.ctbto.org/fileadmin/user_upload/statements/2017/02052017_CTBTTO_Japan_Kazakhstan_JointAppeal.pdf.

[147] NPT/CONF.2020/PC.I/WP.3, March 17, 2017.

[148] CTBT-Art.XIV/2017/4, September 14, 2017.

status of payments of contributions to the CTBTO, as of 2017, is as follows.¹⁴⁹

- Fully paid: Australia, Austria, Belgium, Canada, Chile, China, Egypt, France, Germany, Indonesia, Israel, Japan, Kazakhstan, South Korea, the Netherlands, New Zealand, Norway, Philippines, Poland, Russia, South Africa, Sweden, Switzerland, Turkey, UAE and the U.K.
- Partially paid: Mexico and the U.S.
- Voting right in the Preparatory Commission suspended because arrears are equal to or larger than its contributions due for the last two years: Brazil, Iran and Nigeria

The U.S. National Defense Authorization Act limits funding for the CTBTO, and declares that UN Security Council Resolution 2310 adopted in September 2016 does not “obligate...nor does it impose an obligation on the United States to refrain from actions that would run counter to the object and purpose” of the CTBT. Furthermore, its explanatory statement states that “it is wholly inappropriate for U.S. funds to support activities of the [CTBTO] that include advocating for ratification of the treaty or otherwise preparing for the treaty’s possible entry into force.”¹⁵⁰

D) Contribution to the development of the CTBT verification systems

The establishment of the CTBT verification system has steadily progressed. When North Korea conducted

a nuclear test in 2017, the International Monitoring System (IMS) detected unusual seismic events.

However, the pace of establishing the International Monitoring System (IMS) stations in China, Egypt and Iran—in addition to those of India, North Korea, Pakistan and Saudi Arabia which have yet to sign the CTBT—has been lagging behind, compared to that in the other signatory countries.¹⁵¹ Regarding China, however, one Radionuclide Station started to operate in December 2016 and another Radionuclide Station was certified in 2017.

In February 2017, Japan announced a voluntary contribution of \$2.43 million to the CTBTO “to further boost its verification abilities to detect nuclear explosions anywhere on the planet.” The funding is to be used especially to procure and deploy a mobile noble gas detection system (\$1.64 million),¹⁵² which will be installed in the northern part of Japan for the first two years.

E) Nuclear testing

After conducting two nuclear tests in 2016, North Korea continued activities which appeared to be in preparation for a further nuclear test.¹⁵³ Indeed, it conducted its sixth underground nuclear test on September 3, 2017. The IMS of the CTBTO measured 6.0 magnitude. As noted above, the explosive yield of this test far exceeded that of North Korea’s previous nuclear tests.¹⁵⁴ On the same day of the test, North Korea announced that it successfully carried out a test

[149] CTBTO, “CTBTO Member States’ Payment as at 31-Dec-2017,” https://www.ctbto.org/fileadmin/user_upload/treasury/52._31_Dec_2017_Member_States__Payments.pdf.

[150] Kingston Reif, “Hill Wants Development of Banned Missile,” *Arms Control Today*, Vol. 47, No. 10 (December 2017), p. 37.

[151] CTBTO, “Station Profiles,” <http://www.ctbto.org/verification-regime/station-profiles/>.

[152] “Japan Gives US\$ 2.43 Million to Boost Nuclear Test Detection,” CTBTO, February 23, 2017, <https://www.ctbto.org/press-centre/highlights/2017/japan-gives-us-243-million-to-boost-nuclear-test-detection/>.

[153] For instance, on excavation of underground tunnel at the nuclear test site, see Frank Pabian and David Coblentz, “North Korea’s Punggye-ri Nuclear Test Site: Analysis Reveals Its Potential for Additional Testing with Significantly Higher Yields,” *38 North*, March 10, 2017, <http://38north.org/2017/03/punggye031017/>.

[154] A large scale of this nuclear test caused numerous landslides throughout the Punggye-ri nuclear test site and beyond. See Frank V. Pabian, Joseph S. Bermudez Jr., and Jack Liu, “North Korea’s Sixth Nuclear Test: A First Look,” *38 North*, September 5, 2017, <http://www.38north.org/2017/09/punggye090517/>.

of a hydrogen bomb for ICBMs, “the explosive power of which is adjustable from tens kiloton to hundreds kiloton, is a multi-functional thermonuclear nuke with great destructive power which can be detonated even at high altitudes for super-powerful EMP attack according to strategic goals.”¹⁵⁵

Although North Korea repeatedly threatened to conduct a nuclear test in the Pacific Ocean, it did not do so in 2017. Meanwhile, it is reported to have continued tunnel work at the West Portal of the Punggye-ri Nuclear Test Site,¹⁵⁶ for its future nuclear tests.

Regarding experimental activities other than a nuclear explosion test, the United States continues to conduct various non-explosive tests and experiments under the Stockpile Stewardship Program (SSP), in order to sustain and assess its nuclear weapons stockpile without the use of underground nuclear tests, such as subcritical tests and experiments using the Z machine, which generates X-rays by fast discharge of capacitors, thus allowing for exploring the properties of plutonium materials under extreme pressures and temperatures. The U.S. National Nuclear Security Administration (NNSA), which is part of the U.S. Department of Energy, had released quarterly reports on such experiments, but as of December 2017 has not updated it since the first quarter of FY 2015.

France clarified that it has conducted “activities aimed at guaranteeing the safety and reliability of its nuclear weapons [including] a simulation program and hydrodynamic experiments designed to model materials’ performance under extreme physical conditions and, more broadly, the weapons’ functioning.”¹⁵⁷ However, no further detail was

reported. Meanwhile, France and the United Kingdom agreed to build and jointly operate radiographic and hydrodynamic testing facilities under the Teutates Treaty concluded in November 2010.¹⁵⁸ The status of the remaining nuclear-armed states’ non-explosive testing activities in this respect is not well-known since they do not release any information.

While the CTBT does not prohibit any nuclear test unaccompanied by an explosion, the NAM countries have demanded that nuclear-armed states, inter alia, refrain from conducting nuclear weapon test explosions or any other nuclear explosions, and to close and dismantle, in a transparent, irreversible and verifiable manner, any remaining sites for nuclear test explosions and their associated infrastructure.¹⁵⁹

(8) FMCT

A) Efforts toward commencing negotiations on an FMCT

In the “Decision 2: Principles and Objectives for Nuclear Non-Proliferation and Disarmament” adopted at the 1995 NPT Review and Extension Conference, participating countries agreed on “[t]he immediate commencement and early conclusion of negotiations on a non-discriminatory and universally applicable convention banning the production of fissile material for nuclear weapons or other nuclear explosive devices.” However, substantive negotiations have not yet commenced. The 2017 session of the CD again ended without adopting a program of work that included the establishment of an Ad Hoc Committee on a Fissile Material Cut-Off Treaty (FMCT) negotiation, due to Pakistan’s strong objection, as was the case

[155] “Kim Jong Un Gives Guidance to Nuclear Weaponization,” *KCNA*, September 3, 2017, <http://www.kcna.co.jp/item/2017/201709/news03/20170903-01ee.html>.

[156] Frank V. Pabian, Joseph S. Bermudez Jr. and Jack Liu, “North Korea’s Punggye-ri Nuclear Test Site: Tunneling at the West Portal,” *38 North*, December 11, 2017, <http://www.38north.org/2017/12/punggye121117/>.

[157] NPT/CONF.2015/PC.III/14, April 25, 2014.

[158] NPT/CONF.2015/29, April 22, 2015.

[159] NPT/CONF.2015/WP.7, March 9, 2015.

in previous years. Pakistan has insisted that not just newly produced material but also existing stockpiles of such materials should be subject to the scope of negotiations on a treaty. It also stated that Pakistan would oppose any negotiations unless it could get assurance that India brings its entire civilian nuclear program under the IAEA safeguards.¹⁶⁰

China expresses support for the commencement of negotiations on an FMCT prohibiting the future production of fissile material for nuclear weapons, but it does so less actively than the other NWS. Israel has a similar posture. China has stated that it supports “the start by the Conference on Disarmament of substantive work, in a comprehensive and balanced manner, on such important topics as nuclear disarmament, security assurances to non-nuclear-weapon States, a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices and prevention of an arms race in outer space.”¹⁶¹ This stance is different from those of France, the United Kingdom and the United States, which have insisted that the commencement of negotiations for an FMCT is a top priority at the CD.

For promoting a commencement of negotiations at the CD, various efforts and measures have been attempted. Among them, the 2016 UN General Assembly decided to establish a High-Level FMCT Expert Preparatory Group, “to consider and make recommendations on substantial elements of a future non-discriminatory, multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons

or other nuclear explosive devices, on the basis of CD/1299 and the mandate contained therein.” The Group, consisting of experts from 25 countries,¹⁶² was scheduled to convene two-week meetings in 2017 and 2018, respectively.¹⁶³ Its first meeting was held in Geneva in July-August 2017, and participating experts discussed the treaty’s scope, definitions, verification, and legal and institutional arrangements.

Pakistan refused to participate in the Group. At the Informal Consultative Meeting by the Chairperson of the High-level FMCT Expert Preparatory Group in March 2017, Pakistan argued that it could not join any discussion, pre-negotiation, negotiation or preparatory work on the basis of the Shannon Mandate: that is, considering a treaty which only prohibits future production and leaves the existing stocks untouched. Pakistan also argued that: the CD’s role should not be undermined through UNGA-led non-universal processes that are divisive and not agreed by consensus; the discussion mandate assigned to the Expert Group can be fulfilled in the CD; the Group cannot address the underlying security concerns that are preventing the CD from reaching consensus on a balanced and comprehensive Programme of Work; and even if the selected 25 members of the Expert Group succeed in garnering consensus among themselves on a treaty related issue, it would not be binding on those states that are not represented in the Group.¹⁶⁴

[160] “Pakistan Wants India’s Entire Nuclear Programme under IAEA Safeguards,” *Nation*, February 6, 2017, <http://nation.com.pk/06-Feb-2017/pakistan-wants-india-s-entire-nuclear-programme-under-iaea-safeguards>.

[161] NPT/CONF.2015/32, April 27, 2015.

[162] Algeria, Argentina, Australia, Brazil, Canada, China, Colombia, Egypt, Estonia, France, Germany, India, Indonesia, Japan, Mexico, Morocco, Netherlands, Poland, South Korea, Russia, Senegal, South Africa, Sweden, the U.K. and the U.S.

[163] “High Level Fissile Material Cut-off Treaty (FMCT) Expert Preparatory Group,” United Nations Office at Geneva, July 28, 2017, [https://www.unog.ch/80256EE600585943/\(httpPages\)/B8A3B48A3FB7185EC1257B280045DBE3?OpenDocument](https://www.unog.ch/80256EE600585943/(httpPages)/B8A3B48A3FB7185EC1257B280045DBE3?OpenDocument).

[164] “General Statement by Pakistan,” Informal Consultative Meeting by the Chairperson of the High-level FMCT Expert Preparatory Group, New York, March 2-3, 2017, [https://www.unog.ch/80256EDD006B8954/\(httpAssets\)/BBA938B952963392C12580DC0046E8Co/\\$file/Pakistan+Statement-GENERAL-FMCT++++Informals-NY-March2017.pdf](https://www.unog.ch/80256EDD006B8954/(httpAssets)/BBA938B952963392C12580DC0046E8Co/$file/Pakistan+Statement-GENERAL-FMCT++++Informals-NY-March2017.pdf).

B) Moratoria on production of fissile material for nuclear weapons

Among nuclear-armed states, China, India, Israel, Pakistan and North Korea have not declared a moratorium on the production of fissile material for nuclear weapons. India, Pakistan and North Korea are highly likely to continue producing fissile material for nuclear weapons and expanding production capabilities.¹⁶⁵ China is widely considered not to be producing fissile material for nuclear weapons currently.¹⁶⁶

None of the nuclear-armed states have declared the amount of fissile material for nuclear weapons which they possess (except the U.S. declassifying the amount of its past production of HEU and plutonium). Estimates by research institutes are summarized in Chapter 3 of this Report.

(9) TRANSPARENCY IN NUCLEAR FORCES, FISSILE MATERIAL FOR NUCLEAR WEAPONS, AND NUCLEAR STRATEGY/DOCTRINE

In the Final Document of the 2010 NPT RevCon, the NWS were called upon to report on actions taken toward “accelerat[ion of] concrete progress on the steps leading to nuclear disarmament” to the 2014 PrepCom (Action 5). All states parties to the NPT, including the NWS, were also requested to submit regular reports on implementing nuclear disarmament measures agreed at the previous RevCon (Action 20), and the NWS were asked to agree on a standard reporting form, as a confidence-building measure (Action 21).

In accordance with these recommendations, the NWS submitted their respective reports on implementation of the NPT’s three pillars (nuclear disarmament, non-proliferation and peaceful use of nuclear energy) to the 2014 NPT PrepCom and the 2015 RevCon, using a common framework, themes and categories. No similar report was submitted by any NWS to the 2017 NPT PrepCom, however; only seven NNWS (Australia, Austria, Canada, Iran, Japan, New Zealand, and Poland) submitted their respective reports on implementation on the NPT.

At the 2017 NPT PrepCom, there were some proposals for improving transparency through regular reporting by the NPT states parties, especially the NWS, to the NPT review process. For instance, the NAC proposed that NWS “should renew their commitment to regularly submit accurate, up-to-date, complete and comparable reports on the implementation of their Treaty obligations and commitments relating to nuclear disarmament,” *inter alia*: number, type and status of nuclear warheads and their delivery vehicles; measures taken to reduce the role and significance of nuclear weapons, and their risks; and amount of fissile material produced for military purposes. The NAC also called on countries that maintain a role for nuclear weapons in their military and security concepts, doctrines and policies for providing information on measures taken to reduce the role and significance of nuclear weapons, and number, type (strategic or non-strategic) and status (deployed or non-deployed, and alert status) of nuclear warheads within their territories. In addition, the NAC sought to discuss options to improve the measurability of the implementation of nuclear disarmament obligations and commitments, such as a set of benchmarks or similar criteria.¹⁶⁷

[165] See the *Hiroshima Report 2017*.

[166] See, for instance, Hui Zhang, “China’s Fissile Material Production and Stockpile,” *Research Report*, International Panel on Fissile Materials, No. 17 (2017).

[167] NPT/CONF.2020/PC.I/WP.13, March 24, 2017.

The NPDI submitted a working paper “Transparency of Nuclear Weapons” to the 2017 NPT PrepCom, which included a new draft form for standard nuclear disarmament reporting based on 64 Actions agreed at the 2010 NPT RevCon. The NPDI also “remind[ed] the nuclear-weapon States of their commitments contained in the action plan of 2010, and further encourage[d] the regular submission of transparency reports by these States during the 2020 review cycle.”¹⁶⁸ Previously, at the 2012 NPT PrepCom, the NPDI proposed a draft form for reporting on nuclear warheads, delivery vehicles, fissile material for nuclear weapons, and nuclear strategy/policies.¹⁶⁹ Using the draft form, the following table summarizes the degree of transparency taken by the nuclear-armed states.

[168] NPT/CONF.2020/PC.I/WP.17, March 19, 2017.

[169] NPT/CONF.2015/PC.I/WP.12, April 20, 2012.

Table 1-7: Transparency in nuclear disarmament

	CHN	FRA	RUS	UK	US	IND	ISR	PAK	PRK
Nuclear warheads									
Total number of nuclear warheads (including those awaiting dismantlement)		○							
Aggregate number of nuclear warheads in stockpile		○		○	○				
Number of strategic or non-strategic nuclear warheads		○	△	○	△				
Number of strategic or non-strategic deployed nuclear warheads		○	△	○	△				
Number of strategic or non-strategic non-deployed nuclear warheads		○		○	△				
Reductions (in numbers) of nuclear warheads in 2017			○	○	○				
Aggregate number of nuclear warheads dismantled in 2017									
Delivery vehicles									
Number of nuclear warhead delivery systems by type (missiles, aircraft, submarines, artillery, other)		○	△	○	○				
Reduction (in numbers) of delivery systems in 2017			○		○				
Aggregate number of delivery systems dismantled in 2017									
Nuclear disarmament since 1995									
1995-2000		○	○	○	○				
2000-2005		○	○	○	○				
2005-2010		○	○	○	○				
2010-2017		○	○	○	○				
Nuclear doctrine									
Measures taken or in process to diminish the role and significance of nuclear weapons in military and security concepts, doctrines and policies	○	○	○	○	○	○		○	
Measures taken or in process to reduce the operational readiness of the reporting State's nuclear arsenal	○	○	○	○	○	○		○	
Measures taken or in process to reduce the risk of accidental or unauthorized use of nuclear weapons	○	○	○	○	○	○		○	
Description of negative security assurances (including status and definition) by reporting States	○	○	○	○	○	○		○	○
Current status and future prospect of the ratification of the relevant protocols to nuclear-weapon-free-zone treaties	○	○	○	○	○	-	-	-	-
Current status of consultations and cooperation on entry into force of the relevant protocols of nuclear-weapon-free-zone treaties	○	○	○	○	○	-	-	-	-
Current status of review of any related reservations about the relevant protocols of nuclear-weapon-free-zone treaties by concerned States						-	-	-	-
Nuclear testing									
Current status of ratification of the Comprehensive Nuclear-Test-Ban Treaty	△	○	○	○	△		△		
Current status of the reporting State's policy on continued adherence to the moratorium on nuclear-weapon test explosions	○	○	○	○	○	○		○	
Activities to promote the entry into force of the Comprehensive Nuclear-Test-Ban Treaty at the national, regional and global levels		○		○	○				
Scheduled policy reviews									
Scope and focus of policy reviews, scheduled or under way, relating to nuclear weapon stocks, nuclear doctrine or nuclear posture				○	○				
Fissile material									
Aggregate amount of plutonium produced for national security purposes (in metric tons)				○	○				
Aggregate amount of HEU produced for national security purposes (in metric tons)				○	○				
Amount of fissile material declared excess for national security purposes (in metric tons)			△		△				
Current status (and any future plan), including the amount and year, of declarations to the International Atomic Energy Agency of all fissile material designated by the reporting State as no longer required for military purposes and placement of such material under Agency or other relevant international verification and arrangements for the disposition of such material for peaceful purposes		○	△	○	△				
Current status of the development of appropriate legally binding verification arrangements to ensure the irreversible removal of such fissile material			△	△	△				
Current status (and any future plan) of the dismantlement or conversion for peaceful uses of facilities for the production of fissile material for use in nuclear weapons		○							
Other measures in support of nuclear disarmament									
Any cooperation among Governments, the United Nations and civil society aimed at increasing confidence, improving transparency and developing efficient verification capabilities		○		○	○				
Year and official document symbol of regular reports on the implementation of Article VI, paragraph 4(C), of the 1995 decision entitled "Principles and objectives for nuclear non-proliferation and disarmament," and the practical steps agreed to in the Final Document of the 2000 Review Conference in 2017									
Activities to promote disarmament and non-proliferation education		○		○	○				

[○: Highly transparent △: Partially transparent]

(10) VERIFICATIONS OF NUCLEAR WEAPONS REDUCTIONS

Russia and the United States have implemented verification measures, including on-site inspections, under the New START.

One of the noticeable activities on verification is the “International Partnership for Nuclear Disarmament Verification (IPNDV),” launched by the United States in December 2014. With 26 participating countries (and the EU and Vatican),¹⁷⁰ the IPNDV continues to study verification measures and technologies on dismantlement of nuclear weapons, as well as fissile material derived from dismantled nuclear warheads. In November-December 2017, its fifth plenary meeting was held in Buenos Aires, where 22 participating countries discussed the completion of Phase I of the Partnership’s work, as well as launching Phase II. According to the fact sheet issued by the U.S. State Department, “[d]uring the initial two-year phase of the Partnership’s work, the working groups have focused on the dismantlement phase of the nuclear weapons lifecycle. In this context, the Partnership developed a scenario involving the dismantlement of a notional nuclear weapon, the inspection of that dismantlement by a multilateral team of inspectors, and the related technologies that could support such an inspection. This scenario has allowed the three working groups to coordinate their efforts and develop common understandings of the challenges and potential solutions associated with nuclear disarmament verification.”¹⁷¹ The

IPNDV, in its summary report, identified several specific verification areas for additional analysis as following:¹⁷²

- Declarations, including within the wider nuclear disarmament process and as complements to more specific monitoring and inspection of nuclear weapon dismantlement;
- Data handling requirements across the inspection process;
- Information barrier technologies;
- Technologies enabling measurements of Special Nuclear Material (SNM) and High Explosives (HE), as well as the development of nuclear weapon templates; and
- Testing and exercising potentially promising technologies and procedures.

For Phase II, the IPNDV will deepen its understanding of effective and practical verification options to support future nuclear disarmament verification and demonstrate its work through tangible activities such as exercises and demonstrations. For these purposes, the following three working group will be established: Verification of Nuclear Weapons Declarations; Verification of Reductions; and Technologies for Verification.¹⁷³

Regarding nuclear disarmament verification measures, the respective U.K.-U.S. and U.K.-Norway joint developments were carried out.¹⁷⁴ In addition, some NNWS call for the involvement of the IAEA regarding, for instance, development and conclusion of legally binding verification arrangements, which

[170] The participating countries include three NWS (France, the United Kingdom and the United States), Australia, Belgium, Brazil, Canada, Chile, Germany, Indonesia, Japan, Kazakhstan, Mexico, the Netherlands, Norway, Philippines, Poland, South Korea, Sweden, Switzerland, Turkey and UAE. China and Russia participated in the Phase I of the project as observers, but do not join the Phase II.

[171] The U.S. Department of State, “The International Partnership for Nuclear Disarmament Verification: Phase I,” December 8, 2017, <https://www.state.gov/t/avc/rls/2017/276402.htm>.

[172] International Partnership for Nuclear Disarmament Verification, “Phase I Summary Report: Creating the Verification Building Blocks for Future Nuclear Disarmament,” November 2017, p. 4.

[173] The U.S. Department of State, “The International Partnership for Nuclear Disarmament Verification: Phase II,” December 8, 2017, <https://www.state.gov/t/avc/rls/2017/276403.htm>.

[174] See the *Hiroshima Report 2017*.

would apply to all fissile material permanently removed from nuclear weapons programs.¹⁷⁵

In the meantime, Article 4 of the TPNW stipulates procedures regarding verifications of nuclear weapons elimination as following

- Each State Party that after 7 July 2017 owned, possessed or controlled nuclear weapons or other nuclear explosive devices and eliminated its nuclear-weapon programme, including the elimination or irreversible conversion of all nuclear-weapons-related facilities, prior to the entry into force of this Treaty for it, shall cooperate with the competent international authority designated pursuant to paragraph 6 of this Article for the purpose of verifying the irreversible elimination of its nuclear-weapon programme...Such a State Party shall conclude a safeguards agreement with the International Atomic Energy Agency sufficient to provide credible assurance of the non-diversion of declared nuclear material from peaceful nuclear activities and of the absence of undeclared nuclear material or activities in that State Party as a whole.
- [E]ach State Party that owns, possesses or controls nuclear weapons or other nuclear explosive devices shall immediately remove them from operational status, and destroy them as soon as possible but not later than a deadline to be determined by the first meeting of States Parties, in accordance with a legally binding, time-bound plan for the verified and irreversible elimination of that State Party's nuclear-weapon programme, including the elimination or irreversible conversion of all nuclear-weapons-related facilities. The State Party, no later than 60 days after the entry into force of this Treaty for that State Party, shall submit this plan to the States Parties

or to a competent international authority designated by the States Parties. The plan shall then be negotiated with the competent international authority, which shall submit it to the subsequent meeting of States Parties or review conference, whichever comes first, for approval in accordance with its rules of procedure.

(11) IRREVERSIBILITY

A) Implementing or planning dismantlement of nuclear warheads and their delivery vehicles

Just like their previous nuclear arms control agreements, the New START obliges Russia and the United States to dismantle or convert strategic (nuclear) delivery vehicles beyond the limits set in the Treaty, in a verifiable way. The New START does not stipulate to dismantle nuclear warheads, but the two states have partially dismantled retired nuclear warheads as unilateral measures.

Neither country has provided comprehensive information regarding the dismantlement of nuclear warheads, including the exact numbers of dismantled warheads. While the United States has publicized some information under the previous administration,¹⁷⁶ related, updated information has not been made available by the Trump administration. In May 2017, "the Republican-controlled Congress voted...to prevent the National Nuclear Security Administration (NNSA) from implementing the former administration's proposal to accelerate the rate of dismantlement of retired nuclear warheads. Congress approved \$56 million for nuclear warhead dismantlement and disposition activities, a reduction of \$13 million, or 19 percent, from the Obama

[175] See the *Hiroshima Report 2017*.

[176] See the *Hiroshima Report 2017*.

administration’s proposal of \$69 million in its final budget request.”¹⁷⁷

Other NWS did not provide any new or updated

information regarding the elimination of their nuclear weapons in 2017, though France and the United Kingdom do continue to dismantle their retired nuclear warheads and delivery vehicles.

Table 1-8: U.S. nuclear weapons stockpile and warhead dismantlement

	2009	2010	2011	2012	2013	2014	2015	2016
Number of nuclear weapons stockpile*	5,113	5,066	4,897	4,881	4,804	4,717	4,571	4,018
Number of dismantlement		352	305	308	239	299	146	553

*Does not include weapons retired and awaiting dismantlement.

Sources: U.S. Department of State, “Transparency in the U.S. Nuclear Weapons Stockpile,” Fact Sheet, April 29, 2014, <https://2009-2017.state.gov/t/avc/rls/225343.htm>; NPT/CONF.2015/38, May 1, 2015; John Kerry, “Remarks at the 2015 Nuclear Nonproliferation Treaty Review Conference,” New York, April 27, 2015, <http://www.state.gov/secretary/remarks/2015/04/241175.htm>; http://open.defense.gov/Portals/23/Documents/frddwg/2015_Tables_UNCLASS.pdf; “Remarks by the Vice President on Nuclear Security,” Washington, DC., January 11, 2017, <https://obamawhitehouse.archives.gov/the-press-office/2017/01/12/remarks-vice-president-nuclear-security>.

B) Decommissioning/conversion of nuclear weapons-related facilities

Few remarkable activities or progress were reported in 2017 in terms of decommissioning or conversion of nuclear weapons-related facilities.¹⁷⁸

In 1996, France became the only country to decide to completely and irreversibly dismantle its nuclear test sites. They were fully decommissioned in 1998.¹⁷⁹

C) Measures for fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes

In October 2016, Russian President Putin ordered the Presidential Decree on suspending implementation of the Russian-U.S. Plutonium Management and Disposition Agreement (PMDA)¹⁸⁰, which entered into force in July 2011. The United States argued in its report on implementation of arms control and nonproliferation, published in April 2017: “Although there is no indication the Russian Federation (Russia) violated its obligations under the PMDA, Russia’s October 2016 announcement of a decision to ‘suspend’ the PMDA raises concerns

[177] Kingston Reif, “Congress Limits Warheads Dismantlement,” *Arms Control Today*, Vol. 47, No. 5 (June 2017), p. 31.

[178] On activities or progress before 2017, see the *Hiroshima Report 2017*.

[179] NPT/CONF.2015/10, March 12, 2015.

[180] Under the agreement, each country is to dispose no less than 34 metric tons of weapon-grade plutonium removed from their respective defense programs by irradiating it as MOX in existing light-water reactors fuel.

regarding its future adherence to obligations under this Agreement.”¹⁸¹ On the other hand, Russia refuted that the report’s finding “does not correspond to reality” because Russia only suspended the PMDA in response to U.S. “hostile actions toward Russia” and a “radical change of circumstances”¹⁸² since the agreement was signed in 2000.

The Trump administration, like its predecessor, has sought to end construction of the mixed-oxide (MOX) fuel fabrication Facility (MFFF) at the Savannah River Site in South Carolina,¹⁸³ and to pursue the dilution and disposal approach, due to increasing cost and delaying schedule of the MFFF’s construction. However, the Congress has not approved this approach, and allocated a budget for the construction of the MFFF. It also indicates several conditions on accepting such an approach, including that: the cost of the dilute and dispose option be less than approximately half of the estimated remaining lifecycle cost of the mixed-oxide fuel program; the Secretary of Energy must provide the details of any statutory or regulatory changes necessary to complete the option; and that a “sustainable future” is established for the Savannah River Site.¹⁸⁴

In the meantime, the United States has stated on several occasions, including the NPT Review Process, that it has made significant reductions in its military stocks of fissile material. At the 2017 NPT PrepCom, the United States clarified:

Out of the 95.4 metric tons of plutonium in the U.S. plutonium stockpile most recently reported in 2009, the United States has

declared 61.5 metric tons excess to U.S. defense needs. Out of 686 metric tons in the U.S. stockpile of highly enriched uranium most recently reported in 2004, the United States has removed 374 metric tons from weapons programs. More than 153 metric tons removed from the stockpile has been downblended for use as civil reactor fuel. Additionally, under the 1993 U.S.-Russia Highly Enriched Uranium (HEU) Purchase Agreement, 500 metric tons, the equivalent of 20,000 nuclear warheads, of Russian weapons-origin HEU was downblended to LEU and used in U.S. nuclear power plants for over twenty years.¹⁸⁵

(12) DISARMAMENT AND NON-PROLIFERATION EDUCATION AND COOPERATION WITH CIVIL SOCIETY

Regarding cooperation with civil society in nuclear disarmament and non-proliferation, involvement of civil society in the process of formulating the TPNW was notable. As was at the Open-ended Working Group (OEWG) to take forward multilateral nuclear disarmament negotiations held in 2016, civil society was invited to the United Nations Conference to Negotiate a Legally Binding Instrument to Prohibit Nuclear Weapons, Leading towards Their Elimination in 2017, where *hibakusha*, NGO and other organizations made statements and submitted official documents. Among them, the ICAN took an initiative towards the conclusion of the treaty with the Austria and other countries, and was awarded the

[181] U.S. Department of State, “Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments,” April 2017, <https://www.state.gov/t/avc/rls/rpt/2017/270330.htm>.

[182] Maggie Tennis, “INF Dispute Adds to U.S.-Russia Tensions,” *Arms Control Today*, Vol. 47, No. 5 (June 2017), pp. 29-30.

[183] Kingston Reif, “Trump Budget Supports MOX Termination,” *Arms Control Today*, Vol. 47, No. 6 (July/August 2017), p. 30.

[184] Frank von Hippel, “Fissile Material Issues in the U.S. National Defense Authorization Act for Fiscal Year 2018,” *IPFM Blog*, December 17, 2017, http://fissilematerials.org/blog/2017/12/fissile_material_issues_i.html.

[185] “Statement by the United States,” Cluster 1, First Session of the Preparatory Committee for the 2020 NPT Review Conference, May 4, 2017.

Nobel Peace Prize as described above.

The NPDI submitted a working paper to the 2017 NPT Review Conference, in which they argued that educating young people, especially teenagers, is most crucial, and “[t]he amassed knowledge and experience of the realities of atomic bombings should also be passed on to younger generations, so that they can actively engage in disarmament and non-proliferation issues.”¹⁸⁶ Japan, which has attached importance to such activities, held a discussion meeting with 22 high school students as Youth Communicators for a World without Nuclear Weapons, and Japanese and other countries’ officials and experts on disarmament issues at the Delegation of Japan to the Conference on Disarmament in August 2017.

Side events held during the NPT RevCon and the First Committee of the UNGA, where NGOs can participate, are also important elements of the efforts toward civil society cooperation.¹⁸⁷ During the 2017 NPT PrepCom, Australia, Austria, Canada, France, Germany, Japan, Kazakhstan, South Korea, New Zealand, Mexico, Norway, Sweden, Switzerland, the United Kingdom, the United States and others hosted such events. And during the 2017 UNGA, Australia, Austria, Canada, Chile, Germany, Japan, Kazakhstan, Mexico, the Netherlands, Norway, Poland, Switzerland, the United Kingdom and others hosted such events.

Regarding cooperation with civil society, one of the important efforts for governments is to provide more information on nuclear disarmament and non-proliferation matters. Among the countries surveyed in this report, the following set up a section or sections on disarmament and non-proliferation on their official

homepages (in English) and posted enlightening information: Australia, Austria, Belgium, Canada, China, France, Germany, Japan, New Zealand, Sweden, Switzerland, the United Kingdom and the United States.

Finally, a few countries started to legislate “divestment” against organizations or companies involved in producing nuclear weapons. For instance, according to the ICAN report, Switzerland and Luxembourg enacted national laws that restrict financing for nuclear weapons production. Some banks and investment funds also have policies against investing in such organizations or companies.¹⁸⁸ Besides, Nobel Foundation Executive Director Lars Heikensten said in October 2017, “Today, the Nobel Foundation has clear guidelines regarding ethics and sustainability. No new investments are made in funds that invest in companies that violate international conventions regarding, for example, land mines or cluster bombs, or who have investments in nuclear weapons.”¹⁸⁹

(13) HIROSHIMA PEACE MEMORIAL CEREMONY

On August 6, 2017, the Hiroshima Peace Memorial Ceremony was held in Hiroshima. Representatives from 80 countries and the EU, along with Japan, participated, including:

- Ambassadorial-level—Australia, Belgium, Brazil, Canada, France, India, Israel, Kazakhstan, New Zealand, Philippines, Pakistan, Poland, the United Kingdom and the United States
- Non-Ambassadorial-level—Austria, Egypt,

[186] NPT/CONF.2020/PC.I/WP.16, April 19, 2017.

[187] At the 2017 NPT PrepCom, the Hiroshima Prefectural Government hosted a side event, titled “Bridging the gap between Nuclear-Weapon States and Non-Nuclear-Weapon States,” in which the Hiroshima Governor, as well as several experts, participated as panelists.

[188] See IKV Pax Christi and ICAN, “Don’t Bank on the Bomb: A Global Report on the Financing of Nuclear Weapons Producers,” December 2016.

[189] “Nobel Foundation Accused of Indirect Nuclear Arms Investments,” *Swissinfo.ch*, October 20, 2017, https://www.swissinfo.ch/eng/politics/transparency-call_nobel-foundation-accused-of-indirect-nuclear-arms-investments/43614160.

Indonesia, Iran, South Korea, Norway, Russia and UAE (Note: underline added to denote countries whose ambassadorial-level representatives have attended the ceremony in the past three years)

- Not attending—Chile, China, Germany, Mexico, Netherlands, Nigeria, Saudi Arabia, South Africa, Sweden, Switzerland, Syria, Turkey, North Korea (Note: underline added to denote countries whose representatives have attended the ceremony at least once in the past three years)

At various fora, Japan has proposed that the world's political leaders visit Hiroshima and Nagasaki, to witness the humanitarian consequences of nuclear weapons with their own eyes. In 2017, the following leaders visited Hiroshima: Prime Minister of Czech Republic, Ministers of Bangladesh, Lithuania, and Bosnia and Herzegovina.¹⁹⁰

[190] See the Hiroshima City's homepage (<http://www.city.hiroshima.lg.jp/www/contents/1416289898775/index.html>).

[Column 6] The NPT Regime: Towards the 2020 NPT Review Conference

Tytti Erästö and Sibylle Bauer

There are several negative dynamics at play that are boding ill for the 2020 Nuclear Non-Proliferation Treaty (NPT) Review Conference. As with the 2015 Review Conference, the nuclear-weapon states (NWS) parties to the NPT (i.e. the five permanent members of the United Nations Security Council—China, France, Russia, United Kingdom and United States—known as the P5) have little to show in terms of progress on disarmament. The frustration of non-nuclear-weapon states (NNWS) with this situation was a significant factor in the negotiation of the Treaty on the Prohibition of Nuclear Weapons (TPNW) that was adopted in July 2017. The P5 and their allies have almost uniformly rejected the new treaty as a threat to the established NPT-based order. Thus, the immediate short-term impact of the TPNW has been increased polarization.

While the TPNW seems to many like the most controversial issue among NPT members, it is merely the tip of the iceberg of deeper divisions regarding the slow pace of nuclear disarmament. Is there a way to bridge these divisions by the 2020 NPT Review Conference, and what would a failure to do so mean for the non-proliferation and disarmament regime?

1. Revitalising the NPT's disarmament pillar

Over the almost half a century of the NPT's existence, disarmament has proven to be the weakest of the treaty's three pillars (nonproliferation, the peaceful use of nuclear energy, and disarmament). The 13 "practical steps" adopted in 2000 and the 64-point action plan agreed by the 2010 NPT Review Conference created renewed hopes that were then dashed. Apart from the conclusion and

implementation of the 2010 New START Treaty and the Nuclear Glossary, the P5 have had very little to show in terms of concrete disarmament steps. Another major source of frustration within the NPT has been the lack of implementation of the 1995 resolution regarding the establishment of a weapons-of-mass-destruction free zone in the Middle East. Indeed, this latter issue was the single most important reason for the lack of a final consensus document at the 2015 Review Conference.

In an attempt to escape the constraints of the consensus-based NPT framework and of the traditional security paradigm dominating discourse on nuclear weapons, the majority of the non-nuclear weapon states sought a different approach by bringing international humanitarian law to bear on the issue of nuclear weapons. In 2013–14, the NNWS organized a series of conferences highlighting the catastrophic humanitarian consequences of any use of nuclear weapons. These conferences contributed to the General Assembly vote by 113 states in December 2016 to begin negotiations on a treaty banning nuclear weapons. The negotiations were concluded in July 2017, resulting in the adoption of the TPNW.

According to its negotiators, one of the aims of the TPNW is to strengthen the NPT's disarmament pillar and fill the so-called legal gap for the prohibition and elimination of nuclear weapons. While the legal prohibition of the TPNW does not apply to nuclear weapon states as long as they remain outside of the treaty, the assumption is that the TPNW could indirectly influence them by strengthening the universal stigma against nuclear weapons.

While the TPNW may work as intended in the long term, its most evident short-term effect has been increasing polarization among the NPT membership. With the exception of the China, the P5 have criticized the TPNW for creating unrealistic expectations and

ignoring current security problems and the role of nuclear weapons in existing security doctrines. A number of factors have arguably contributed to the relatively low number of signatures and ratifications of the NWPT thus far: fears that overlaps between the NPT and the TPNW could lead to a fragmentation of disarmament efforts; reservations about parts of the TPNW text and its relationship with the NPT; and US pressure against signing the treaty.¹

2. Importance of the 2020 Review Conference and ways ahead

Regardless of their position on the TPWN, the majority of the NNWS continue to be frustrated with what they see as the P5's lack of commitment to their disarmament obligations. From this perspective, the most effective way to reduce polarization would be for the P5 to clearly move towards meeting their long-established obligations through practical steps.

It might, therefore, make sense for all states parties to move beyond the TPNW divisions by identifying and committing to the most practicable steps towards disarmament. As outlined by previous NPT documents, these include such measures as reducing the risk of accidental or intentional use of nuclear weapons; bringing into force the Comprehensive Nuclear-Test-Ban Treaty; and starting negotiations on a fissile material cut-off treaty. Furthermore—while US-Russian strategic arms reductions have traditionally been considered separate from the multilateral disarmament issues—any progress on this front would also reinforce the NPT framework. In particular, saving the 1987 Intermediate-Range Nuclear Forces (INF) Treaty from collapsing would be crucial for preventing backward progress in nuclear arms control. More multilateral attention should be given to measures for advancing transparency

and reporting on nuclear arsenals as well as to development of new tools for verifying nuclear disarmament. Moreover, the NPT's non-proliferation pillar could be reinforced by encouraging states that have not done so to adopt Additional Protocols to their existing IAEA safeguards agreements as a new verification baseline. At the same time, support for non-proliferation also means respecting existing agreements, notably continued and clear support of the Iran nuclear deal by all P5 states.

Finally, finding a more cordial way of discussing the TPNW would pave the way for constructive discussions at the NPT, as both treaties share the long-term goal of the eventual elimination of nuclear weapons. Agreeing on specific and tangible outcomes in 2020 will be essential for the future credibility and legitimacy of the NPT.

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[1] Although 122 countries voted for the adoption of the TPNW in July 2017, by Feb. 2018 only 56 countries had signed the treaty and 5 ratified it.