

2015 Edition



Hiroshima Report

**Evaluation of Achievement in Nuclear Disarmament,
Non-Proliferation and Nuclear Security in 2014**



**Center for the Promotion of Disarmament and Non-Proliferation
The Japan Institute of International Affairs**

March 2015

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Hiroshima Prefecture

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Preface and Acknowledgements

This report, *Hiroshima Report 2015: Evaluation of Achievement in Nuclear Disarmament, Non-Proliferation and Nuclear Security in 2014* (hereinafter referred to as “*Hiroshima Report 2015*”) is an outcome of the “Hiroshima Report Publication Project,”* commissioned by Hiroshima Prefecture to the Japan Institute of International Affairs (JIIA). It updates the previous reports issued in 2013 and 2014. As in the last two years, the *Hiroshima Report* is published both in Japanese and English.

The prospects of eliminating nuclear weapons are still distant at best. Even more worrying, the situation regarding nuclear weapons is becoming more and more complex. The five nuclear-weapon states (NWS) under the Nuclear Non-Proliferation Treaty (NPT)—China, France, Russia, the United Kingdom and the United States—continue to perceive their nuclear weapons as one of the indispensable components for their national security, and have not made any definite move toward renouncing their nuclear arsenals. Instead, they have taken measures, such as modernization of nuclear forces and development of new delivery vehicles, with a view to sustaining nuclear deterrence for a longer period. India and Pakistan which are not parties to the NPT are also pursuing a buildup of their nuclear arsenals in the South Asian unstable security environment. Another non-state party to the NPT, Israel, is widely considered to have nuclear weapons, although it has maintained a policy of “nuclear ambiguity” by neither confirming nor denying possession of nuclear weapons.

The status and prospects regarding nuclear non-proliferation are also gloomy. North Korea is determined to pursue building up of its nuclear forces after declaring withdrawal from the NPT and conducted three nuclear tests. The international community was given a chance to solve the long-standing concern about the nuclear ambition of Iran by the Geneva Provisional Agreement in November 2013. Whether this can lead to a long-lasting solution of the Iranian nuclear issue is yet to be known. While the world falters in erecting a firm barrier against nuclear proliferation, the threat persists for a new proliferator to emerge on the scene. The threat of nuclear terrorism by non-state actors remains a high security concern in this globalized world. Growing worldwide interest in peaceful use of nuclear energy increases the risk of nuclear proliferation as well as terrorism. While problems facing nuclear disarmament, non-proliferation and nuclear security intensify, efforts toward solving them have progressed at a snail’s pace.

The *Hiroshima Report* attempts to help the movement toward the abolition of nuclear weapons, first, by clarifying the current status of the issues and efforts surrounding nuclear disarmament, non-proliferation and nuclear security. By doing so, it aims to encourage increased debate on these issues by policy-makers, experts in and outside governments, and civil society. Furthermore, by issuing the “Report” and the “Evaluation” from Hiroshima, where a nuclear weapon was once used, it aims to help focus attention and promote further actions in various fields towards the realization of a world without nuclear weapons.

The Research Committee was established to conduct this project, namely producing the “Report” and the “Evaluation.” This Committee met once within the Japanese Fiscal Year 2014 to discuss the contents. The members

* This project has been conducted as a part of the “Hiroshima for Global Peace” Plan launched by Hiroshima Prefecture in 2011.

of the Research Committee are as follows:

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The Research Committee appreciates the comments and advices to the “Report” given by the following experts.

Ambassador Nobuyasu Abe (Commissioner, Japan Atomic Energy Commission)

Mr. Mark Fitzpatrick (Director of the Non-Proliferation and Disarmament Programme, International Institute for Strategic Studies)

The Hon. Professor Yoriko Kawaguchi (Meiji Institute for Global Affairs, Meiji University)

Professor Dr. Harald Müller (Executive Director, Peace Research Institute Frankfurt)

Professor John Simpson (Emeritus Professor of International Relations, University of Southampton)

Professor Tatsujiro Suzuki (Vice Director, Research Center for Nuclear Weapons Abolition, Nagasaki University)

Appreciation is also expressed to Ms. Kazuko Hikawa (Ministry of Foreign Affairs, Japan) for valuable technical comments; and Mr. Gordon Wyn Jones (King's College London, Centre for Science and Security Studies) for editing the *Hiroshima Report*.

Views or opinions expressed in the “Report” and “Evaluation” are those of the members of the Research Committee and do not necessarily represent the view of the Hiroshima Prefecture, the JIIA, or the organizations to which they belong. Not all of the members necessarily agree on all of the points discussed.

Introduction—Research Design

(1) Items

In the *Hiroshima Report 2014*, 64 items (31 for nuclear disarmament, 17 for nuclear non-proliferation and 16 for nuclear security) for study, analysis and evaluation of the selected countries' performance were identified and based mainly upon the following documents that reflected widely supported views on the issues of nuclear disarmament, non-proliferation and nuclear security:

- The Action Plan and recommendations pertaining to the implementation of the 1995 Middle East resolution contained in the Final Document adopted in the 2010 Nuclear Non-Proliferation Treaty (NPT) Review Conference;
- Seventy-six recommendations contained in the 2009 International Commission on Nuclear Non-proliferation and Disarmament (ICNND) report titled *Eliminating Nuclear Threats: A Practical Agenda for Global Policymakers*;
- Proposals sponsored or co-sponsored by Japan at the Preparatory Committees for the 2015 NPT Review Conference; and
- “Resolution towards the Abolition of Nuclear Weapons” launched by the Mayors for Peace in 2011.

Items were also chosen with the aim of providing a certain degree of objective measurements for evaluation.

The *Hiroshima Report 2015* maintains the same structure and items, as followings.

1. Nuclear Disarmament

(1) Status of Nuclear Forces (estimates)

(2) Commitment to Achieve a World without Nuclear Weapons

- A) Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM
- B) Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention
- C) Announcement of significant policies and important activities
- D) Humanitarian consequences of nuclear weapons

(3) Reduction of Nuclear Weapons

- A) Reduction of nuclear weapons
- B) A concrete plan for further reduction of nuclear weapons
- C) Trends on strengthening/modernizing nuclear weapons capabilities

(4) Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies

- A) The current status of the roles and significance of nuclear weapons
- B) Commitment to the “sole purpose,” no first use, and related doctrines
- C) Negative security assurances
- D) Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones
- E) Relying on extended nuclear deterrence

(5) De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons

(6) CTBT

- A) Signing and ratifying the CTBT
- B) The moratorium on nuclear test explosions pending CTBT's entry into force
- C) Cooperation with the CTBTO Preparatory Commission

- D) Contribution to the development of the CTBT verification systems
- E) Nuclear testing
- (7) FMCT
 - A) Efforts toward commencing negotiations on an FMCT
 - B) The moratorium on production of fissile material for nuclear weapons
- (8) Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine
- (9) Verifications of Nuclear Weapons Reductions
- (10) Irreversibility
 - A) Implementing or planning dismantlement of nuclear warheads and their delivery vehicles
 - B) Decommissioning/conversion of nuclear weapons-related facilities
 - C) Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes
- (11) Disarmament and Non-Proliferation Education and Cooperation with Civil Society
- (12) Hiroshima Peace Memorial Ceremony

2. Nuclear Non-Proliferation

- (1) Acceptance and Compliance with the Nuclear Non-Proliferation Obligations
 - A) Accession to the NPT
 - B) Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation
 - C) Nuclear-Weapon-Free Zones
- (2) IAEA Safeguards Applied to the NPT NNWS
 - A) Conclusion of the IAEA Safeguards Agreements
 - B) Compliance with the IAEA Safeguards Agreements
- (3) IAEA Safeguards Applied to NWS and Non-Parties to the NPT
- (4) Cooperation with the IAEA
- (5) Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies
 - A) Establishment and implementation of the national control systems
 - B) Requiring the conclusion of the Additional Protocol for nuclear export
 - C) Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues
 - D) Participation in the PSI
 - E) Civil nuclear cooperation with non-parties to the NPT
- (6) Transparency in the Peaceful Use of Nuclear Energy

3. Nuclear Security

- (1) The Amount of Fissile Material Usable for Weapons
- (2) Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security-Related Initiatives, and Application to Domestic Systems
 - A) Accession status to nuclear security-related conventions
 - B) INFCIRC/225/Rev.5
- (3) Efforts to Maintain and Improve the Highest Level of Nuclear Security
 - A) Minimization of HEU in civilian use
 - B) Prevention of illicit trafficking
 - C) Acceptance of international nuclear security review missions

- D) Technology development —nuclear forensics
- E) Capacity building and support activities
- F) IAEA Nuclear Security Plan and Nuclear Security Fund
- G) Participation in international efforts

(2) Countries Surveyed in This Project

In the *Hiroshima Report 2014*, the performances of 31 countries were surveyed, based on their nuclear significance and geographical distribution. The *Hiroshima Report 2015* added five countries—including members of the Non-Proliferation and Disarmament Initiative (NPDI), members of the NAC, participants of Joint Statements on the Humanitarian Consequences of Nuclear Weapons—bringing the total number of countries surveyed to 36, as follows: [Note: countries underlined are newly added]

- Five nuclear-weapon states under the NPT (China, France, Russia, the United Kingdom and the United States);
- Non-state parties to the NPT (India, Israel and Pakistan);
- Non-nuclear-weapon states under the NPT (Australia, Austria, Belgium, Brazil, Canada, Chile, Egypt, Germany, Indonesia, Iran, Japan, Kazakhstan, South Korea, Mexico, the Netherlands, New Zealand, Nigeria, Norway, Philippines, Poland, Saudi Arabia, South Africa, Sweden, Switzerland, Syria, Turkey and UAE); and
- Other (North Korea*)

(3) Approach

This project focuses on the time period in 2014. Reference documents are basically from open sources, such as speeches, remarks, votes and working papers delivered at disarmament fora (e.g., NPT Preparatory Committee, UN General Assembly, and Conference on Disarmament) and official documents published by governments and international organizations.

As for the evaluation section, a set of objective evaluation criteria is established by which the respective country's performance is assessed.

The Research Committee of this project recognizes the difficulties, limitations and risk of “scoring” countries' performances. However, the Committee also considers that an indicative approach is useful to draw attention to nuclear issues, so as to prompt debates over priorities and urgency.

The different numerical value within each category (i.e., nuclear disarmament, nuclear non-proliferation and nuclear security) reflects each activity's importance within that area, as determined through deliberation by the Research Committee of this project. However, the differences in the scoring arrangements within each of the three categories do not necessarily reflect their relative significance in comparison with others, as it has been driven by the differing number of items surveyed. Thus, the value assigned to nuclear disarmament (full points 94) does not mean that it is more than twice as important as nuclear non-proliferation (full points 61) or nuclear security (full points 41).

* North Korea declared its suspension from the NPT in 1993 and its withdrawal in 2003, and conducted nuclear tests in 2006, 2009 and 2013. However, there is no agreement among the states parties on North Korea's official status.

Regarding “the number of nuclear weapons” (in the nuclear disarmament section) and “the amount of fissile material usable for nuclear weapons” (in the nuclear security section), the assumption is that the more nuclear weapons or weapons-usable fissile material a country possesses, the greater the task of reducing them and ensuring their security. However, the Research Committee recognizes that “numbers” or “amounts” are not the sole decisive factors. It is definitely true that other factors—such as implications of missile defense, chemical and biological weapons, conventional force imbalances and a psychological attachment to a minimum overt or covert nuclear weapon capability—would affect the issues and the process of nuclear disarmament, non-proliferation and nuclear security. However, they were not included in our criteria for evaluation because it was difficult to make objective scales of the significance of these factors. In addition, in view of the suggestions and comments made to the *Hiroshima Report 2013*, the Research Committee modified criteria of the following items: current status of the roles and significance of nuclear weapons in national security strategies and policies; relying on extended nuclear deterrence; and nuclear testing. Since the *Hiroshima Report 2014*, these items have been negatively graded if applicable.

As there is no way to mathematically compare the different factors contained in the different areas of disarmament, non-proliferation and nuclear security, the evaluations should be taken as indicative of the performances in general and not as an exact representation or precise assessment of different countries’ performances.

Part I

Report: Surveying Trends of Nuclear Disarmament, Non-Proliferation and Nuclear Security in 2014

1. Nuclear Disarmament*

(1) Status of Nuclear Forces (estimates)

As of December 2014, eight countries have declared that they have nuclear weapons. According to Article 9-3 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—after January 1, 1967—and declared having nuclear weapons are India, Pakistan and North Korea. India and Pakistan have never been parties to the NPT. North Korea declared it had withdrawn from the treaty in 2003. 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 four states that have publicly declared or are believed to possess nuclear weapons are referred to as “nuclear-armed states.”

None of the nuclear-weapon/armed states have declassified the exact number of nuclear weapons in its arsenal, although France and the United Kingdom have announced maximum numbers.¹ Meanwhile, in April 2014, the United States released an update of the annual numbers of its nuclear stockpile (except those awaiting dismantlement), and announced that as of September 2013, the total stockpile of nuclear warheads was 4,804. France reported that it has fewer than 300 nuclear warheads, and all of them are deployed and operational. The United Kingdom has reiterated that it has fewer than 225 nuclear warheads of which only 120 are operational.

The status of nuclear forces shown in table 1-1 below is based on the estimates produced by the Stockholm International Peace Research Institute (SIPRI).² According to the data, in spite of the reduction of 930 nuclear weapons from the previous year, approximately 16,300 nuclear weapons still exist on the earth, and the U.S. and Russian nuclear stockpiles together constitute more than 90 percent of them. SIPRI also estimates that China, India and Pakistan have added about 10 warheads each in the course of the past year.³

* Chapter 1 is written by Hirofumi Tosaki.

¹ 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>.

² Stockholm International Peace Research Institute, *SIPRI Yearbook 2014: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2014), chapter 6. Regarding deployments of nuclear forces of each nuclear-armed state, see Hans M. Kristensen and Robert S. Norris, “Worldwide Deployments of Nuclear Weapons, 2014,” *Bulletin of the Atomic Scientists*, Vol. 70, No. 5 (September/October 2014), pp. 96-108.

³ While SIPRI and most U.S. scholarly estimate that China has 250 nuclear warheads, one Russian scholar estimates that the arsenal comprises 800-900 warheads. See, Viktor Yesin, “China’s Nuclear Capabilities,” Aleksey Arbatov, Vladimir Dvorkin and Sergey Oznobishchev, eds., *Prospects of China’s Participation in Nuclear Arms Limitation* (Moscow: Institute of World Economic and International Relations, Russian Academy of Sciences, 2012), chapter 3.

Table 1-1: The Status of Nuclear Forces (estimates, as of January 2014)

	Total nuclear stockpile	Breakdown		(Nuclear warheads)	(Delivery vehicles)		
U.S.	~7,300	Retired/Awaiting dismantlement: ~2,515					
		Operational ~4,785	Non-deployed ~2,685				
			Deployed ~2,100	Non-strategic 184			
				Strategic ~1,920		ICBM	470
			SLBM	1,151	288		
			Strategic bomber	300	60		
Russia	~8,000	Retired/Awaiting dismantlement: ~3,700 (Non-strategic: 2,000)					
		Operational 4,300	Non-deployed 2,700 Non-strategic 2,000				
			Deployed ~1,600	Strategic ~2,300		ICBM	967
		SLBM		528	144		
		Strategic bomber		810	72		
U.K.	225	Deployed 48		SLBM	225	48	
France	~290	Deployed 98		SLBM	240	48	
				Attack aircraft (including carrier based aircraft)	50	50	
China	~250			Land-based medium-and long-range ballistic missile	140	150	
				SLBM	48	48	
				Attack aircraft	40	20	
				Cruise missile	n/a	150~350	
India	90~110			Land-based ballistic missile			
				Attack aircraft			
Pakistan	100~120			Land-based ballistic missile			
				Attack aircraft			
Israel	~80			Ballistic missile			
				Attack aircraft			
N. Korea	~8						
World	~16,383	(Deployed) 3,992					

Source) Stockholm International Peace Research Institute, *SIPRI Yearbook 2014: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2014), chapter 6.

(2) Commitment to Achieve a World without Nuclear Weapons

As mentioned in the previous *Hiroshima Reports*, no country, including the NWS, openly opposes the goal of the total elimination of nuclear weapons or the vision of a world without nuclear weapons. However, nuclear-weapon/armed states do not seem to actually set a goal of an early achievement of a world without nuclear weapons, or even to consider their total elimination as a feasible, realistic goal. Rather, they argue that nuclear disarmament depends on appropriate conditions, without specifying in detailed what such conditions are. For instance, China and Russia have insisted repeatedly that maintaining strategic stability should be one of the most important conditions for nuclear disarmament, thereby insinuating that the U.S. development of ballistic missile defense (BMD) and conventional prompt global strike (CPGS) constitute an impediment. Nuclear-weapon/armed states are unlikely to move from their position that nuclear weapons continue to play important roles for their security policies at least in the foreseeable future. This suggests that deeper nuclear cuts by them cannot be expected in the short term.

The five NWS together committed “to continue to seek progress on the step-by-step approach to nuclear disarmament, which is the only practical path to achieving a world without nuclear weapons and in keeping with [their] NPT obligations.”⁴ The United States elaborated this point: “A step-by-step approach is not a series of predetermined steps, where failure to make progress on one step brings the entire process to a halt. On the contrary, we seek to take advantage of opportunities wherever and whenever we can.”⁵ In addition to the five NWS, India has stated that “[the goal of universal, non-discriminatory and verifiable nuclear disarmament] can be achieved by a step by step process.”⁶ France has also emphasized consistently that “[n]uclear disarmament is meaningful only if it does not trigger an arms race in other areas. This is why it has to take place in the framework of general and complete disarmament, in accordance with Article VI of the NPT.”⁷ Such a view was shared by the other five NWS, which have stated that “[t]hey ...reaffirmed their commitment to the shared goal of nuclear disarmament and general and complete disarmament as provided for in Article VI of the NPT.”⁸

On the other hand, China and India have expressed support for commencement and conclusion of a Nuclear Weapon Convention, unlike the other nuclear-weapon/armed states.

North Korea has vehemently argued that it could not renounce its nuclear deterrent due to the hostile policies of the United States. At the UN General Assembly in 2014, North Korea stated: “[t]he hostile policy, nuclear threats and stifling strategy pursued by the United States for more than half a century inevitably resulted in the decision of nuclear weapons state of the DPRK. ...The nuclear issue will be resolved if and when the threat to our sovereignty and right to life is removed in substance with termination of the U.S. hostile policy against DPRK.”⁹

⁴ “Joint Statement on the P5 Beijing Conference: Enhancing Strategic Confidence and Working Together to Implement the Nuclear Non-Proliferation Review Outcomes,” April 15, 2014, <http://www.state.gov/r/pa/prs/ps/2014/04/224867.htm>.

⁵ Frank A. Rose, Deputy Assistant Secretary, Bureau of Arms Control, Verification and Compliance, “U.S. Contributions Toward a World Without Nuclear Weapons,” ASEAN Regional Forum, Tokyo, July 8, 2014, <http://www.state.gov/t/avc/rls/2014/228906.htm>.

⁶ “Statement by India,” at the First Committee of the 69th Session of the United Nations General Assembly, General Debate, October 7, 2014.

⁷ “Statement by France,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, New York, May 2, 2014.

⁸ “Joint Statement on the P5 Beijing Conference.”

⁹ “Statement by Democratic People’s Republic of Korea,” at the First Committee of the 69th Session of the United Nations General Assembly, General Debate, October 27, 2014.

As for non-nuclear-weapon states (NNWS), 20 countries, including Australia, Belgium, Germany, Japan, the Netherlands, Poland, Sweden, submitted their working paper entitled “Building Blocks for a World without Nuclear Weapons” to the 2014 NPT Preparatory Committee (PrepCom), and argued that “[a] focus on “building blocks” can complement the pursuit of a ‘step by step’ approach. ... While ultimate measures for achieving and maintaining a world without nuclear weapons will need to be multilateral, effective disarmament will require mutually reinforcing ‘building blocks’ that are multilateral, plurilateral, bilateral or unilateral.”¹⁰

Other NNWS have demonstrated increased frustration over the stalemate in nuclear disarmament, despite the momentum toward its promotion created by the Prague Speech by U.S. President Barack Obama in April 2009. This has led them to reconsider their existing approaches to nuclear disarmament. For example, Costa Rica argued that “the ‘step-by-step’ approach has failed to meet the objectives of the [NPT].”¹¹ The NAM countries have urged the commencement of “[n]egotiation of a phased programme for the complete elimination of nuclear weapons with a specified time frame... without any further delay.”¹² Among the nuclear-weapon/armed states, Pakistan has expressed concurrence with this opinion, stating that “a step by step approach does not really contribute towards nuclear disarmament as it envisages only agreements that amount to non-proliferation measures.”¹³ It also stated that “the Nuclear Weapon States must demonstrate a renewed commitment to achieve nuclear disarmament within a reasonable timeframe. Without this commitment, the ‘bargain’ of the non-proliferation regime will continue to erode.”¹⁴

A) Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM

The United Nations General Assembly (UNGA) held in 2014 adopted the following resolutions: “United action towards the total elimination of nuclear weapons”¹⁵ promoted by Japan; “Towards a nuclear-weapon-free world: accelerating the implementation of nuclear disarmament commitments”¹⁶ proposed by the New Agenda Coalition (NAC); and “Nuclear disarmament”¹⁷ by the Non-Aligned Movement (NAM) members. The voting behavior of the countries surveyed in this project on the three resolutions at the UNGA in 2014 is presented below.

- “United action towards the total elimination of nuclear weapons”
 - ✧ Proposing: Australia, Austria, Belgium, Canada, Germany, Japan, Kazakhstan, South Korea, the Netherlands, Nigeria, Norway, Philippines, Poland, Switzerland, Turkey, the U.K., the U.S. and others
 - ✧ 170 in favor, 1 Against (North Korea), 14 Abstentions (Brazil, China, Egypt, India, Iran, Israel, Pakistan, Russia, Syria 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
 - ✧ 169 in favor, 7 Against (France, India, Israel, North Korea, Russia, the U.K. and the U.S.), 5 Abstentions

¹⁰ NPT/CONF.2015/PC.III/WP.23, April 15, 2014.

¹¹ “Statement by Costa Rica,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, April 30, 2014.

¹² NPT/CONF.2015/PC.III/WP.15, April 1, 2014.

¹³ “Statement by Pakistan,” at the First Committee of the 69th Session of the United Nations General Assembly, Thematic Debate on Disarmament Machinery, October 16, 2014.

¹⁴ Ibid.

¹⁵ A/RES/69/52, December 11, 2014.

¹⁶ A/RES/69/37, December 11, 2014.

¹⁷ A/RES/69/48, December 11, 2014.

(China, Pakistan and others)

- “Nuclear disarmament”
 - ✧ Proposing: Indonesia, Iran, Nigeria, Philippines and others
 - ✧ 121 in favor, 44 Against (Australia, Belgium, Canada, France, Germany, Israel, the Netherlands, Norway, Poland, Switzerland, Turkey, the U.K., the U.S. and others), 17 Abstentions (Austria, India, Japan, South Korea, New Zealand, Pakistan, Russia, South Africa, Sweden and others)

B) Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention

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”¹⁸ says “by commencing multilateral negotiations leading to an early conclusion of a nuclear weapons convention” all states should implement the obligation in Article 6 of the NPT. The voting behavior at the UNGA in 2014 is presented below.

- Proposing: Brazil, Chile, Egypt, India, Indonesia, Iran, Mexico, Philippines, Syria and others
- 134 in favor, 23 Against (Belgium, France, Germany, Israel, the Netherlands, Poland, Russia, Turkey, the U.K., the U.S. and others), 23 Abstentions (Australia, Canada, Japan, South Korea, Norway, Sweden and others)

NWS except China have opposed a commencement of negotiation on a Nuclear Weapons Convention, and the Western NNWS have taken a cautious stance. The United Kingdom, for instance, stated that while sharing “frustration with the pace of disarmament... it must be tempered with both realism and pragmatism. [It does] not, therefore, support movements towards the negotiation of a ban treaty.”¹⁹ Palau retorted that the time has come for a new diplomatic process to negotiate a legally binding instrument to ban nuclear weapons even if the nuclear-weapon/armed states are unwilling to join such a process.²⁰ The NAC summarized “options that have been suggested for the achievement and maintenance of a world free of nuclear weapons” in the working paper submitted to the 2014 NPT PrepCom. The options included a comprehensive Nuclear Weapons Convention (NWC); a Nuclear Weapons Ban Treaty (NWBT); a framework arrangement; and a hybrid arrangement.²¹

The International Campaign to Abolish Nuclear Weapons (ICAN) has conducted a study on states’ responses to the proposal of negotiating a Nuclear Weapons Convention in 2012. According to the ICAN report, among the countries surveyed for this project, Belgium, France, Israel, the Netherlands, Poland, Russia, Turkey, the United Kingdom and the United States “don’t support” the Nuclear Weapons Convention, while Australia, Canada, Germany, Japan, South Korea and Sweden are “on the fence” (undecided).²² The ICAN also introduced recent

¹⁸ A/RES/69/43, December 11, 2014.

¹⁹ “Statement by the United Kingdom,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, General Debate, New York, April 28, 2014.

²⁰ “Statement by Palau,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, May 2, 2014.

²¹ NPT/CONF.2015/PC.III/WP.18, April 2, 2014. In this working paper, a comprehensive NWC is defined one “which, in setting out general obligations, prohibitions and an effective basis for time-bound, irreversible and verifiable nuclear disarmament, would complement the Chemical Weapons Convention and the Biological and Toxin Weapons Convention as an effective measure for the elimination of all weapons of mass destruction,” and a NWBT is defined one “which would establish the key prohibitions necessary for the pursuit, achievement and maintenance of a world free of nuclear weapons; such a Treaty could, but need not, additionally set out the practical arrangements required for implementing and overseeing effective, time-bound, irreversible and verifiable nuclear disarmament.”

²² Tim Wright, “Towards a Treaty Banning Nuclear Weapons: A Guide to Government Position on a Nuclear Weapons Convention,” International Campaign to Abolish Nuclear Weapons, January 2012; “National Positions on a Ban,” International Campaign to

statements by governments (including Austria, Brazil, Egypt, Indonesia, Kazakhstan, Malaysia, Mexico, Nigeria, Norway, Philippines, South Africa, Switzerland and the UAE) in favor of a treaty banning nuclear weapons.²³

C) Announcement of significant policies and important activities

In 2014, while no nuclear-weapon/armed state announced a new, remarkable policy on nuclear disarmament, some NNWS set out noticeable activities.

Firstly, on April 24, the Marshall Islands filed applications in the International Court of Justice (ICJ) to hold the nine nuclear-weapon/armed states accountable for violations of international law with respect to their nuclear disarmament obligations under the NPT and customary international law. Since India, Pakistan and the United Kingdom have recognized the ICJ's compulsory jurisdiction pursuant to Article 36, paragraph 2, of the Statute of the ICJ,²⁴ the main points of the applications against those three countries were summarized in the ICJ's press release.²⁵ The Marshall Islands invokes U.K.'s breaches of Article 6 of the NPT "by not actively pursuing negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament." It also contends that India and Pakistan have breached and continue to breach, their legal duty to perform obligations under customary international law in good faith, arguing that they have engaged in quantitative build-up and qualitative improvement of their nuclear forces, and that "the obligations enshrined in Article VI of the NPT are not merely treaty obligations; they also exist separately under customary international law." The Marshall Islands then "requests the [ICJ] to order the Respondents to take all steps necessary to comply with their obligations under customary international law with respect to cessation of the nuclear arms race at an early date and nuclear disarmament within one year of the Judgment." According to the Press Release, "as regards the States parties to the NPT (China, France, Russian Federation and United States of America), the Republic of the Marshall Islands asserts claims similar to those asserted against the United Kingdom; as regards the States non-parties to the NPT (the Democratic People's Republic of Korea and Israel), the Republic of the Marshall Islands asserts claims similar to those asserted against India and Pakistan." Furthermore, the Marshall Islands filed a U.S. federal lawsuit against the United States naming President Barack Obama, the Departments and Secretaries of Defense and Energy and the National Nuclear Security Administration.²⁶

The Marshall Islands requested nuclear-weapon/armed states that have not recognized the ICJ's compulsory jurisdiction from *forum prorogatum* to accept the jurisdiction on the case, but they are unlikely to do so. NWS have criticized these cases. For example, the United States insisted that it has complied with nuclear disarmament obligations through, *inter alia*, continuous reduction of its nuclear arsenal.²⁷ Russia blamed that "the filing of ungrounded lawsuits does not help the creation of favorable conditions for further international efforts in the sphere

Abolish Nuclear Weapons, <http://www.icanw.org/why-a-ban/positions/>.

²³ "Support for a Ban," International Campaign to Abolish Nuclear Weapons, <http://www.icanw.org/why-a-ban/positions/>.

²⁴ However, India disagreed the ICJ's jurisdiction on this issue since India declared that disputes relating to self-defense and so on would be excluded (see "Declarations Recognizing the Jurisdiction of the Court as Compulsory," International Court of Justice, <http://www.icj-cij.org/jurisdiction/?p1=5&p2=1&p3=3&code=IN>). On June 16, the ICJ decided that the issue on the jurisdiction needed to be solved before substantive deliberation.

²⁵ "The Republic of the Marshall Islands files Applications against nine States for their alleged failure to fulfil their obligations with respect to the cessation of the nuclear arms race at an early date and to nuclear disarmament," Press Release, International Court of Justice, No.2014/18, April 24, 2014, <http://www.icj-cij.org/presscom/files/0/18300.pdf>.

²⁶ "Tiny Pacific Nation Sues 9 Nuclear-Armed Powers," *Associated Press*, April 24, 2014, http://hosted.ap.org/dynamic/stories/N/NUCLEAR_WEAPON_LAWSUIT?SITE=AP&SECTION=HOME&TEMPLATE=DEFAULT.

²⁷ David Brunnstrom, "U.S. Examining Marshall Islands' Nuclear Lawsuits, Defends Record," *Reuters*, April 25, 2014, <http://www.reuters.com/article/2014/04/25/us-usa-nuclear-marshalls-idUSBREA3023Y20140425>.

of control over armaments and non-proliferation of weapons of mass destruction.”²⁸ By contrast, the NAM countries expressed strong support for the action taken by the Marshall Islands.

Secondly, several important conferences were convened in 2014, with the purpose of promoting nuclear disarmament. For instance, the Commemorative Meeting of the General Assembly at the Ministerial Level was held by the United Nations on September 26, the day that was designated as the International Day for the Total Elimination of Nuclear Weapons by the UN General Assembly Resolution adopted in 2013.²⁹ Another notable event was the Ministerial Meeting of the Non-Proliferation and Disarmament Initiative (NPDI) in Hiroshima, held on April 11-12, prior to the 2014 NPT PrepCom. In addition to the 12 member countries, Indonesian Foreign Minister Marty Natalegawa, U.S. Under Secretary Rose Gottemoeller and Peruvian Ambassador Enrique Roman-Morey, president of the 2014 NPT PrepCom, participated in the meeting. In the “Hiroshima Declaration,” NPDI member countries urged, among others: reductions of all types of nuclear weapons; reduction of nuclear arsenal by countries that have not yet engaged in nuclear disarmament; increases in transparency of information about nuclear forces; promotion of discussions over humanitarian consequences of nuclear weapons; and enhancement of nuclear nonproliferation. The declaration also invites “the world’s political leaders to visit Hiroshima and Nagasaki to also witness the consequences with their own eyes.”³⁰

Thirdly, Japan’s Foreign Minister Fumio Kishida was outspoken about the lack of action on measures to promote nuclear disarmament and non-proliferation. In his address at the Nagasaki University in January 2014, he stated that “Japan [would] contribute even more proactively in securing peace, stability, and prosperity of the international community as a ‘Proactive Contributor to Peace’ based on the principle of international cooperation,” and proposed “three preventions” on nuclear non-proliferation—prevention of the emergence of new nuclear weapon states, prevention of the proliferation of nuclear-weapons-related materials and technologies, and prevention of nuclear terrorism—and “three reductions” on nuclear disarmament—reduction of the number of nuclear weapons, reduction of the role of nuclear weapons, and reduction of the incentive for possession of the nuclear weapons.³¹ He also contributed op-ed articles on *the Wall Street Journal* in April³² and *Foreign Affairs* in August.³³ In the latter article, he advocated four specific steps for reducing today’s nuclear risks, namely: reinforcing multilateral processes for nuclear disarmament negotiations; increasing the transparency of information about global nuclear forces and efforts to reduce nuclear weapons; Japan’s continuing to coordinate closely with its partners in the Six-Party Talks with North Korea to ensure that Pyongyang abandons all nuclear weapons and existing nuclear programs; and its leveraging discussions of the humanitarian impacts of nuclear weapons to help unite the international community behind the vision of a world free of nuclear weapons.

D) Humanitarian consequences of nuclear weapons

Since the joint statement delivered by 16 countries at the NPT PrepCom in 2012, debates on humanitarian

²⁸ “Russia Rebuffs Nuclear-Arms Lawsuit by Marshall Islands,” *Global Security Newswire*, April 29, 2014, <http://www.nti.org/gsn/article/russia-rebuffs-nuclear-arms-lawsuit-marshall-islands/>.

²⁹ A/RES/68/32, December 10, 2013.

³⁰ “Statement of the 8th Ministerial Meeting of the NPDI,” Hiroshima, Japan, April 12, 2014, <http://www.mofa.go.jp/files/000035199.pdf>.

³¹ Fumio Kishida, “Nuclear Disarmament and Non-Proliferation Policy Speech,” Nagasaki University, January 20, 2014, <http://www.mofa.go.jp/mofaj/files/000028597.pdf>.

³² Fumio Kishida, “Japan’s Commitment to a Nuclear-Free World,” *Wall Street Journal*, April 10, 2014.

³³ Fumio Kishida, “Seventy Years after Hiroshima and Nagasaki: Toward a World Free of Nuclear Weapons,” *Foreign Affairs*, August 28, 2014, <http://www.foreignaffairs.com/articles/141943/fumio-kishida/seventy-years-after-hiroshima-and-nagasaki>.

consequences of nuclear weapons have received remarkable attention from the international community.

Nayarit Conference

Mexico hosted the Second Conference on the Humanitarian Impact of Nuclear Weapons in Nayarit on February 13-14, 2014, in which 146 governments (including Australia, Austria, Belgium, Brazil, Canada, Chile, Egypt, Germany, India, Indonesia, Iran, Japan, Kazakhstan, South Korea, Mexico, the Netherlands, New Zealand, Nigeria, Norway, Pakistan, Philippines, Poland, Saudi Arabia, South Africa, Sweden, Switzerland, Turkey and the UAE), international organizations, and NGOs participated.³⁴ Among the countries surveyed in this Report, the five NWS, Israel, North Korea and Syria did not join it.

At the Nayarit Conference, experts from NGOs, research institutes and other relevant organizations made presentations, and participants discussed a number of issues during the following four sessions as well as the testimony of the Hibakusha, titled: From Oslo to Nayarit (overview of the First Conference in Oslo in March 2013); the Challenges of a Nuclear Weapon Detonation to National, Regional and Global Economic Growth and Sustainable Development; the Impact of a Nuclear Weapon Detonation on Global Public Health; and the Risk of a Nuclear Blast and Other Effects of a Nuclear Weapon Detonation.

The main points of discussion were summarized by the Chair. Unlike the chair's summary presented at the Oslo Conference, the chairperson of the Nayarit Conference mentioned legal aspects regarding nuclear weapons issues in observing that:

[W]e need to take into account that, in the past, weapons have been eliminated after they have been outlawed. We believe this is the path to achieve a world without nuclear weapons. In our view, this is consistent with our obligations under international law, including those derived from the NPT as well as from Common Article 1 to the Geneva Conventions. The broad-based and comprehensive discussions on the humanitarian impact of nuclear weapons should lead to the commitment of States and civil society to reach new international standards and norms, through a legally binding instrument. It is the view of the Chair that the Nayarit Conference has shown that time has come to initiate a diplomatic process conducive to this goal. Our belief is that this process should comprise a specific timeframe, the definition of the most appropriate fora, and a clear and substantive framework, making the humanitarian impact of nuclear weapons the essence of disarmament efforts.³⁵

Vienna Conference

Following the Nayarit Conference, Austria hosted the Third Conference on the Humanitarian Impact of Nuclear Weapons in Vienna on December 8-9, 2014³⁶ in which 158 governments (including Australia, Austria, Belgium, Brazil, Canada, Chile, Egypt, Germany, India, Indonesia, Iran, Japan, Kazakhstan, South Korea, Mexico, the Netherlands, New Zealand, Nigeria, Norway, Pakistan, Philippines, Poland, Saudi Arabia, South Africa, Sweden, Switzerland, Syria, Turkey, UAE, the United Kingdom and the United States), international organizations, and NGOs participated. Among the countries surveyed in this report, China,³⁷ France, Israel, North Korea and Russia

³⁴ The website of the Conference is <http://www.sre.gob.mx/en/index.php/humanimpact-nayarit-2014>.

³⁵ "Chair's Summary: Humanitarian Impact of Nuclear Weapons," Conference on the Humanitarian Impact of Nuclear Weapons, Nayarit, Mexico, February 14, 2014, <http://www.sre.gob.mx/en/index.php/humanimpact-nayarit-2014>.

³⁶ The website of the Conference is <http://www.bmeia.gv.at/en/european-foreign-policy/disarmament/weapons-of-mass-destruction/nuclear-weapons-and-nuclear-terrorism/vienna-conference-on-the-humanitarian-impact-of-nuclear-weapons/>.

³⁷ China sent a high-profile official as an "academic" expert of a think-tank close to the Chinese government.

were absent it.

Like the previous Conferences, experts from NGOs, research institutes and other relevant organizations made presentations, and participants discussed a number of issues under following sessions after the opening ceremony: Impact of Nuclear Weapons Explosions; Impact of Nuclear Testing; Risk Drivers for deliberate or inadvertent Nuclear Weapons Use; Scenarios, Challenges and Capabilities regarding Nuclear Weapons Use and other events; and A “Bird’s-Eye View” on International Norms and the Humanitarian Impact of Nuclear Weapons. One of the feature of the Vienna Conference was that a session on operational status of nuclear weapons was included in the program. Austrian Foreign Minister Sebastian Kurz drew attention to this aspect in his opening address: “Over 16,000 nuclear warheads still exist—distributed among 14 countries and throughout the oceans—many of them on high alert and ready for use on short notice. And we have to be clear: As long as nuclear weapons exist, the risk of their use—on purpose or by accident—remains real.”³⁸

Another significant feature was that the United Kingdom and the United States, two of the NWS, participated in the Conference for the first time from NWS. While stating that they recognized the humanitarian aspects of nuclear weapons, both countries did not disguise their concerns that debates on this issue would be directly linked with a movement toward the elimination of nuclear weapons. On the sidelines of the Conference, the United States reiterated its position that the most practical and realistic approach to disarmament is to pursue reductions of nuclear arsenals in a step-by-step manner, and argued that “the idea of moving automatically to a treaty that would immediately eliminate all nuclear weapons is probably not the most practical option.”³⁹ The United Kingdom also stated that the approach for concluding a Nuclear Weapons Convention “fails to take into account, and therefore jeopardize the stability and security which nuclear weapons help to ensure.”⁴⁰ Besides these countries, North Atlantic Treaty Organization (NATO) members, Australia, Japan, South Korea supported the step-by-step process of nuclear disarmament based on a practical and realistic approach. On the other hand, many NNWS, in particular the NAM countries, insisted on the immediate launch of a process toward banning nuclear weapons.

The main points of discussion were again summarized by the Chair.⁴¹ Firstly, the Chair pointed out the main conclusions as followings:

- The impact of a nuclear weapon detonation, irrespective of the cause, would not be constrained by national borders and could have regional and even global consequences, causing destruction, death and displacement as well as profound and long-term damage to the environment, climate, human health and well-being, socioeconomic development, social order and could even threaten the survival of humankind.
- As long as nuclear weapons exist, there remains the possibility of a nuclear weapon explosion. Even if the probability is considered low, given the catastrophic consequences of a nuclear weapon detonation, the risk is unacceptable. The risks of accidental, mistaken, unauthorized or intentional use of nuclear weapons are evident due to the vulnerability of nuclear command and control networks to human error and cyberattacks, the maintaining of nuclear arsenals on high levels of alert, forward deployment and their modernization.

³⁸ “Opening Remarks by Sebastian Kurz, Federal Minister for Europe, Integration and Foreign Affairs of Austria and Chair of the Vienna Conference,” Vienna Conference on the Humanitarian Impact of Nuclear Weapons, December 8, 2014.

³⁹ “U.S. Rejects Calls for Treaty Eliminating All Nuclear Weapons Immediately,” *AFP*, December 10, 2014, <http://www.japantimes.co.jp/news/2014/12/10/world/politics-diplomacy-world/u-s-rejects-calls-for-treaty-eliminating-all-nuclear-weapons-immediately/#.VJjFcsgKA>.

⁴⁰ *Ibid.*

⁴¹ “Report and Summary of Findings of the Conference: Presented under the Sole Responsibility of Austria,” Vienna Conference on the Humanitarian Impact of Nuclear Weapons, December 8-9, 2014.

These risks increase over time. The dangers of access to nuclear weapons and related materials by non-state actors, particularly terrorist groups, persists.

- There are many circumstances in which nuclear weapons could be used in view of international conflicts and tensions, and against the background of the current security doctrines of States possessing nuclear weapons.
- No state or international body could address in an adequate manner the immediate humanitarian emergency or long-term consequences caused by a nuclear weapon detonation in a populated area, nor provide adequate assistance to those affected.
- Looking at nuclear weapons from a number of different legal angles, it is clear that there is no comprehensive legal norm universally prohibiting possession, transfer, production and use...The new evidence that has emerged in the last two years about the humanitarian impact of nuclear weapons casts further doubt on whether these weapons could ever be used in conformity with IHL. As was the case with torture, which defeats humanity and is now unacceptable to all, the suffering caused by nuclear weapons use is not only a legal matter, it necessitates moral appraisal.

Then, the Chair summarized general views and policy responses that were indicated at the Conference, among others, as followings:

- Many delegations noted that the discourse on the humanitarian impact of nuclear weapons has revealed that nuclear weapons pose an unacceptable risk, that this risk is higher than commonly understood and that it continues to increase over time. Protection of civilians is a fundamental duty of States and requires particular care on their part. Many delegations affirmed that in the interest of the very survival of humanity nuclear weapons must never be used again, under any circumstances.
- States expressed various views regarding the ways and means of advancing the nuclear disarmament agenda. A range of legally binding collective approaches to achieving progress toward a world without nuclear weapons was discussed. Many delegations reaffirmed that the total elimination of nuclear weapons is the most effective way to prevent their use.
- Many delegations expressed appreciation for the important contribution of civil society and researchers in all aspects of advancing nuclear disarmament and non-proliferation and the achievement of a world without nuclear weapons. The necessity of a multilateral and inclusive approach in pursuing this objective was highlighted by many delegations.
- The majority of delegations underscored that the final elimination of nuclear weapons should be pursued within an agreed legal framework, including a nuclear weapons convention.
- A number of delegations argued that a step-by-step approach was the most effective and practical way to achieve nuclear disarmament, referring in particular to the entry into force of the [Comprehensive Nuclear-Test-Ban Treaty (CTBT)] and a Treaty banning the production of fissile material for nuclear weapons. These delegations also noted that the global security environment needs to be taken into consideration in discussions about nuclear weapons and nuclear disarmament. In this connection, they promoted various unilateral, bilateral, plurilateral and multilateral, building blocks that should and can be taken in the near- to mid-term in support of a world without nuclear weapons.
- Many delegations stressed the need for security for all and underscored that the only way to guarantee this security is through the total elimination of nuclear weapons and their prohibition. They expressed support for the negotiation of a new legal instrument prohibiting nuclear weapons constituting an effective measure towards nuclear disarmament, as required also by the NPT.

After issuing the chairman's summary, Austria also presented a statement, titled "Austrian Pledge" solely in its

national capacity, and without binding any other participant. Austria stated:

- After careful consideration of the evidence, Austria has come to the following inescapable conclusions and makes the subsequent pledge to take them forward with interested parties in available fora, including in the context of the NPT and its upcoming 2015 Review Conference.
- Austria calls on all states parties to the NPT to renew their commitment to the urgent and full implementation of existing obligations under Article VI, and to this end, to identify and pursue effective measures to fill the legal gap for the prohibition and elimination of nuclear weapons and Austria pledges to cooperate with all stakeholders to achieve this goal.
- Austria pledges to cooperate with all relevant stakeholders, States, International Organisations, the International Red Cross and Red Crescent Movements, parliamentarians and civil society, in efforts to stigmatise, prohibit and eliminate nuclear weapons in light of their unacceptable humanitarian consequences and associated risks.⁴²

Although Austria does not clarify what “effective measures to fill the legal gap” means, it is likely to imply a conclusion of treaties for banning nuclear weapons. Austria may call on other countries for supporting or joining the “Austrian Pledge.”

Joint Statement at the First Committee

At the 2014 NPT PrepCom, a joint statement on the humanitarian impact of nuclear weapons was not issued, in contrast to the previous PrepCom. However, a number of participating countries touched upon the issue of the humanitarian dimension of nuclear weapons in their statements and working papers, and emphasized the importance of this issue.

At the UN General Assembly on October 20, 2014, New Zealand, on behalf of 155 participating countries (including Austria, Brazil, Chile, Egypt, Indonesia, Japan, Kazakhstan, Mexico, New Zealand, Nigeria, Norway, Philippines, Saudi Arabia, South Africa, Sweden, Switzerland and UAE), presented again the Joint Statement on the Humanitarian Consequences of Nuclear Weapons.⁴³

In the joint statement, participating countries reiterated the following arguments used in previous statements:

- “Past experience from the use and testing of nuclear weapons has amply demonstrated the unacceptable humanitarian consequences caused by the immense, uncontrollable destructive capability and indiscriminate nature of these weapons.”
- “A key message from experts and international organisations [participating in the two Conferences on the Humanitarian Impact of Nuclear Weapons hosted by Norway and Mexico, respectively] was that no State or international body could address the immediate humanitarian emergency caused by a nuclear weapon detonation or provide adequate assistance to victims.”
- “[W]e firmly believe that awareness of the catastrophic consequences of nuclear weapons must underpin all approaches and efforts towards nuclear disarmament.”
- “It is in the interest of the very survival of humanity that nuclear weapons are never used again, under any circumstances. The catastrophic effects of a nuclear weapon detonation, whether by accident, miscalculation

⁴² “Austrian Pledge,” Vienna Conference on the Humanitarian Impact of Nuclear Weapons, December 8-9, 2014.

⁴³ “Joint Statement on the Humanitarian Consequences of Nuclear Weapons,” Delivered by Ambassador Dell Higgie, New Zealand at the United Nations, First Committee, October 20, 2014.

or design, cannot be adequately addressed. All efforts must be exerted to eliminate the threat of these weapons of mass destruction.”

- “The only way to guarantee that nuclear weapons will never be used again is through their total elimination. All States share the responsibility to prevent the use of nuclear weapons, to prevent their vertical and horizontal proliferation and to achieve nuclear disarmament, including through fulfilling the objectives of the NPT and achieving its universality.”

On the same day the above statement was presented, Australia, on behalf of 20 countries (including U.S. allies Australia, Belgium, Canada, Germany, Japan and the Netherlands), also issued the Joint Statement on the Humanitarian Consequences of Nuclear Weapons.⁴⁴ This statement seemed to be an alternative for those countries (except Japan and Finland as the only countries to participate in both statements) which concur on the principle regarding the humanitarian consequences of nuclear weapons but cannot participate in the New Zealand statement due to their security policies.

In the Australia statement, participating countries argued for the necessity of taking concrete measures for nuclear disarmament, together with recognizing the importance of the humanitarian dimensions of nuclear weapons, as follow.

- It is in the interests of the very survival of humanity that nuclear war must never occur.
- [E]liminating nuclear weapons is only possible through substantive and constructive engagement with those states which possess nuclear weapons.
- To create the conditions that would facilitate further major reductions in nuclear arsenals and eventually eliminate them requires the global community to cooperate to address the important security and humanitarian dimensions of nuclear weapons.
- [W]e have to accept that the hard practical work necessary to bring us closer to a world free of nuclear weapons must still be done. ... There are no short cuts.

Response from Nuclear-Weapon States

As noted in the previous *Hiroshima Reports*, NWS cautiously monitored the debates regarding the humanitarian consequences of nuclear weapons. For example, in the joint statement issued by the NWS as the conclusion of the NWS (P5) Conference in April 2014, they “emphasized their shared understanding of the severe consequences of nuclear weapon use and their resolve to continue to give the highest priority to avoiding such contingencies, which is in the interests of all nations.”⁴⁵ The U.S. Under Secretary Gottemoeller also stated at the 2014 NPT PrepCom:

For nearly seven decades, the international community has struggled with the profound challenge nuclear weapons pose to our security as nations and our survival as human beings. My recent trips to the Marshall Islands and Hiroshima were potent reminders of the need to persevere in confronting this challenge. It is imperative that we make sure that people remember the human impact of nuclear weapons.⁴⁶

In September, the United States also announced that investigations were starting on whether nuclear tests in the

⁴⁴ “Joint Statement on the Humanitarian Consequences of Nuclear Weapons,” Delivered by Ambassador John Quinn, Australia, at the United Nations, First Committee, October 20, 2014.

⁴⁵ “Joint Statement on the P5 Beijing Conference.”

⁴⁶ “Statement by the United States,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, General Debate, New York, April 29, 2014.

New Mexico desert had adverse affects on cancer levels among residents.⁴⁷

At the same time, however, the attitudes of NWS on this issue remain very cautious. The five NWS all decided again not to participate in the Conference on the Humanitarian Impact of Nuclear Weapons in Nayarit.⁴⁸ In the report submitted to the 2014 NPT PrepCom, the United States implied that its nuclear strategy does not go against the humanitarian dimensions of nuclear weapons, reiterating a sentence written in the 2013 Nuclear Employment Strategy Report that its nuclear plans are “consistent with the fundamental principles of the law of armed conflict and [would] apply the principles of distinction and proportionality and [would] not intentionally target civilian populations and civilian objects.”⁴⁹ France, Russia and the United Kingdom did not hide their concerns that discussions about the humanitarian dimensions on nuclear weapons would lead to an increased demand for commencing negotiation of a Nuclear Weapons Convention. France argued that the parallel initiatives toward nuclear disarmament, including promoting discussion of the humanitarian dimensions of the nuclear weapons, “disregard the real strategic context... [and t]hey merely undermine[d] the Action Plan and the NPT review process which brings us together today.”⁵⁰ Russia stated that while it was “fully aware of the extremely negative consequences of the nuclear weapons use,” it was also “convinced that stressing the humanitarian aspects of the use of nuclear weapons use and attempts to use these issues for the earliest ‘delegitimization’ of nuclear weapons [would] distract the international community from practical steps aimed at creating the international conditions conducive to their further reductions.”⁵¹ The United Kingdom expressed its disappointment that “[m]uch of the humanitarian consequences initiative has not... been focused on the consequences of the use of nuclear weapons [but] focused instead on asserting that nuclear weapons per se are inherently unacceptable.”⁵²

The U.K. and the U.S. participation in the Vienna Conference therefore attracted positive attention. However, the United States clearly stated that the “conference [was] not the appropriate venue for disarmament negotiations or pre-negotiation discussions and the United States [would] not engage in efforts of that kind in Vienna.”⁵³ And, as mentioned above, both countries opposed any idea or proposal that debates on the humanitarian dimensions of nuclear weapons should lead to commencement of negotiations on a Nuclear Weapons Convention.

⁴⁷ Dan Frosch, “Decades After Nuclear Test, U.S. Studies Cancer Fallout,” *Wall Street Journal*, September 15, 2014, <http://online.wsj.com/articles/decades-after-nuclear-test-u-s-studies-cancer-fallout-1410802085>.

⁴⁸ Five NWS, in unity, decided not to participate in the Conference on the Humanitarian Impact of Nuclear Weapons in Oslo in March, either. The reasons they argued was that “[NWS remained] concerned that the Oslo Conference [would] divert discussion away from practical steps to concrete conditions for further nuclear weapons reductions,” while they do “understand the serious consequences of nuclear weapon use.” (“P5 Announcement not to Attend the Oslo Conference,” http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/oslo-2013/P5_Oslo.pdf.) U.S. Acting Under Secretary Rose Gottemoeller and U.K. Parliamentary Under Secretary of State at the Foreign and Commonwealth Office Alistair Burt respectively reiterated the similar explanations written in the “P5 Announcement” as the reasons not to participate in the Oslo Conference. See “UK Parliament,” March 11, 2013, http://www.publications.parliament.uk/pa/cm201213/cmhansrd/cm130311/text/130311w0002.htm#130311w0002.htm_spnew66; Rose Gottemoeller, “The Obama Administration’s Second Term Priorities for Arms Control and Nonproliferation,” Remarks, Geneva Centre for Security Policy, Geneva, March 20, 2013, <http://www.state.gov/t/us/206454.htm>.

⁴⁹ NPT/CONF.2015/PC.III/16, May 1, 2014.

⁵⁰ “Statement by France,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, May 2, 2014.

⁵¹ “Statement by Russia,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, May 1, 2014.

⁵² “Statement by the United Kingdom,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, May 2, 2014.

⁵³ Office of the Spokesperson, U.S. Department of State, “United States Will Attend the Vienna Conference on the Humanitarian Impact of Nuclear Weapons,” November 7, 2014, <http://www.state.gov/r/pa/prs/ps/2014/11/233868.htm>.

(3) 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). The status of their strategic (nuclear) delivery vehicles and warheads under the Treaty has been periodically updated in the U.S. State Department homepage (see Table 1-2 below).

Table 1-2: Russian and U.S. strategic (nuclear) delivery vehicles and warheads under the New START

	Aggregate limits	U.S.							
		Feb 2011	Sep 2011	Mar 2012	Sep 2012	Mar 2013	Sep 2013	Mar 2014	Sep 2014
Deployed strategic (nuclear) warheads	1,550	1,800	1,790	1,737	1,722	1,654	1,688	1,585	1,642
Deployed strategic delivery vehicles	700	882	822	812	806	792	809	778	794
Deployed/non-deployed strategic delivery vehicles	800	1,124	1,043	1,040	1,034	1,028	1,015	952	912
	Aggregate limits	Russia							
		Feb 2011	Sep 2011	Mar 2012	Sep 2012	Mar 2013	Sep 2013	Mar 2014	Sep 2014
Deployed strategic (nuclear) warheads	1,550	1,537	1,566	1,492	1,499	1,480	1,400	1,512	1,643
Deployed strategic delivery vehicles	700	521	516	494	491	492	473	498	528
Deployed/non-deployed strategic delivery vehicles	800	865	871	881	884	900	894	906	911

Source) 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.

Source) U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, October 25, 2011, <http://www.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, <http://www.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, <http://www.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, <http://www.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, <http://www.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, <http://www.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, <http://www.state.gov/t/avc/rls/232359.htm>.

According to the data on their strategic nuclear arsenals as of March 2014, Russia increased more than 100 deployed strategic (nuclear) warheads compared with September 2013 when the previous count was made. Both Russia and the United States also added 131 and 57 strategic (nuclear) warheads, respectively from March to September 2014. Furthermore, Russia increased the numbers of its deployed/non-deployed strategic delivery vehicles since September 2013. This appears to have been a product of Russia deploying new Inter-Continental Ballistic Missiles (ICBMs) and Submarine Launched Ballistic Missiles (SLBMs). On the other hand, some analysts predicted that "[h]undreds of Russian missiles will be retired over the next decade. The size of the Russian arsenals will most likely continue to decrease over the next decade."⁵⁴

⁵⁴ Hans M. Kristensen, "New START: Russia and the United States Increase Deployed Nuclear Arsenals," Federation of American Scientists, October 2, 2014, <http://fas.org/blogs/security/2014/10/newstart2014/>. See also "New START September 2014 Numbers," *Russian Strategic Nuclear Forces*, October 1, 2014, http://russianforces.org/blog/2014/10/new_start_september_2014_numbe.shtml.

Besides the numbers of the Russian and the U.S. strategic (nuclear) warheads and delivery vehicles, the United States also declared the number of each type of its strategic delivery vehicles.

Table 1-3: U.S. Strategic (nuclear) delivery vehicles

<ICBMs and ICBM Launchers>

	September 2012			March 2013			September 2013			March 2014		
	MM-III	PK	total	MM-III	PK	total	MM-III	PK	total	MM-III	PK	total
Deployed ICBMs	449	0	449	449	0	449	448	0	448	449	0	449
Non-deployed ICBMs	263	58	321	256	58	314	256	57	313	250	56	306
Deployed and Non-deployed Launchers of ICBMs	506	51	557	506	51	557	506	51	557	506	1	507
Deployed Launchers of ICBMs	449	0	449	449	0	449	448	0	448	449	0	449
Non-deployed Launchers of ICBMs	57	51	108	57	51	108	58	51	109	57	1	58
Test Launchers	6	1	7	6	1	7	6	1	7	6	1	7

MM-III: Minuteman III PK: Peacekeeper

<SLBMs and ICBM Launchers>

	September 2012		March 2013		September 2013		March 2014	
	Trident II	total	Trident II	total	Trident II	total	Trident II	total
Deployed SLBMs	239	239	232	232	260	260	240	240
Non-deployed SLBMs	180	180	176	176	147	147	168	168
Deployed and Non-deployed Launchers of SLBMs	336	336	336	336	336	336	336	336
Deployed Launchers of SLBMs	239	239	232	232	260	260	240	240
Non-deployed Launchers of SLBMs	97	97	104	104	76	76	96	96
Test Launchers	0	0	0	0	0	0	0	0

<Heavy Bombers>

	September 2012				March 2013				September 2013				March 2014		
	B-2A	B-52G	B-52H	total	B-2A	B-52G	B-52H	total	B-2A	B-52G	B-52H	total	B-2A	B-52H	total
Deployed Heavy Bombers	10	30	78	118	10	24	77	111	11	12	78	101	11	78	89
Non-deployed Heavy Bombers	10	0	13	23	10	0	14	24	9	0	12	21	9	11	20
Test Heavy Bombers	1	0	2	3	1	0	2	3	1	0	2	3	1	2	3
Heavy Bombers Equipped for Non-nuclear Armament	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source) U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, November 30, 2012, <http://www.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://www.state.gov/t/avc/rls/211454.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, January 1, 2014, <http://www.state.gov/t/avc/rls/21922.htm>; U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, July 1, 2014, <http://www.state.gov/t/avc/rls/228652.htm>.

Since the entry into force of the New START, neither side has alleged noncompliance. However, some members of the Russian State Duma "have proposed...to unilaterally suspend" the New START as a response to the expansion of U.S. sanctions against Russia's annexation of Crimea in March 2014, as well as intervention in Ukraine's turmoil.⁵⁵

⁵⁵ "Russian Lawmakers Propose to Suspend New START Treaty," *Itar-Tass*, July 17, 2014, <http://en.itar-tass.com/world/741087>.

Although the New START—unlike START and START II—does not prohibit or restrict possession of MIRVed ICBMs, it should be noted that the United States finished de-MIRVing all of its land-based Minuteman ICBM in June 2014.⁵⁶

Reductions of non-strategic nuclear weapons and the allegations of non-compliance of the INF Treaty

After the conclusion of the New START, the United States called on Russia to reduce non-strategic nuclear weapons mutually, but Russia did not respond. At the 2013 NPT PrepCom, Russia reiterated that it had reduced by three-fourths (75%) the number of its non-strategic nuclear weapons held by the Soviet Union in 1991. Russia also stated that all of its non-strategic nuclear weapons were stored within its territory in centralized highly secure facilities.⁵⁷ During 2014, neither Russia nor the United States updated their policies on arms control of non-strategic nuclear weapons or reduced their arsenals.

Meanwhile, the allegations of Russian non-compliance with the Intermediate-range Nuclear Forces (INF) Treaty become a more contentious issue between the two nuclear superpowers. In the Report issued by the U.S. Department of State in July 2014, titled “Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments”:

The United States has determined that the Russian Federation is 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 km to 5,500 km, or to possess or produce launchers of such missiles. . . . In 2013, the United States raised these concerns with the Russian Federation on repeated occasions in an effort to resolve U.S. concerns. The United States will continue to pursue resolution of U.S. concerns with Russia.⁵⁸

According to that Report, the United States raised its concerns over the breach of the Treaty to Russia in 2013. While the United States has yet to reveal what concrete actions by Russia are considered to constitute violations of the INF Treaty, one of them seems to be an allegation that since 2008 Russia has repeated test flights of R-500 (Iskander-K) GLCMs with a range of approximately 2,000 km.⁵⁹

Reportedly, the United States concluded that Russia had violated the INF Treaty more than once, and President Obama conveyed such a conclusion to Russian President Vladimir V. Putin in a letter. President Obama and State Secretary John F. Kerry also requested the convening of a bilateral high-level meeting with the aim of discussing steps that Russia might take to come back into compliance.⁶⁰ At the U.S. House hearings in December 2014, U.S. Under Secretary Gottemoeller testified, “To date, Russia has been unwilling to acknowledge its violation or address our concerns. Therefore, we are reviewing a series of diplomatic, economic, and military measures to protect the

⁵⁶ Jenn Rowell, “Last Malmstrom ICBM Reconfigured under Treaty,” *Great Falls Tribune*, June 20, 2014, <http://www.greatfallstribune.com/story/news/local/2014/06/18/last-malmstrom-icbm-reconfigured-treaty/10773351/>

⁵⁷ “Statement by the Russian Federation,” Second Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, Geneva, April 25, 2013.

⁵⁸ U.S. Department of State, “Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments,” July 2014, pp. 8-10.

⁵⁹ Hans M. Kristensen, “Russia Declared In Violation Of INF Treaty: New Cruise Missile May Be Deploying,” Federation of American Scientists, July 30, 2014, <http://fas.org/blogs/security/2014/07/russia-inf/>; Michael R. Gordon, “U.S. Says Russia Tested Missile, Despite Treaty,” *New York Times*, January 29, 2014, <http://www.nytimes.com/2014/01/30/world/europe/us-says-russia-tested-missile-despite-treaty.html>; Paul N. Schwartz, “Russian INF Treaty Violations: Assessment and Response,” Center for Strategic and International Studies, October 16, 2014, <http://csis.org/publication/russian-inf-treaty-violations-assessment-and-response>.

⁶⁰ Michael R. Gordon, “U.S. Says Russia Tested Cruise Missile, Violating Treaty,” *New York Times*, July 29, 2014, <http://www.nytimes.com/2014/07/29/world/europe/us-says-russia-tested-cruise-missile-in-violation-of-treaty.html>.

interests of the United States and our Allies, and encourage Russia to uphold its nuclear arms control commitments.”⁶¹ Brian P. McKeon, Principal Deputy Under Secretary of Defense for Policy, also told the same hearing that “the Joint Staff has conducted a military assessment of the threat if Russia were to deploy an INF Treaty-range ground-launched cruise missile in Europe or the Asia-Pacific region. ... The Joint Staff assessment has led us to review a broad range of military response options and consider the effect each option could have on convincing Russian leadership to return to compliance with the INF Treaty, as well as countering the capability of a Russian INF Treaty-prohibited system.”⁶²

On the other hand, Russia dismisses the U.S. claims, arguing that the allegations are baseless and without proof.⁶³ Instead, Russia asserts that it is the United States that has violated the INF Treaty as follows:⁶⁴

- U.S. tests of target-missiles for missile defense have similar characteristics to intermediate-range missiles;
- production of armed drones by the Americans evidently falls within the definition of ground-launched cruise missiles in the Treaty; and
- Mk-41 launch systems, which the United States intends to deploy in Poland and Romania within the European Phased Adaptable Approach of the BMD, can also launch intermediate-range cruise missiles.

At the bilateral talks in September 2014, Russia refused to discuss the issues on INF Treaty compliance, and two sides simply exchanged accusations of the other’s violation.⁶⁵ Russian Deputy Foreign Minister Sergei Ryabkov stated that a renewal of consultations on this issue was not expected in the near future.⁶⁶ Issues of the INF Treaty were unresolved in 2014.

B) A concrete plan for further reduction of nuclear weapons

On April 8, 2014, the U.S. Department of Defense issued a plan of the composition and numbers of its deployed and deployed/non-deployed strategic delivery vehicles it intends to possess on the day it completes the implementation of its obligations under the New START. This includes the following:⁶⁷

⁶¹ Rose E. Gottemoeller, “Testimony,” Joint Hearing, House Foreign Affairs Committee, Subcommittee on Terrorism, Nonproliferation, and Trade, House Armed Services Committee, Subcommittee on Strategic Forces, December 10, 2014.

⁶² Brian P. McKeon, Principal Deputy Under Secretary of Defense for Policy, “Statement,” before the House Committee on Armed Services, Subcommittee on Strategic Forces and Committee on Foreign Affairs, Subcommittee on Terrorism, Nonproliferation, and Trade, December 10, 2014.

⁶³ Tom Collina, “Russia Breaches INF Treaty, U.S. Says,” *Arms Control Today*, Vol. 44, No. 7 (September 2014), pp. 31-33. See also “Russia’s Top General Says Moscow committed to Nuclear Missile Treaty,” *Reuters*, July 31, 2014, <http://www.reuters.com/article/2014/07/31/us-russia-usa-treaty-idUSKBN0G023L20140731>. As for the U.S. counterarguments, see Brian P. McKeon, Principal Deputy under Secretary of Defense for Policy, “Statement,” before the House Committee on Armed Services, Subcommittee on Strategic Forces and Committee on Foreign Affairs, Subcommittee on Terrorism, Nonproliferation, and Trade, December 10, 2014.

⁶⁴ “Comment by the Russian Ministry of Foreign Affairs Regarding the American Accusations that Russia Violates the INF Treaty,” July 30, 2014, http://mid.ru/brp_4.nsf/0/A46210AFCF9BBF3D44257D27005C8FC5.

⁶⁵ Bill Gertz, “Russia Stonewalls U.S. on Charges of Nuclear Missile Treaty Breach,” *Washington Free Beacon*, September 16, 2014, <http://freebeacon.com/national-security/russia-stonewalls-u-s-on-charges-of-nuclear-missile-treaty-breach/>.

⁶⁶ “New Consultations with US on INF Treaty Issues Unlikely: Russian Foreign Ministry,” *RIA Novosti*, October 20, 2014, <http://en.ria.ru/russia/20141020/194330164/New-Consultations-with-US-on-INF-Treaty-Issues-Unlikely-> -html

⁶⁷ U.S. Department of Defense, “Report on Plan to Implement the Nuclear Force Reductions, Limitations, and Verification and Transparency Measures Contained the New START Treaty Specified in Section 1042 of the National Defense Authorization Act for Fiscal Year 2012,” April 8, 2014.

Table 1-4: U.S. deployed and deployed/non-deployed strategic delivery vehicles on completion of the New START reductions

	Deployed	Deployed/non-deployed
Minuteman III ICBM	400	454
Trident D5 SLBM	240	280
B-2/B-52H Heavy Bomber	60	66

According to the plan, the United States intends to reduce a further 86 deployed/non-deployed strategic delivery vehicles from the level of those in 2014. While the number of the ICBM launchers remains at the current level, the United States would maintain 54 of the Minuteman III weapons outside of their underground silos and keep those launch facilities in “warm” status.⁶⁸

Regarding post-New START reductions of Russian-U.S. strategic nuclear weapons, there was no progress in 2014. The United States reiterated President Obama’s proposal in 2013 to seek negotiated reductions of deployed strategic nuclear weapons by both side of up to one-third of the level established in the New START.⁶⁹ However, Russia has expressed reluctance, arguing that “[a]ny further progress in the field of nuclear disarmament [would] require taking into account all factors that affect the strategic stability,”⁷⁰ and that issues on the BMD, CPGS and arms control in outer space should be included in any further bilateral talks. Furthermore, deterioration of the bilateral relationship has made any progress on U.S.-Russian nuclear arms control more difficult.

Progress in bilateral reductions of non-strategic nuclear weapons can also not be expected, at least in the near future, particularly after the annexation of Crimea by Russia, and exacerbation of U.S./NATO and Russian tensions. Russia has repeatedly called on NATO member states, as a first step, to take all non-strategic nuclear weapons back to the territories of the owners of such weapons.⁷¹ NATO member states have, for several years, been discussing the future of the U.S. tactical nuclear weapons deployed in five European NATO countries. However, some of them, which had previously been advocating their withdrawal from European soil, now refrained from requesting to do so, due to facing the heightening tension between Russia and NATO. It is analyzed that “some members of the alliance [would] insist on increasing reliance on nuclear weapons while others [would] defend the status quo.”⁷²

There have been no new proposals by other nuclear-weapon/armed states to take new, concrete measures for further reductions of their nuclear arsenals. At the 2014 NPT PrepCom, Russia stated again that other nuclear-weapon/armed states should participate in any future nuclear weapons reductions.⁷³ China argued that “[s]tates with the largest nuclear arsenals bear a special responsibility for nuclear disarmament and should take the lead in

⁶⁸ “DoD Announces Strategic Force Structure,” News Release, April 8, 2014, <http://www.defense.gov/Releases/Release.aspx?ReleaseID=16627>.

⁶⁹ “Remarks by President Obama at the Brandenburg Gate,” Berlin, June 19, 2013, <http://www.whitehouse.gov/the-press-office/2013/06/19/remarks-president-obama-brandenburg-gate-berlin-germany>; U.S. Department of Defense, “Report on Nuclear Employment Strategy of the United States: Specified in Section 491 of 10 U.S.C.,” June 19, 2013.

⁷⁰ “Statement by Russia,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, May 1, 2014.

⁷¹ “Statement by Russia,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, April 30, 2014.

⁷² Nikolai Sokov and Miles A. Pomper, “NATO’s Post-Ukraine Nuclear Policy: Wales Is the Beginning of a Process, Not the Decision Point,” *National Interest*, September 4, 2014, <http://nationalinterest.org/feature/nato%E2%80%99s-post-ukraine-nuclear-policy-wales-the-beginning-11193>.

⁷³ “Statement by Russia,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, April 30, 2014.

reducing their nuclear arsenals drastically. When conditions are ripe, all nuclear-weapon States should join the multilateral nuclear disarmament framework.”⁷⁴ Neither France nor the United Kingdom touched upon the issue of commencing multilateral nuclear weapons reductions.⁷⁵ Meanwhile, the United Kingdom previously announced to reduce its “nuclear forces to no more than 120 operationally available warheads and a total stockpile of no more than 180 warheads,” which will be completed by the mid 2020s. It also stated intent to start “the process to cut the maximum number of warheads onboard each deployed submarine from 48 to 40.”⁷⁶

C) Trends on strengthening/modernizing nuclear weapons capabilities

While nuclear-weapon/armed states have reiterated their commitments to promoting nuclear disarmament, they continue to modernize and/or strengthen their nuclear weapons capabilities, which include at least 27 ballistic missiles, nine cruise missiles, eight naval vessels, five bombers, eight warheads, and eight weapons factories, according to a report written by a U.S. scholar.⁷⁷ At the 2014 NPT PrepCom, the NPDI expressed their deep concerns “about the reported build-up of nuclear arsenals, against the clear intent of the international community to achieve the goal of a world free of nuclear weapons.”⁷⁸ Brazil also complained that the “[c]ut in arsenals are quickly offset by qualitative improvements in nuclear forces, by the modernization of nuclear weapons and their delivery systems and by the roles ascribed for nuclear weapons in national defense doctrines.”⁷⁹

United States

The United States plans to spend about \$355 billion on nuclear weapons over the next 10 years, and up to \$1 trillion over 30 years.⁸⁰ The U.S. government has also been studying the development of follow-on ICBMs, SLBMs, Long Range Strike-Bombers and Long-Range Stand-off (LRSO) weapons to replace its existing strategic delivery systems that entered service in the Cold War era.⁸¹

The United States also continues to work on updating its existing nuclear warheads, even though it has committed itself “not to develop new nuclear warheads or pursue new military missions for nuclear weapons.”⁸² Under the so called “3+2” plan, the United States intends to rebuild the U.S. nuclear arsenal and reduce the number of warhead types from seven to five—three types of strategic ballistic missiles, one type of Air Launch Cruise Missile

⁷⁴ NPT/CONF.2015/PC.III/13, April 29, 2014.

⁷⁵ French President François Hollande said in February 2013 that it would not be involved in the U.S.-Russian nuclear reduction negotiations. “France Reluctant to be Involved in Russia-U.S. Nuclear Disarmament Talks,” *Xinhua News Agency*, February 28, 2013, <http://www.nzweek.com/world/france-reluctant-to-be-involved-in-russia-u-s-nuclear-disarmament-talks-51805/>.

⁷⁶ “Statement by the United Kingdom,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, May 2, 2014.

⁷⁷ Hans M. Kristensen, “Nuclear Weapons Modernization: A Threat to the NPT?” *Arms Control Today*, Vol. 44, No. 4 (May 2014), pp. 8-15; Hans M. Kristensen and Robert S. Norris, “Slowing Nuclear Weapon Reductions and Endless Nuclear Weapon Modernizations: A Challenge to the NPT,” *Bulletin of the Atomic Scientists*, Vol. 70, No. 4 (July/August 2014), pp. 94-107.

⁷⁸ “Statement by Japan on Behalf of the Nonproliferation and Disarmament Initiative,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, General Debate, New York, April 28, 2014.

⁷⁹ “Statement by Brazil,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, General Debate, New York, April 28, 2014.

⁸⁰ William J. Broad and David E. Sanger, “U.S. Ramping Up Major Renewal in Nuclear Arms,” *New York Times*, September 21, 2014, http://www.nytimes.com/2014/09/22/us/us-ramping-up-major-renewal-in-nuclear-arms.html?_r=1. See also Jon B. Wolfsthal, Jeffrey Lewis and Marc Quint, “The Trillion Dollar Nuclear Triad,” James Martin Center for Nonproliferation Studies, January 2014.

⁸¹ On the U.S. modernization of nuclear weapons capabilities, see, for example, testimonies and debates at the Senate Armed Services Committee, Strategic Forces Subcommittee, United States Senate, April 17, 2013. See also Amy F. Wolf, “Nuclear Modernization in an Age of Austerity,” *Arms Control Today*, Vol. 44, No. 2 (March 2014), pp. 20-24.

⁸² “Statement by Thomas Countryman, Assistant Secretary for International Security and Nonproliferation Department of State, United States of America,” Second Session of the Preparatory Committee for the 2015 NPT Review Conference, General Debate, Geneva, April 22, 2013.

(ALCM), and one type of nuclear gravity bomb.⁸³ In March 2014, the Obama administration announced that it would delay key elements of the plan due to growing concern about the program's high cost and its technically ambitious approach. Still, the administration continues to plan of the development of an IW-1, interoperable nuclear warhead, which will replace the existing W-78 warhead for ICBMs and the W-88 warheads for SLBMs. The U.S. National Nuclear Security Administration (NNSA) explains that the United States will be able to reduce the size of its hedge stockpile of its nuclear warheads by developing the IW-1. However, one estimate is that the cost of its development would be three or four times higher than refurbishing the existing nuclear warhead, and there would be no reduction in the stockpile of nuclear warheads.⁸⁴

On the LRSO, which will be introduced in 2027, the U.S. Nuclear Weapons Council selected the W80-4 warhead for it, which will be a modification of the W80-1 warhead and re-deployed with a new name. However, due to the enormous cost of the program, estimated at \$10-20 billion, there is a concern that promoting this program may encumber other programs for more important non-nuclear capabilities.⁸⁵ The United States has also planned to consolidate four variations of the existing B61 nuclear gravity bombs into a single version, named B61-12, incorporating technology for improving safety and reliability, and equipping with tail kits for increasing accuracy. The NNSA denies that a new capability or mission will be added for the B61-12, but some argue that the capabilities of the B61-12 will be increased compared to the existing B61 variants.⁸⁶

Furthermore, the U.S. Defense and Energy Departments plan to consolidate production capability of "pits," the most important component of nuclear warheads, from the current 10 per year, to 30 per year by 2026,⁸⁷ and to 50-80 per year by 2030.⁸⁸

Russia

Russia has reiterated its policies on active development and deployment of new type of strategic delivery vehicles for replacing its aging strategic nuclear arsenals. Defense Minister Sergei Shoigu stated that, "Taking into account the role and importance of long-range high-precision weapons in strategic deterrence, we are planning to quadruple by 2021 the number of carriers of high-accuracy weaponry."⁸⁹ Deputy Prime Minister Dmitry Rogozin also stated that Russia would renew 100 percent of its ICBM forces.⁹⁰ Russian Ministry of Defense plans that the share of

⁸³ Tom Z. Collina, "Future of '3+2' Warhead Plan in Doubt," *Arms Control Today*, Vol. 44, No. 4 (May 2014), pp. 34-35; Amy F. Woolf, "Nuclear Modernization in an Age of Austerity," *Arms Control Today*, Vol. 44, No. 2 (March 2014), pp. 20-24.

⁸⁴ Douglas P. Guarino, "U.S. Sticks to Plan for Interoperable Nuclear Warheads, Despite Criticism," *National Journal*, April 16, 2014, <http://www.nationaljournal.com/global-security-newswire/u-s-sticks-to-plan-for-interoperable-nuclear-warheads-despite-criticism-20140416>.

⁸⁵ Hans M. Kristensen, "W80-1 Warhead Selected For New Nuclear Cruise Missile," *Federation of American Scientists*, October 10, 2014, http://fas.org/blogs/security/2014/10/w80-1_lrso/.

⁸⁶ On the B61-12, see Hans M. Kristensen and Robert S. Norris, "The B61 Family of Nuclear Bombs," *Bulletin of the Atomic Scientists*, Vol. 70, No. 4 (July/August 2014), pp. 1-6.

⁸⁷ Office of Chief Financial Officer, U.S. Department of Energy, "FY 2015 Congressional Budget Request," Volume 1, National Nuclear Security Administration, DOE/CF-0096, March 2014, p. 64, http://www.energy.gov/sites/prod/files/2014/03/f12/Volume_1_NNSA.pdf.

⁸⁸ U.S. Department of Energy, "Fiscal Year 2015 Stockpile Stewardship and Management Plan, Report to Congress," April 2014, pp. 2-6, http://nnsa.energy.gov/sites/default/files/nnsa/04-14-inlinefiles/2014-04-11%20FY15SSMP_FINAL_4-10-2014.pdf. On the production of "pit," see also Jonathan E. Medalia, "U.S. Nuclear Weapon 'Pit' Production Options for Congress," *CRS Report*, February 21, 2014; Jonathan E. Medalia, "Manufacturing Nuclear Weapon 'Pits': A Decisionmaking Approach for Congress," *CRS Report*, August 15, 2014

⁸⁹ "Russia to Quadruple Precision Strategic Weapon Platforms by 2021," *RIA Novosti*, May 14, 2014, http://en.ria.ru/military_news/20140508/189675836/Russia-to-Quadruple-Precision-Strategic-Weapon-Platforms-by-2021.html.

⁹⁰ "Russia Overhauls Nuclear Missile Forces as Tensions with West Flare," *Moscow Times*, September 22, 2014, <http://www.themoscowtimes.com/business/article/russia-overhauls-nuclear-missile-forces-as-tensions-with-west-flare/507514.html>

new missile systems will reach nearly 60 percent by 2016, and increase to 98 percent by 2021.⁹¹ At the end of October 2014, President Putin said that “the share of new armaments in [its] strategic nuclear forces has...reached 55 percent.”⁹² On the other hand, Financial Minister Anton Siluanov warned that “Russia could no longer afford a multi-billion-dollar revamp of the armed forces approved by President..., stepping up a campaign to trim spending as sanctions over the Ukraine crisis bite.”⁹³

To realize the abovementioned program, in 2014 Russia has actively tested and deployed new strategic ballistic missiles. As for ICBMs, it conducted test launches of a new, MIRVed RS-24 (Yars) in April and December,⁹⁴ and a SS-25 (Topol) in May. The Russian Strategic Rocket Force plan to deploy new rail-mobile ICBMs as early as 2018.⁹⁵ Regarding SLBMs, the Russian Navy officially accepted the Liner version of the R-29RM (Liner) for service in early 2014.⁹⁶ Russia also successfully carried out tests of its new RSM-56 (Bulava) in September, October and November. Furthermore, it test-fired an R-29RMU (Sineva) from a submarine in the Barents Sea for a check on its reliability in November.⁹⁷ In September, Russia’s third Borei-class Ballistic Missile Submarine Nuclear-Powered (SSBN), named Vladimir Monomakh, has finished state sea trials.⁹⁸ Russia plans to build eight Borei-class SSBNs by 2020, and seems set to start a construction of a fifth submarine at the end of 2014.⁹⁹

China

According to the report submitted by China to the 2014 NPT PrepCom, it “has modernized its nuclear weapons solely to ensure the safety, security, reliability and effectiveness of its nuclear arsenal.”¹⁰⁰ However, it is unclear how far its procurement policies meet these criteria.

In its Annual Report on the China’s Military in 2014, the U.S. Defense Department reported that China’s new JL-2 SLBM, with an estimated range of 7,400 km, was about to enter service and be loaded on the JIN-class SSBN (Type 094), and that “China [was] likely to conduct its first nuclear deterrence patrols with [it] in 2014.”¹⁰¹ However, the actual operational status is still unclear. In September, the existence of the DF-26 intermediate-range ballistic missile (IRBM), with a range of 3,500 km, and based on the DF-21 medium-range ballistic missile

⁹¹ “Rearmament of Russia’s Strategic Missile Forces to be Completed by 2020,” *Itar-Tass*, July 4, 2014, <http://en.itar-tass.com/russia/739004>.

⁹² “Share of New Armaments in Russian Strategic Nuclear Forces Reaches 55% — Putin,” *Itar-Tass*, October 31, 2014, <http://en.itar-tass.com/russia/757667>.

⁹³ “Finance Minister Warns Russia can’t Afford Military Spending Plan,” *Reuters*, October 7, 2014, <http://www.reuters.com/article/2014/10/07/us-russia-economy-spending-defence-idUSKCN0HW1H420141007>. See also Nikolas K. Gvosdev, “The Bear Has No Claws: Is Russia’s Massive Military Modernization Over?” *National Interest*, October 10, 2014, <http://nationalinterest.org/feature/the-bear-has-no-claws-russias-massive-military-modernization-11445>.

⁹⁴ “Russia Tests New Yars ICBM,” *Voice of Russia*, April 14, 2014, http://voiceofrussia.com/news/2014_04_14/Russia-tests-new-Yars-ICBM-7271/.

⁹⁵ “Rail-mobile ICBM, Barguzin, Gets a Green Light,” *Russian Strategic Nuclear Forces*, December 17, 2014, http://russianforces.org/blog/2014/12/rail-mobile_icbm_barguzin_gets.shtml.

⁹⁶ “Liner Version of the R-29RM SLBM Accepted for Service,” *Russian strategic nuclear forces*, April 2, 2014, http://russianforces.org/blog/2014/04/liner_version_of_the_r-29rm_sl.shtml.

⁹⁷ “Russia Test-fires Intercontinental Missile from Submarine,” *Reuters*, November 5, 2014, <http://www.reuters.com/article/2014/11/05/russia-missile-idUSL6N0SV2NR20141105>.

⁹⁸ “Russia’s Newest Borei-class Nuclear Sub Completes Sea Trials,” *RT*, September 12, 2014, <http://rt.com/news/187216-russia-borei-submarine-bulava/>

⁹⁹ “Russia to Start Building 5th Borey Nuclear Sub in 2014,” *RIA Novosti*, November 13, 2013, http://en.ria.ru/military_news/20131113/184691368/Russia-to-Start-Building-5th-Borey-Nuclear-Sub-in-2014.html.

¹⁰⁰ NPT/CONF.2015/PC.III/13, April 29, 2014.

¹⁰¹ Office of Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2014*, 2014, p. 8.

(MRBM), was revealed. The DF-26C, that is reportedly capable of reaching Guam, seems to have been in service for several years.¹⁰² It is also reported that China conducted the first flight test of the DF-31B, a new variant of its road-mobile ICBM.¹⁰³ Furthermore, China has been reported to have conducted a test flight of its MIRVed ICBM, the DF-41.¹⁰⁴

France

France introduced the new M-51 SLBMs in 2014 with an estimated range of 8,000 km. This was 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 6,000 km. France plans to replace those M-45 with M-51 by 2017-2018.¹⁰⁵

The United Kingdom

One of the most significant developments in the U.K. nuclear position was the Scottish independence referendum in September 2014. The U.K. Vanguard-class SSBNs, the sole component of its nuclear force, are based at HM Naval Base Clyde, Scotland. If the Scottish people had voted in favor, an independent Scotland would have demanded their removal to one of the remaining parts of the United Kingdom. However, the vote was to remain part of the United Kingdom, and at the moment the force will remain based in Scotland.

The debates on replacements of the existing Vanguard-class SSBNs continued in 2014. One update is that one half of the ruling coalition, the Liberal Democrats, abandoned their proposal to replace both the existing ballistic missile submarines and their missiles with a force of smaller attack submarines carrying a new form of cruise missile and compatible nuclear warhead. Among the reasons for this decision was the costs of designing and developing new cruise missiles and warheads would be more expensive than acquiring new ballistic missile submarines capable of carrying the UK's existing Trident missiles; that cruise missiles would be vulnerable to an opponent's air defense; and that carrying cruise missiles with a shorter range than the existing SLBMs would put the new submarines at risk because they need to come closer to the opponent's territory in order to launch.¹⁰⁶

Another important issue on the U.K. nuclear weapons development was the immediate need to renew the existing 10 year U.K.-U.S. Mutual Defense Agreement. The United Kingdom has received key U.S. assistance for safety, maintenance and upgrade of the nuclear forces under their Agreement first concluded in 1958, and its amendment and extension was discussed by the two parties.¹⁰⁷ This Agreement remains classified in the United Kingdom, but not in the United States. In July 2014, U.S. President Obama transmitted to Congress the amended Agreement, which will run through 2024.¹⁰⁸ Under this amendment, the United Kingdom and the United States will continue

¹⁰² "Strategic Weapons: China Produces A Guam Killer," *Strategy Page*, September 8, 2014, <http://www.strategypage.com/htm/w/hicbm/20140908.aspx>.

¹⁰³ Bill Gertz, "China Conduct Flight Test of New Mobile ICBM," *Washington Free Beacon*, October 2, 2014, <http://freebeacon.com/national-security/china-conducts-flight-test-of-new-mobile-icbm/>.

¹⁰⁴ Bill Gertz, "China Tests ICBM With Multiple Warheads," *Washington Free Beacon*, December 18, 2014, <http://freebeacon.com/national-security/china-tests-icbm-with-multiple-warheads/>.

¹⁰⁵ See, for example, "France Submarine Capabilities," Nuclear Threat Initiative, August 15, 2013, <http://www.nti.org/analysis/articles/france-submarine-capabilities/>.

¹⁰⁶ "Alternatives to Trident are Both Costly and Dangerous," *Telegraph*, July 8, 2014, <http://www.telegraph.co.uk/comment/letters/10951803/Alternatives-to-Trident-are-both-costly-and-dangerous.html>.

¹⁰⁷ See, for example, Hugh Chalmers, "The Bang Behind the Buck: Replacing the UK's Nuclear Warheads," *RUSI Occasional Paper*, March 2014, https://www.rusi.org/downloads/assets/201403_OP_Bang_Behind_the_Buck.pdf.

¹⁰⁸ "Message to the Congress -- Amendment Between the United States and the United Kingdom of Great Britain and Northern Ireland," July 24, 2014, <http://www.whitehouse.gov/the-press-office/2014/07/24/message-congress-amendment-between-united-states-and-united-kingdom-grea>.

to transfer and exchange “classified information concerning atomic weapons; nuclear technology and controlled nuclear information; material and equipment for the development of defense plans; training of personnel; evaluation of potential enemy capability; development of delivery systems; and the research, development, and design of military reactors.”¹⁰⁹

India

India seems to be energetically pursuing developments toward constructing a strategic nuclear triad, that is, ICBMs, SLBMs and nuclear bombers. In March 2014, the Defense Research and Development Organization (DRDO) test-fired a nuclear-capable K-4 ballistic missile, with a range of 3,000 km, from a pontoon submerged more than 30 meters deep in the sea.¹¹⁰ In the same month, India successfully tested underwater the K-15/B-05 SLBM with a range of 750-1,500 km.¹¹¹ It also actively conducted flight-tests of land-based nuclear-capable missiles throughout 2014, including the Agni-IV IRBM, with a range of 4,000 km, in January and December; the Prithvi II sort-range ballistic missile (SRBM), with a range of 350 km, in March; the Nirbhay cruise missile, with a range of more than 1,000 km in October; the Agni-II IRBM, with a range of 2,000 km in November.

Pakistan

Pakistan seems to prioritize development and deployment of nuclear-capable short- and medium-range missiles for ensuring deterrence vis-à-vis India. In 2014, Pakistan frequently test-fired SRBMs in particular. In addition, it conducted flight tests of both the Shaheen II MRBM, with a range of 1,500 km, and the Shaheen I SRBM, with a range of 900 km.¹¹² Some analysts also consider that Pakistan is seeking to acquire a sea-based missile capability.¹¹³ Both India and Pakistan are assessed to be increasing their nuclear arsenal by about ten warheads per year.¹¹⁴

Israel

It is unclear whether the Israeli Jerico 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 sea-launched cruise missile (SLCM), carried by its Dolphin-class diesel submarines, the fifth one of which was commissioned in 2014.¹¹⁵

North Korea

North Korea is widely considered to be continuing development of its nuclear weapons and missiles. The U.S.

¹⁰⁹ Richard Norton-Taylor, “Nuclear Weapons Deal with US Renewed in Secret, UK Confirms,” *Guardian*, October 20, 2014, <http://www.theguardian.com/world/defence-and-security-blog/2014/oct/20/nuclear-weapons-uk-us>.

¹¹⁰ T. S. Subramanian, “Success on Debut for Undersea Launch of Missile,” *The Hindu*, May 8, 2014, <http://www.thehindu.com/news/national/success-on-debut-for-undersea-launch-of-missile/article5986757.ece>.

¹¹¹ “India Successfully Tests Ballistic Missile Designed for Submarine,” *Global Security Newswire*, March 26, 2014, <http://www.nti.org/gsn/article/india-successfully-test-launches-ballistic-missile-designed-submarines/>.

¹¹² “Pakistan Successfully Test Fires Nuclear Capable Shaheen-II Ballistic Missile,” *Daily Times*, November 13, 2014, <http://www.dailytimes.com.pk/national/13-Nov-2014/pakistan-successfully-test-fires-nuclear-capable-shaheen-ii-ballistic-missile>; “Pakistan Test-Fires 2nd Nuclear-Capable Missile in Week,” *Press TV*, November 17, 2014, <http://www.presstv.ir/detail/2014/11/17/386354/pakistan-testfires-ncapable-missile/>.

¹¹³ Tim Craig and Karen DeYoung, “Pakistan Is Eyeing Sea-Based and Short-Range Nuclear Weapons, Analysts Say,” *Washington Post*, September 21, 2014, http://www.washingtonpost.com/world/asia_pacific/pakistan-is-eyeing-sea-based-and-short-range-nuclear-weapons-analysts-say/2014/09/20/1bd9436a-11bb-11e4-8936-26932bcbfd6ed_story.html.

¹¹⁴ SIPRI, *SIPRI Yearbook 2014*, chapter 6.

¹¹⁵ “Israel’s 5th Dolphin Submarine Unveiled in Germany,” *Jerusalem Post*, April 29, 2014, <http://www.jpost.com/Defense/Israels-5th-Dolphin-submarine-unveiled-in-Germany-311454>.

Director of National Intelligence (DNI) James R. Clapper testified at the Senate hearing in January 2014 that he “assess[ed] that North Korea has followed through on its announcement by expanding the size of its Yongbyon enrichment facility and restarting the reactor that was previously used for plutonium production.”¹¹⁶

On the 5 MW graphite reactor located in Yongbyon, there were two different analyses: while one assessed that North Korea had faced difficulties with its operation,¹¹⁷ the other analyzed that the reactor was active.¹¹⁸ Then, on September 4, the International Atomic Energy Agency (IAEA) “said it has seen releases of steam and water indicating that North Korea may be operating a reactor.”¹¹⁹ In October, the U.S. think tank Institute for Science and International Security (ISIS) published its analysis that the reactor may have been shut down, possibly for either partial refueling or renovations.¹²⁰ However, South Korean Foreign Minister Yun Byung-se said, “I do not necessarily have the same views as the report.”¹²¹ Still, in November the ISIS again reported that the reactor had been shut down for 10 weeks, possibly to removing a limited number of fuel rods.¹²²

North Korea is likely to have an interest in further production of weapon-grade plutonium and highly enriched uranium (HEU).¹²³ It seems to continue construction of an experimental light water reactor (LWR), and the expansion of its uranium enrichment activities, including installation of additional centrifuges.¹²⁴ However, it is unclear when the experimental LWR will be commissioned and how many centrifuges have been installed. If the experimental LWR starts to operate, North Korea could acquire approximately 30-40 kg of plutonium per year from it.¹²⁵ In November, North Korea reportedly started operating a new uranium enrichment facility, next to the existing one, in each of which 2,000 centrifuges are likely installed.¹²⁶ Meanwhile, there remains no hard evidence that North Korea has actually produced weapon-grade HEU.¹²⁷

¹¹⁶ James R. Clapper, Director of National Intelligence, “Worldwide Threat Assessment of the US Intelligence Community,” Senate Select Committee on Intelligence, January 29, 2014.

¹¹⁷ Nick Hansen, “North Korea’s Yongbyon Nuclear Facility: Problems Continue with Reactor Operations,” *38 North*, July 18, 2014, <http://38north.org/2014/07/yongbyon071814/>.

¹¹⁸ David Albright, Serena Kelleher-Vergantini, William Baker, and Won Gi You, “Activities Detected at North Korea’s Yongbyon Nuclear Site,” *Imagery Brief*, Institute for Science and International Security, August 6, 2014.

¹¹⁹ Fredrik Dahl, “IAEA See Signs North Korea Reactor May be Operating,” *Reuters*, September 4, 2014, <http://www.reuters.com/article/2014/09/04/us-northkorea-nuclear-iaea-idUSKBN0GZ2EF20140904>.

¹²⁰ David Albright and Serena Kelleher-Vergantini, “Yongbyon: Centrifuge Enrichment Plant Expands while 5 MWe Reactor is Possibly Shut Down,” *Imagery Brief*, Institute for Science and International Security, October 3, 2014.

¹²¹ “South Korean Foreign Minister Claims North Korea’s Nuclear Reactor Up and Running,” *RIA Novosti*, October 7, 2014, <http://en.ria.ru/world/20141007/193779280/South-Korean-Foreign-Minister-Claims-North-Koreas-Nuclear-Reactor.html>. As a counter-counterargument, see David Albright and Serena Kelleher-Vergantini, “ISIS Response to South Korean Foreign Minister’s Comments on Yongbyon,” *ISIS Reports*, October 10, 2014.

¹²² Nick Hansen, “North Korea’s Yongbyon Nuclear Facility: Reactor Shutdown Continues; Activity at Reprocessing Facility,” *38 North*, November 19, 2014, <http://38north.org/2014/11/yongbyon111914/>.

¹²³ David Albright and Serena Kelleher-Vergantini, “Yongbyon: Centrifuge Enrichment Plant Expands while 5 MWe Reactor is Possibly Shut Down,” *Imagery Brief*, Institute for Science and International Security, October 3, 2014.

¹²⁴ David Albright and Serena Kelleher-Vergantini, “Monitoring Activities at Yongbyon Nuclear Site,” *Imagery Brief*, Institute for Science and International Security, April 23, 2014; David Albright, Serena Kelleher-Vergantini, William Baker, and Won Gi You, “Activities Detected at North Korea’s Yongbyon Nuclear Site,” *Imagery Brief*, Institute for Science and International Security, August 6, 2014; Albright and Kelleher-Vergantini, “Yongbyon.”

¹²⁵ “N.K.’s Nuclear Stockpile Could Rise Sharply If Light Water Reactor Goes into Operation: U.S. Expert,” *Yonhap News Agency*, July 7, 2014, <http://english.yonhapnews.co.kr/northkorea/2014/07/07/26/0401000000AEN20140707000200315F.html>.

¹²⁶ “North Operates New Uranium Plant,” *Korea JoongAng Daily*, November 5, 2014, <http://koreajoongangdaily.joins.com/news/article/article.aspx?aid=2996908&cloc=joongangdaily|home|top>.

¹²⁷ Shannon N. Kile, Phillip Patton Schell and Hans M. Kristensen, “North Korea’s Military Nuclear Capabilities, Stockholm International Peace Research Institute, *SIPRI Yearbook 2014: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 2014), p. 336.

North Korea is widely considered to be exploring miniaturized nuclear warheads for mounting on ballistic missiles. South Korea's Defense Ministry has assessed that "North Korea has reduced the nuclear payload to about 1,500 kg, but not less than 1,000 kg, which means that its nuclear weapons aren't warfare-ready yet. ...But [it is] presume[d] that the North's three previous nuclear tests have enabled it to improve technology to increase nuclear yield and make the payload smaller."¹²⁸ According to SIPRI's assessment, there exists no evidence that North Korea has already developed a miniaturized nuclear warhead or related technologies. However, it may have succeeded in producing a few nuclear weapons of a more advanced design to the previous rudimentary ones.¹²⁹ By contrast, General Curtis Scaparrotti, Commander of U.S. Forces on the Korean Peninsula, said, "I believe [North Koreans] have the capability to miniaturize a device at this point, and they have the technology to actually deliver what they say they have."¹³⁰

As for the KN-08 road-mobile ICBM that North Korea has developed, the U.S. DNI assessed that "North Korea has already taken initial steps towards fielding this system, although it remain[ed] untested."¹³¹ The U.S. Defense Department estimated in its report that KN-08's "reliability as a weapons system would be low" since it has yet to be flight-tested.¹³² Meanwhile, North Korea has also continued to upgrade the launch pad of the Sohae Satellite Launching Station in Tongchang-ri to enable launch of much larger rockets, and to test rocket engines for the KN-08.¹³³ The former activities seem to be nearing completion.¹³⁴ North Korea conducted an engine test in August, though it is unclear how successful it was; and a major construction program of the Launching Station seemed to have been completed in October.¹³⁵

North Korea repeated flight-tests of SRBMs such as the Scud-C, in 2014. It also test-fired two No-dong MRBMs from the Sukchon region, which flew about 650 km before dropping into the Sea of Japan on March 26. Because there is no missile base identified in that region, two No-dongs seemed to be launched from mobile-launchers. In addition, the South Korean Joint Chiefs of Staff reported the North's development of a SLBM, and that North Korea may be developing a missile launch tube for submarine use at one of its naval bases.¹³⁶

¹²⁸ "N.Korea 'Improves Nuclear Technology,'" *Chosunilbo*, April 24, 2014, http://english.chosun.com/site/data/html_dir/2014/04/24/2014042400728.html.

¹²⁹ Kile, Schell and Kristensen, "North Korea's Military Nuclear Capabilities," pp. 336-337.

¹³⁰ David Francis, "North Korea's Nuclear Program Advancing, U.S. Military Leader Says," *Foreign Policy*, October 24, 2014, http://thecable.foreignpolicy.com/posts/2014/10/24/north_korea_s_nuclear_program_advancing_us_military_leader_says.

¹³¹ James R. Clapper, Director of National Intelligence, "Worldwide Threat Assessment of the US Intelligence Community," Senate Select Committee on Intelligence, January 29, 2014.

¹³² Office of Secretary of Defense, *Military and Security Developments Involving the Democratic People's Republic of Korea*, March 2014, p. 10.

¹³³ Nick Hansen, "Significant Developments at North Korea's Sohae Test Facility," *38 North*, January 29, 2014, <http://38north.org/2014/01/sohae012914/>; Nick Hansen and Jack Liu, "Update on North Korea's Sohae Satellite Launching Station: Rapid Construction of Possible New Launch Complex," *38 North*, May 20, 2014, <http://38north.org/2014/05/sohae052014/>.

¹³⁴ Nick Hansen, "North Korea's Sohae Facility: Preparations for Future Large Rocket Launches Progresses; New Unidentified Buildings," *38 North*, July 29, 2014, <http://38north.org/2014/07/sohae073014>. See also Nick Hansen, "North Korea's Sohae Satellite Launching Station: Upgrades Near Completion; Ready for More Launches?" *38 North*, August 21, 2014, <http://38north.org/2014/08/sohae082114/>.

¹³⁵ Nick Hansen, "North Korea's Sohae Satellite Launching Station: Major Upgrade Program Completed; Facility Operational Again," *38 North*, October 1, 2014, <http://38north.org/2014/10/sohae100114/>.

¹³⁶ "S. Korea Spots Signs of N. Korea's Submarine Rocket Development," *Yonhap*, September 14, 2014, <http://english.yonhapnews.co.kr/national/2014/09/14/65/0301000000AEN20140914000500315F.html>. See also Joseph S. Bermudez Jr., "North Korea: Test Stand for Vertical Launch of Sea-Based Ballistic Missiles Spotted," *38 North*, October 28, 2014, <http://38north.org/2014/10/jbermudez102814/>.

(4) Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies

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

In the reports that the five NWS submitted to the 2014 NPT PrepCom, they emphasized that the roles of their nuclear weapons are quite defensive, describing as follows:

- “China’s nuclear weapons are for the sole purpose of defending against possible nuclear attacks and never for threatening or targeting and other country.”¹³⁷
- “[T]he role of nuclear weapons in France’s doctrine of defence and national security is strictly limited to the defence of its vital interests and, in extreme circumstances, to self-defence.”¹³⁸
- “Russia reserves the right to use nuclear weapons in response to the use of nuclear and other types of weapons of mass destruction against Russia and/or its allies, as well as in the case of aggression against the Russian Federation involving the use of conventional weapons where the very existence of the State is placed under threat.”¹³⁹
- “The United Kingdom has long been clear that we would only consider using our nuclear weapons in extreme circumstances of self-defence, including the defence of our...NATO allies.”¹⁴⁰
- “The United States would only consider the use of nuclear weapons in extreme circumstances to defend the vital interests of the United States or its allies and partners.”¹⁴¹

These statements contain no new policy update. France and the United States mentioned “the defense of the vital interests,” whose definition is not necessarily clear. One interesting news was that a person involved in the preparation of a Russia’s new military doctrine told in December 2014 that “the renewed draft... would not have a reservation for preventive nuclear strikes on potential enemy.”¹⁴² However, the new military doctrine published at the end of December maintained the provisions of the previous, 2010 edition of the doctrine regarding the use of nuclear weapons, that is: “Russia reserves the right to use nuclear weapons in response to a use of nuclear or other weapons of mass destruction against her and (or) her allies, and in a case of an aggression against her with conventional weapons that would put in danger the very existence of the state.”¹⁴³

In 2014, Russia and the United States engaged in military actions whose intentions seemed to be to put pressure on each other, or to reassure allies about its defense commitments. On May 12-16, for example, the U.S. Strategic Command conducted the “Exercise Global Lightning 14,” in which approximately 10 B-52 and up to six B-2 heavy bombers participated, while the United States explained that the timing of the exercise was unrelated to real-world events, like Russia’s annexation of Crimea.¹⁴⁴ In June, the U.S. Air Force deployed two B-2s to Europe, following deployments of three B-52s. The United States announced at the same time that their deployments were

¹³⁷ NPT/CONF.2015/PC.III/13, April 29, 2014.

¹³⁸ NPT/CONF.2015/PC.III/14, April 25, 2014.

¹³⁹ NPT/CONF.2015/PC.III/17, April 25, 2014.

¹⁴⁰ NPT/CONF.2015/PC.III/15, April 30, 2014.

¹⁴¹ NPT/CONF.2015/PC.III/16, May 1, 2014.

¹⁴² “Preemptive Nuclear Strike Omitted from Russia’s New Military Doctrine,” *RT Novosti*, December 10, 2014, <http://rt.com/politics/213111-russia-nuclear-preemptive-strike/>.

¹⁴³ “New Version of the Military Doctrine,” *Russian Strategic Nuclear Forces*, December 26, 2014, http://russianforces.org/blog/2014/12/new_version_of_the_military_do.shtml. See also Vladimir Isachenkov, “New Russian military doctrine says NATO top threat,” *AP*, December 26, 2014, <http://bigstory.ap.org/article/be313436667346828c4c45978abc01b4/new-russian-military-doctrine-says-nato-top-threat>.

¹⁴⁴ U.S. Strategic Command Public Affairs, “Global Lightning 14,” May 11, 2014, http://www.stratcom.mil/news/2014/494/Global_Lightning_14/.

not intended to address a specific threat. However, these activities could be interpreted as bolstering reassurance provided to the NATO allies against continuing tensions with Russia over its behavior in Ukraine.¹⁴⁵

On the other hand, Russia carried out a large-scale nuclear war exercise near the border with Ukraine at the end of March, in which roughly 10,000 military personnel participated.¹⁴⁶ In September, when the NATO summit was held in Wales, two Russian Tu-95 strategic bombers conducted practice of ALCM attacks from the northern Atlantic near Iceland and Canada to the United States.¹⁴⁷ Furthermore, President Putin said that Russian Tu-95 patrols near NATO airspace in October were “a response to U.S. insistence on flying nuclear bombers along Russia’s border,” and the “exercises [were] exclusively conducted in international waters and international airspace,” without violating foreign airspace.¹⁴⁸ In December, NATO reportedly intercepted six Russian strategic bombers over the Baltic Sea.¹⁴⁹ In the same month, Russian Foreign Minister Sergei Lavrov implied that Russia had a right to deploy its nuclear weapons in the Crimean peninsula.¹⁵⁰

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

In 2014, no nuclear-weapon/armed state changed or transformed their policies regarding a no first use (NFU) or the “sole purpose” of nuclear weapons. Among the NWS, only China has highlighted its NFU policy. In a report submitted to the 2014 NPT PrepCom, China explained the reason why it has adopted this NFU policy, touching upon its military culture, including the concept of “just war” or one inspired by the military strategist Sun Tzu.¹⁵¹ The United States maintains a policy that “[t]he fundamental role of [its] nuclear weapons remains to deter nuclear attack on the United States and its Allies and partners”¹⁵² though it could not adopt a NFU or a “sole purpose” policy.

Among the 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. India received attention as to whether its NFU policy may be revised, as the manifesto of the Bharatiya Janata Party (BJP)—which conducted India’s nuclear tests in May 1998—promised to “study in detail India’s nuclear doctrine, and revise and update it, to make it relevant to challenges of current times,”¹⁵³ during the general election in May 2014 in which they were successful. However, BJP President Rajnath Singh stated afterwards that the BJP did not intend to reverse the NFU policy.¹⁵⁴ Prime Minister Narendra Modi also said in an interview before visiting Japan in August, “While every government

¹⁴⁵ “U.S. Deploys Two More Nuclear-Capable Bombers to Europe,” *Global Security Newswire*, June 9, 2014, <http://www.nti.org/gsn/article/us-deploys-two-more-nuclear-capable-bombers-europe/>

¹⁴⁶ “Russia Launches Nuclear-War Drill, Saying It Was Long Scheduled,” *Global Security Newswire*, March 28, 2014, <http://www.nti.org/gsn/article/russia-nuclear-force-drill-saying-long-scheduled/>.

¹⁴⁷ Bill Gertz, “Russian Strategic Bombers Near Canada Practice Cruise Missile Strikes on US,” *Washington Free Beacon*, September 8, 2014, <http://freebeacon.com/national-security/russian-strategic-bombers-near-canada-practice-cruise-missile-strikes-on-us/>.

¹⁴⁸ “Putin: Russian Strategic Bomber Patrols Are Response to U.S. Intransigence,” *Moscow Times*, November 17, 2014, <http://www.themoscowtimes.com/news/article/putin-russian-strategic-bomber-patrols-are-response-to-u-s-intransigence/511307.html>.

¹⁴⁹ “NATO Intercepts Russian Bombers Over Baltic Sea,” *Defense News*, December 9, 2014, <http://www.defensenews.com/apps/pbcs.dll/article?AID=2014312090038>.

¹⁵⁰ Sergei L. Loiko, “Russia Says It Has a Right to Put Nuclear Weapons in Crimea,” *Los Angeles Times*, December 15, 2014, <http://www.latimes.com/world/europe/la-fg-russia-nuclear-crimea-20141215-story.html>.

¹⁵¹ NPT/CONF.2015/PC.III/13, April 29, 2014.

¹⁵² U.S. Department of Defense, “Report on Nuclear Employment Strategy,” June 19, 2013, p. 4.

¹⁵³ “Will ‘Revise and Update’ India’s N-Doctrine, Says BJP Manifesto,” *India Express*, April 8, 2014, <http://indianexpress.com/article/india/politics/will-revise-and-update-indias-n-doctrine-says-bjp-manifesto/99/>

¹⁵⁴ “BJP Rules out Major Change to Nuclear Policy,” *Hindustan Times*, April 14, 2014, <http://www.hindustantimes.com/india-news/bjp-rules-out-major-change-to-nuclear-policy/article1-1207883.aspx>.

naturally takes into account the latest assessment of strategic scenarios and makes adjustments as necessary, there is a tradition of national consensus and continuity on such issues. I can tell you that currently, we are not taking any initiative for a review of our nuclear doctrine.”¹⁵⁵ At the First Committee of the UN General Assembly in October, India also reiterated that “[a]s a responsible nuclear power, India’s nuclear doctrine continue[d] to stress a policy of credible minimum deterrence with a posture of no-first-use and non-use against non-nuclear weapon states.”¹⁵⁶ India was one of the co-sponsors of the UN General Assembly resolution calling for the commencement in the Conference on Disarmament (CD) of negotiations on a treaty to ban a use of nuclear weapons.¹⁵⁷

C) Negative security assurances

In the report submitted to the 2014 NPT PrepCom, France stated that it “has given security assurance to all non-nuclear-weapon States that comply with their non-proliferation commitments.”¹⁵⁸ This negative security assurance (NSA) is similar to those of the United Kingdom and the United States, which have declared 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. However, France also adds a condition to its NSA policy that its commitment does not “affect the right to self-defence as enshrined in Article 51 of the United Nations Charter.”¹⁵⁹ No additional update on NSA policies were given by the other NWS: China declares an unconditional NSA; 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; and the United Kingdom and the United States declared the above-mentioned policies.

The NAM states criticized “the unilateral statement by each of the [NWS], in which they give very limited, conditional and insufficient ‘security assurances’ against the use of nuclear weapons to non-nuclear-weapon States parties to the Treaty. In the view of the Group, such unilateral statements fail to meet any of the requirements of universal, legally binding, effective, unconditional, non-discriminatory and irrevocable security assurances to all non-nuclear-weapon States parties to the Treaty against the use or threat of use of nuclear weapons.”¹⁶⁰ Among the NWS, only China argues that the international community should negotiate and conclude at an early date an international legal instrument on providing unconditional NSAs. France stated that it “considers [the] commitment [in its statement in April 1995] legally binding, and has so stated.”¹⁶¹

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

¹⁵⁵ Indrani Bagchi, “India Not Revisiting Its Nuclear Doctrine, Modi Assures Japan,” *Times of India*, August 30, 2014, <http://timesofindia.indiatimes.com/india/India-not-revisiting-its-nuclear-doctrine-Modi-assures-Japan/articleshow/41231521.cms>.

¹⁵⁶ “Statement by India,” at the First Committee of the 69th Session of the United Nations General Assembly, General Debate, New York, October 7, 2014.

¹⁵⁷ A/RES/69/69, December 11, 2014. Other co-sponsors included, *inter alia*, Egypt, Indonesia and Iran. As for voting behaviors, 126 countries favored the resolution while 58 abstained.

¹⁵⁸ NPT/CONF.2015/PC.III/14, April 25, 2014. At the 2014 NPT PrepCom, France also stated: “France recalls that all non-nuclear-weapon States Parties to the NPT respecting their non-proliferation obligations already have the negative security assurances given by France in the statement annexed to resolution 984.” “Statement by France,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, May 2, 2014.

¹⁵⁹ NPT/CONF.2015/PC.III/14, April 25, 2014.

¹⁶⁰ NPT/CONF.2015/PC.III/WP.16, April 1, 2014.

¹⁶¹ NPT/CONF.2015/PC.III/14, April 25, 2014.

weapons, India will retain the option of retaliating with nuclear weapons.” Pakistan has declared its NSA unconditional. In addition, North Korea has offered an NSA to NNWS so long as they do not join nuclear weapons states in invading or attacking it.

One contentious issue regarding NSAs in 2014 concerned Russia’s actions vis-à-vis Ukraine. In December 1994, Russia, the United Kingdom and the United States concluded the Budapest Memorandum on Security Assurances, under which they pledged to respect Ukrainian independence and sovereignty within its existing borders, to refrain from the threat or use of force against the territorial integrity or political independence of Ukraine, and to provide NSAs in return for Ukraine transferring all nuclear weapons in its territory to Russia and joining the NPT as a NNWS. Russia’s annexation of Crimea in March 2014 and its clandestine insertion of forces into eastern Ukraine violated the Budapest Memorandum and led many Ukrainians to question whether it was wise to have given up nuclear weapons. Ukrainian Defense Minister Valeriy Heletey asserted that Russia had threatened on several occasions across unofficial channels that, in the case of continued resistance it would be ready to use tactical nuclear weapons against Ukraine.¹⁶² If his assertion is true, Russia also violated the Memorandum in terms of the NSA. At the 2014 NPT PrepCom, Russia denied any violations against its obligations regarding NSA provided to Ukraine.¹⁶³

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 1-5 below.

Table 1-5: The Status of the Signature and the 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

At the 2014 NPT PrepCom, five NWS declared that they had agreed to sign the protocol to the Central Asian NWFZ Treaty. They actually did so on May 6. Regarding the Protocol to the Southeast Asian NWFZ Treaty, which no NWS has yet signed, while the five NWS implied that they have not been in a position to sign, the United States, for instance, stated that the NWS have engaged ASAEN to resolve any remaining differences.¹⁶⁴

¹⁶² Damien Sharkov, “Russia Has Threatened Nuclear Attack, Says Ukraine Defence Minister,” *Newsweek*, September 1, 2014, <http://www.newsweek.com/russia-has-threatened-nuclear-attack-says-ukraine-defence-minister-267842>.

¹⁶³ “Statement by Russia (on the application of security assurances),” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, May 2, 2014.

¹⁶⁴ “Statement by the United States,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, May 2, 2014.

Some NWS stated reservations or added interpretations to protocols of the NWFZ treaties when signing or ratifying them. On this point, the Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL) urged the “states signatories of the Protocols to the Treaty [of Tlatelolco] to modify or withdraw interpretative declarations made when signing and ratifying those instruments.”¹⁶⁵ The Association of Southeast Asian Nations (ASEAN) countries also called on the NWS to sign the Protocol to the SEANWFZ Treaty without any reservations. However, in the report submitted to the 2014 NPT PrepCom, Russia clarified its position that it “plans to make traditional reservations when signing the Protocols to the [CANWFZ Treaty and the SEANWFZ Treaty] that will not affect the interests of States that wish to strictly comply with their obligations under the [Treaties]. Such reservations are a common, routine practice.”¹⁶⁶

E) Relying on extended nuclear deterrence

In 2014, 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 from 150 to 200 B-61 nuclear gravity bombs in five NATO countries (Belgium, Germany, Italy, the Netherlands and Turkey), and thus maintains nuclear sharing arrangements with them. No U.S. nuclear force is deployed outside of its territory except in the European NATO countries mentioned above. On the matter of nuclear sharing, the NAM countries argue that it “constitutes 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.”¹⁶⁷

The unrest in Ukraine has implications for the issues regarding extended deterrence. For example, until recently, many Europeans had been advocating withdrawal of the U.S. tactical nuclear weapons deployed in the European NATO countries. However, with increasing concern over Russian behaviors and tension between NATO and Russia, the mood has shifted.¹⁶⁸

(5) De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons

In 2014, no nuclear-weapon/armed state changed their policies on the alert status of their nuclear arsenals. In the reports and statements submitted to the 2014 NPT PrepCom, the NWS explained their respective alert status positions as follow:

- China’s nuclear forces keep an appropriate level of alert in peacetime. If China comes under a nuclear threat, the nuclear forces will act upon the orders of the Central Military Commission, go into a higher level of alert, and get ready for a nuclear counterattack to deter the enemy from using nuclear weapons against China. If China comes under a nuclear attack, the nuclear forces will launch a resolute counterattack against the enemy.¹⁶⁹
- France reduced the permanent alert level of its nuclear forces twice, in 1992 and 1996. These alert level

¹⁶⁵ “Statement by The Secretary-General of the Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL),” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, General Debate, New York, April 30, 2014.

¹⁶⁶ NPT/CONF.2015/PC.III/17, April 25, 2014.

¹⁶⁷ “Statement by Indonesia, on behalf of Non-Aligned Movement,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, General Debate, New York, April 28, 2014.

¹⁶⁸ For example, in October 2014, Poland participated in a NATO nuclear strike exercise for the first time. Four years earlier, Poland's foreign minister had proposed a treaty limiting nuclear weapons in Europe. See Elisabeth Braw, “After Ukraine, Countries That Border Russia Start Thinking about Nuclear Deterrents,” *Newsweek*, April 15, 2014, <http://www.newsweek.com/2014/04/25/ after-ukraine-countries-border-russia-start-thinking-about-nuclear-deterrents-248133.html>.

¹⁶⁹ NPT/CONF.2015/PC.III/13, April 29, 2014.

reductions concerned both force response times and the number of weapons systems. In particular: since 1996, France only maintains one ballistic missile nuclear submarine (SSBN) permanently at sea; since the missiles of the Plateau d'Albion site were eliminated, France no longer has capabilities on permanent high alert status; and in 1997, France also announced that it no longer had permanently targeted forces ("detargeting"). It has consistently reaffirmed this since then.¹⁷⁰

- "[The] steps by the Russian Federation [regarding non-strategic nuclear weapons] have...served as a very important practical measure for "de-alerting" nuclear weapons."¹⁷¹
- "[T]he UK has taken steps to lower the operational status of our deterrent system. UK nuclear weapons are not on high alert, nor are they on 'launch on warning' status. The patrol submarine operates routinely at a 'notice to fire' measured in days rather than minutes as it did throughout the Cold War."¹⁷²
- The United States has taken the following measures: continuing the practice of keeping all nuclear-capable bombers and dual-capable aircraft (DCA) off of day-to-day alert; emphasizing the goal of maximized decision time for the President in the event of a crisis, including by making new investments in U.S. command and control systems; and directing the Defense Department to examine options to reduce the role of Launch Under Attack in U.S. nuclear planning, recognizing that the potential for a surprise, disarming nuclear attack is exceedingly remote.¹⁷³

According to one U.S. expert, about 1,800 nuclear weapons possessed by Russia and the United States are considered to be on high alert status, either Launch on Warning (LOW) or Launch under Attack (LUA). According to a representative of the Strategic Rocket Forces, Russia keeps 96 percent of its ICBMs on high alert.¹⁷⁴ 48 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.¹⁷⁵ It is assumed that because China keeps nuclear warheads de-mated from delivery vehicles, its nuclear forces are not on a hair-trigger alert posture. The key question, however, is whether Chinese nuclear warheads will be de-mated from the new SLBM JL-2 loaded onto the deployed Type 094 SSBNs.

There is little definitive information regarding nuclear-armed states' alert-status of 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."¹⁷⁶ It is widely considered that India's nuclear forces are not on a high alert status.

A number of NNWS have urged NWS to alter their alert posture. At the 2014 NPT PrepCom, for example, "De-alerting Group" (Chile, Malaysia, Nigeria, New Zealand and Switzerland) expressed their concerns that "in nearly

¹⁷⁰ NPT/CONF.2015/PC.III/14, April 25, 2014.

¹⁷¹ NPT/CONF.2015/PC.III/17, April 25, 2014.

¹⁷² NPT/CONF.2015/PC.III/15, April 30, 2014.

¹⁷³ NPT/CONF.2015/PC.III/16, May 1, 2014.

¹⁷⁴ "Russian Missile Force Readiness Rate," *Russian Strategic Nuclear Forces*, December 1, 2014, http://russianforces.org/blog/2014/12/russian_missile_force_readines.shtml.

¹⁷⁵ 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.

¹⁷⁶ 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/>.

15 years since de-alerting has been highlighted as a practical step, reducing operational readiness has been largely ignored by the relevant nuclear weapons States,¹⁷⁷ and proposed, among others, “to reduce alert levels (unilaterally, bilaterally or otherwise) in a concrete and measurable way and within a specific time frame; [and] to report to the States parties on measures taken regarding operational readiness/alert levels.”¹⁷⁸ The NPDI also called on “nuclear-armed States outside the [NPT for] taking steps towards de-alerting their nuclear forces.”¹⁷⁹

Proponents of de-alerting have often argued that such a measure is useful to prevent accidental use of nuclear weapons. On the other hand, NWS emphasize that they have taken adequate measures for preventing such a use, and express confidence regarding the safety and effective control of their nuclear arsenals:

- “China’s relevant institutions and combat troops strictly implement the nuclear safety control system, the accreditation system of nuclear-related personnel and the emergency response mechanism for nuclear-weapon-related accidents. China has adopted reliable technologies to strengthen the safety and physical protection of its nuclear weapons during storage, transportation and training, and has put in place special safety measures to avoid unauthorized and accidental launches, in order to ensure the absolute safety of these weapons.”¹⁸⁰
- France: “Strict procedures have been instituted to ensure that no weapons can be used without an order from the President of the Republic.”¹⁸¹
- “Russian nuclear weapons are under reliable control. The effectiveness of this control is enhanced by both organizational and technical measures. In particular, since 1991, the total number of nuclear weapons storage facilities has been reduced fourfold. Russia has developed and implemented a range of measures to counter terrorist acts, and comprehensive security inspections of all nuclear- and radiation-hazardous facilities and their readiness to prevent terrorist acts are conducted regularly.”¹⁸²
- “Robust arrangements are in place for the political control of the United Kingdom’s strategic nuclear deterrent. There are a number of technological and procedural safeguards built into the United Kingdom’s nuclear deterrent to prevent an unauthorized launch of its Trident missiles.”¹⁸³
- The new United States nuclear strategy... aims to further limit the potential for accidental launch by enhancing the safety, security and surety of the United States arsenal, while also maximizing the decision time available to the President in the event of a crisis. ...Continuing the practice of “open-ocean targeting” of all deployed ICBMs and submarine launched ballistic missiles (SLBMs), such that in the extremely unlikely event of an accidental launch, the missile would land in the open ocean.”¹⁸⁴

Still, the concerns about an accidental or unauthorized use of nuclear weapons have not been swept away easily.¹⁸⁵

¹⁷⁷ “Statement by the ‘De-Alerting Group,’” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, May 2, 2014. These five countries also proposed a UN General Assembly Resolution on “Decreasing the Operational Readiness of Nuclear Weapons Systems,” which was adopted as A/RES/69/42 on December 11, 2014 (166 in favor, 4 Against (France, Russia, the U.K. and the U.S.), 11 Abstentions (North Korea, Israel, South Korea, Turkey and others).

¹⁷⁸ NPT/CONF.2015/PC.III/WP.24, April 21, 2014.

¹⁷⁹ NPT/CONF.2015/PC.III/WP.6, March 14, 2014.

¹⁸⁰ NPT/CONF.2015/PC.III/13, April 29, 2014.

¹⁸¹ NPT/CONF.2015/PC.III/14, April 25, 2014.

¹⁸² NPT/CONF.2015/PC.III/17, April 25, 2014.

¹⁸³ NPT/CONF.2015/PC.III/15, April 30, 2014.

¹⁸⁴ NPT/CONF.2015/PC.III/16, May 1, 2014.

¹⁸⁵ For example, Patricia Lewis, et.al., published a report, in which they studies 13 cases of near misusing nuclear weapons inadvertently, and concluded, among others, 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-

This was one of the factors that the session titled “Risk Drivers for deliberate or inadvertent Nuclear Weapons Use” took place during the Vienna Conference on Humanitarian Impact of Nuclear Weapons.

(6) CTBT

A) Signing and ratifying the CTBT

As of October 2014, 163 countries among 183 signatories have deposited their instruments of ratification of the Comprehensive Nuclear-Test-Ban Treaty (CTBT). 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 (India, North Korea and Pakistan) have not even signed. Saudi Arabia and Syria, among the countries surveyed, have also not signed the CTBT.

While reiterating intent to strive for ratifying the CTBT,¹⁸⁶ the Obama administration has yet to submit it to the Senate for ratification. No significant progress or remarkable movement by other non-signatories/ratifiers surveyed in this Report was found in 2014, either. The then U.S. Acting Under Secretary for State Rose Gottemoeller said in February 2014, “I want to be clear—we have no desire to rush up to the Hill for a vote. . . . Once we’ve brought the [CTBT] back to people’s attention, we can move on to discussion and debate—just like we did with the New START Treaty. We will not be setting timeframes for moving forward.”¹⁸⁷ In September, she also stated, “First comes education, and then comes discussion and last and most importantly, comes debates. . . . I would ask people to refrain from counting votes right now.”¹⁸⁸ Israeli Prime Minister Benjamin Netanyahu made clear that he considered that the CTBT was “very significant,” and “has never had a problem” with it when he met with Executive Secretary of the CTBT Organization (CTBTO), Lassina Zerbo.¹⁸⁹ Still, Israel has not ratified it. There was no new progress toward signing and ratifying the CTBT by other countries that are listed in the Annex 2 but have yet to sign or ratify the Treaty.

Toward an early entry into force of the CTBT, the “Friends of the CTBT,” including Australia, Canada, Finland, Germany, Hungary, Indonesia, Japan and the Netherlands, hosted the Seventh CTBT Ministerial Meeting on September 26, 2014 in which more than 90 countries participated. Japan’s Foreign Minister Fumio Kishida presided over the meeting, and emphasized the importance of the CTBT and its entry into force in his opening remarks. He also announced that “Japan plans to host a meeting the Group of Eminent Persons . . . in Hiroshima [in 2015], with the aim of promoting the entry into force of the CTBT.”¹⁹⁰ In the joint statement signed by 104 countries, the participating countries “appeal[ed] to all States to make the utmost effort to achieve the prompt entry

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.

¹⁸⁶ Rose Gottemoeller, Acting Under Secretary for Arms Control and International Security, “Arms Control Priorities in 2014 and Beyond,” Remarks for Exchange Monitor’s Sixth Annual Nuclear Deterrence Summit, Arlington, February 14, 2014, <http://www.state.gov/t/us/2014/221662.htm>; “Energy Secretary Moniz’s Remarks at the U.S. Institute of Peace Conference,” September 15, 2014, <http://energy.gov/articles/energy-secretary-monizs-remarks-us-institute-peace-conference-prepared-delivery>.

¹⁸⁷ Gottemoeller, “Arms Control Priorities in 2014 and Beyond.”

¹⁸⁸ Rose Gottemoeller, Under Secretary for Arms Control and International Security, “Nuclear Weapons Testing: History, Progress, Challenges: Verification and Entry into Force of the CTBT,” Washington, DC, September 15, 2014, <http://www.state.gov/t/us/2014/231697.htm>.

¹⁸⁹ David Horovit, “Israel ‘Probably’ Next to Ratify Nuke Test Ban Treaty — Top Official,” *Times of Israel*, March 19, 2014, <http://www.timesofisrael.com/israel-probably-next-to-ratify-nuke-test-ban-treaty-expert/#ixzz2wS11j7D>.

¹⁹⁰ “Opening Remarks by H.E. Mr. Fumio Kishida, Minister for Foreign Affairs of Japan,” at the Seventh CTBT Ministerial Meeting, New York, September 26, 2014.

into force of the CTBT. [They] dedicate[d themselves] individually and jointly to realizing this goal and to continuing to raise awareness of this matter at the highest political level as well as at experts' level."¹⁹¹ Other efforts in 2014 included: Indonesia hosting the conference for promoting the entry into force of the CTBT in Southeast Asia in May;¹⁹² and on the "International Day for the Total Elimination of Nuclear Weapons" (September 27), Foreign Minister of Kazakhstan, Erlan Idrissof urged to ban nuclear tests and nuclear weapons, and noted its online advocacy campaign, The ATOM Project, which aims to mobilize people around the world to call for a nuclear test ban.¹⁹³ In addition, Kazakhstan took an initiative to designate August 29 as the "International Day against Nuclear Test." On that day, several events were held in New York, Washington DC, Vienna and other cities.

As for outreach activities for promoting the Treaty's entry into force, a document, "Activities Undertaken by Signatory and Ratifying States under Measure (I) of the Final Declaration of the 2009 Conference on Facilitating the Entry into Force of the Treaty in the Period September 2011-August 2013," distributed at the Conference, summarized activities conducted by ratifying and signatory states. It highlighted the bilateral activities related to the Annex 2 states (conducted by Australia, Austria, Belgium, Brazil, Japan, Mexico, the Netherlands, New Zealand, Norway, Poland, Russia, Turkey, the U.K., the U.S., and others), those pertaining to the non-Annex 2 states (conducted by Australia, Austria, Belgium, Brazil, Canada, France, Mexico, the Netherlands, New Zealand, Norway, Russia, Turkey, the U.K., the U.S., and others), the global-level activities (conducted by Australia, Austria, Belgium, Brazil, Canada, France, Japan, South Korea, Mexico, the Netherlands, New Zealand, Norway, Poland, Russia, Switzerland, Turkey, UAE, the U.K., the U.S., and others), and the regional-level activities (by Australia, Austria, Belgium, Brazil, France, Japan, South Korea, Mexico, the Netherlands, New Zealand, Poland, Turkey, UAE, the U.K., the U.S., and others) ¹⁹⁴.

B) The moratorium on nuclear test explosions pending CTBT's entry into force

Five NWS, 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.

North Korea has repeatedly implied it would soon be conducting a fourth nuclear test. After the North Korea's third nuclear test explosion in February 2013, the UN Security Council "decide[d] that the DPRK shall not conduct any further launches that use ballistic missile technology, nuclear tests or any other provocation" in the Resolution 2094 adopted in March 2013.¹⁹⁵ However, North Korea has yet to declare a moratorium. Instead, in March 2014 North Korean Deputy Ambassador to the United Nations Ri Tong Il stated that his country was "ready to take a series of additional nuclear measures to demonstrate the power of the self-defensive nuclear deterrent" unless the

¹⁹¹ "Joint Ministerial Statement on the CTBT," at the Seventh CTBT Ministerial Meeting, New York, September 26, 2014, http://www.ctbto.org/fileadmin/user_upload/statements/2014_ministerial_meeting/2014_joint_ministerial_statement_final.pdf.

Among the countries surveyed in the Hiroshima Report 2015, CTBT signatory countries are listed below; Australia, Austria, Belgium, Brazil, Canada, Chile, China, France, Germany, Indonesia, Japan, Kazakhstan, South Korea, the Netherlands, New Zealand, Nigeria, Norway, Philippines, Poland, Russia, South Africa, Sweden, UAE, the United Kingdom and the United States.

¹⁹² "Indonesia Hosts Two-Day Regional Conference on the CTBT," CTBTO, May 19, 2014, <http://www.ctbto.org/press-centre/highlights/2014/indonesia-hosts-two-day-regional-conference-on-the-ctbt/>.

¹⁹³ Michelle Witte, "Idrissov Calls for More Action, Promotes Declaration for Nuclear Weapon Free World at Nuclear Weapons Elimination Meeting," *Astana Times*, September 30, 2014, <http://www.astanatimes.com/2014/09/idrissov-calls-action-promotes-declaration-nuclear-weapon-free-world-nuclear-weapons-elimination-meeting/>. See also Anuar Fazylov, "Kazakhstan Urges Nuclear Test Ban Treaty Entry into Force at Int'l Conference," *Astana Times*, February 17, 2014, <http://www.astanatimes.com/2014/02/kazakhstan-urges-nuclear-test-ban-treaty-entry-force-intl-conference/>.

¹⁹⁴ CTBT-Art.XIV/2013/4, September 6, 2013.

¹⁹⁵ S/RES/2094, March 7, 2013.

United States altered its North Korea policy.¹⁹⁶ When the UN Security Council condemned North Korea's launch of No-dong MRBMs in its press statement, the North Korean Foreign Ministry responded on March 30 by stating that, "It would not rule out a new form of nuclear test for bolstering up its nuclear deterrence."¹⁹⁷ In February 2014, it was reported that North Korea had accelerated excavation activities at the nuclear test site located in Punggyeri, but that there were no signs of preparing a nuclear test.¹⁹⁸

North Korea threatened again to conduct a nuclear test in November 2014. Before the Third Committee of the UN General Assembly adopted a resolution in November that urged the Security Council to refer North Korea's human-rights record to the International Criminal Court (ICC), North Korea warned that the adoption of the resolution would compel it "not to refrain any further from conducting nuclear tests."¹⁹⁹ Furthermore, in the statement by the North Korean Foreign Ministry spokesman on November 20, North Korea warned again that "[n]ow that the U.S. hostile policy toward the DPRK compel[ed] the latter not to exercise restraint any longer in conducting a new nuclear test, its war deterrence [would] grow stronger unlimitedly to cope with the armed intervention of the U.S."²⁰⁰ Despite such intimidatory rhetoric, there seemed no preparations being made for a nuclear test in the near future.²⁰¹

C) Cooperation with the CTBTO Preparatory Commission

Regarding the countries surveyed in this study, the status of payments of contributions to the Preparatory Commission for the CTBTO (as of December 31, 2014) is as follows.²⁰²

- Fully paid: Australia, Austria, Belgium, Canada, Chile, China, Egypt, France, Germany, Israel, Japan, Kazakhstan, South Korea, Mexico, the Netherlands, New Zealand, Norway, Poland, Russia, South Africa, Sweden, Switzerland, Turkey, UAE, the U.K. and the U.S.
- Partially paid: Philippines
- 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

D) Contribution to the development of the CTBT verification systems

The establishment of the CTBT verification system has steadily progressed. However, the pace of establishing the International Monitoring System (IMS) stations in China, Egypt and Iran—in addition to those of India, Pakistan, North Korea and Saudi Arabia which have yet to sign the Treaty—has been lagging behind, compared to that in

¹⁹⁶ "North Korea Envoy Threatens New 'Nuclear Measures,'" *Global Security Newswire*, March 25, 2014, <http://www.nti.org/gsn/article/north-korea-envoy-threatens-new-nuclear-measures-if-us-does-not-alter-policy/>.

¹⁹⁷ "DPRK FM Blasts UN for Taking Issue with DPRK over Its Justifiable Rocket Launching Drills," *KCNA*, March 30, 2014, <http://www.kcna.co.jp/item/2014/201403/news30/20140330-15ee.html>.

¹⁹⁸ Jack Liu, "North Korea's Punggye-ri Nuclear Test Site: Significant Acceleration in Excavation Activity; No Test Indicators," *38 North*, February 13, 2014, <http://38north.org/2014/02/punggye021314/>; Jack Liu, "New Developments at North Korea's Punggye-ri Nuclear Test Site," *38 North*, April 22, 2014, <http://38north.org/2014/04/punggye042214/>; Nick Hansen and Jack Liu, "Update on North Korea's Punggye-ri Nuclear Test Site: Test Preparation Continues," *38 North*, April 27, 2014, <http://38north.org/2014/04/punggye042714/>.

¹⁹⁹ Mirjam Donath, "U.N. Panel Calls for North Korea Referral to International Court," *Reuters*, November 18, 2014, <http://www.reuters.com/article/2014/11/18/us-northkorea-un-rights-idUSKCN0J22EG20141118>.

²⁰⁰ "FM Spokesman Rejects UN 'Human Rights Resolution' against DPRK," *Korean Central News Agency*, November 20, 2014, <http://www.kcna.co.jp/item/2014/201411/news20/20141120-07ee.html>.

²⁰¹ Jack Liu, "No Sign of Preparations for an Impending Nuclear Test at North Korea's Punggye-ri," *38 North*, December 10, 2014, <http://38north.org/2014/12/punggye121014/>.

²⁰² "CTBTO Member States' Payment as at 31-Dec-2014," http://www.ctbto.org/fileadmin/user_upload/treasury/52_31Dec_2014_Member_States_Payments_01.pdf.

the other signatory countries.²⁰³

Among them, China started to send data from key IMS stations located there to the CTBTO in January 2014.²⁰⁴ China also reported on its efforts for the establishment of the verification system as followings:²⁰⁵

- “China has undertaken construction work on eleven monitoring stations and one radionuclide laboratory of the International Monitoring System for the CTBT”;
- “The Beijing and Guangzhou radionuclide stations have entered the third phase of the International Noble Gas Experiment”;
- “The Haila’er and Lanzhou primary seismic stations as well as the Beijing and Lanzhou radionuclide stations are undergoing testing and evaluation before certification”;
- “China has taken an active part in the negotiations of the on-site inspection operational manual”;
- “In April 2013, the Chinese Government and the Provisional Technical Secretariat co-organized equipment training courses for [mobile Argon-37 rapid measuring and detection system (MARDS) and the radio xenon sampling, purification and measurement system (XESPM)] in Chengdu and Beijing, respectively, in which 10 experts from 9 countries participated”; and
- “In November 2013, the Chinese Government and the Provisional Technical Secretariat co-organized the on-site inspection workshop-21 in Yangzhou.”

France and the United States also outlined their efforts in their respective reports submitted to the 2014 NPT PrepCom:

- France²⁰⁶
 - ✧ “France...provides technical support to the [CTBTO], and in particular for the completion of the verification regime”;
 - ✧ It “provides technical assistance for the operation and maintenance of 8 foreign stations”;
 - ✧ “France...makes a significant contribution to the engineering work necessary to implement the IMS”;
 - and
 - ✧ “France’s National Data Centre supports the development of CTBTO’s International Data Centre, both by providing software (infrasound data analysis, performance monitoring tools for the network of stations) and by seeking innovative solutions.”
- The United States²⁰⁷
 - ✧ “The United States makes the largest annual financial contribution to the Preparatory Commission of the [CTBTO]...From 1996 through 2013, the United States contributed over \$347 million through its annual assessment”;
 - ✧ “Since 2011, the United States has funded over \$23 million of contributions-in-kind projects to the Provisional Technical Secretariat to accelerate the development of the verification regime and to improve its capabilities”; and
 - ✧ “The United States has contributed up to \$25.5 million to rebuild the International Monitoring System

²⁰³ CTBTO, “Station Profiles,” <http://www.ctbto.org/verification-regime/station-profiles/>.

²⁰⁴ Preparatory Commission for the Comprehensive-Nuclear-Test Ban Treaty Organization, “Chinese Monitoring Stations Now Sending Data,” January 6, 2014, <http://www.ctbto.org/press-centre/press-releases/2014/chinese-monitoring-stations-now-sending-data/>.

²⁰⁵ NPT/CONF.2015/PC.III/13, April 29, 2014.

²⁰⁶ NPT/CONF.2015/PC.III/14, April 25, 2014.

²⁰⁷ NPT/CONF.2015/PC.III/16, May 1, 2014.

hydroacoustic station in the Crozet Islands.”

Some NNWS have also made proactive contributions to developing the CTBT verification system. For instance, Japan provided a voluntary contribution of US\$ 455,000 to the CTBTO for enhancing the CTBT verification system, and supporting activities of the Group of Eminent Persons (GEM).²⁰⁸

Regarding on-site inspection, the second Integrated Field Exercise (IFE14) took place from November to December, mainly in Jordan’s Dead Sea area, and more than 200 experts and observers participated. According to the CTBTO, during the five-week exercise, the inspection team searched an inspection area of nearly 1,000 square kilometers using 15 techniques for inspections, including equipment to detect traces of relevant radioactive noble gases on and beneath the ground as well as in the air.²⁰⁹ Executive Secretary Lassina Zerbo said that, “Through this exercise, we have shown the world that it is absolutely hopeless to try to hide a nuclear explosion from us. We’ve now mastered all components of the verification regime, and brought our on-site inspection capabilities to the same high level as the other two components, the 90% complete network of monitoring stations and the International Data Centre.”²¹⁰ Nine countries (Canada, China, Japan, Sweden, the United Kingdom, the United States, and others) and the EU provided contribution-in-kind to IFE14.²¹¹

E) Nuclear Testing

No nuclear explosive test was attempted in 2014, although North Korea repeatedly threatened to conduct a fourth test, as mentioned above.

Meanwhile, the United States continues to develop and conduct various non-explosive tests and experiments under the Stockpile Stewardship Program (SSP), in order to sustain and assess the nuclear weapons stockpile without the use of underground nuclear tests. The U.S. NNSA, which is part of the U.S. Department of Energy, has released quarterly reports on such experiments. Based on its press release, the NNSA conducted totally approximately 3,500 experiments in 11 types in FY2014. It conducted two experiments using the Z machine on September 4 and October 3, 2014 at the Sandia National Laboratories. The Z machine generates X-rays by fast discharge of capacitors, thus allowing for exploring the properties of plutonium materials under extreme pressures and temperatures.²¹² The United States also conducted one subcritical experiment without using plutonium in 2014. In addition, the Lawrence Livermore National Laboratory “will start testing plutonium using the world’s largest laser at the National Ignition Facility, beginning in early 2015...[for] re-creat[ing] the behavior of plutonium under conditions present in nuclear weapons without resorting to underground nuclear testing.”²¹³

²⁰⁸ CTBTO, “Japan Makes Voluntary Contribution in Support of the Verification Regime and GEM,” January 20, 2014, <http://www.ctbto.org/press-centre/press-releases/2014/japan-makes-voluntary-contribution-in-support-of-the-verification-regime-and-gem/>; “Japan Paves the Way for the Adoption of Future Communication Technologies,” CTBTO, June 13, 2014, <http://www.ctbto.org/press-centre/highlights/2014/japan-paves-the-way-for-the-adoption-of-future-communication-technologies/>.

²⁰⁹ CTBTO, “Largest-Ever CTBT On-Site Inspection Exercise Concludes Successfully,” Press Release, December 9, 2014, <http://www.ctbto.org/press-centre/press-releases/2014/largest-ever-ctbt-on-site-inspection-exercise-concludes-successfully/>.

²¹⁰ CTBTO, “Searching for Evidence of a Nuclear Test,” *Inter Press Service*, December 23, 2014, <http://www.ipsnews.net/2014/12/searching-for-evidence-of-a-nuclear-test/>.

²¹¹ “IFE14: Detecting the Smoking Gun—How Voluntary Contributions Make a Difference,” CTBTO, December 2014, <http://www.ctbto.org/press-centre/highlights/2014/ife14-detecting-the-smoking-gun-how-voluntary-contributions-make-a-difference/>.

²¹² See NNSA, “Stockpile Stewardship Program Quarterly Experiments,” <http://nnsa.energy.gov/ourmission/managingthestockpile/sspquarterly>.

²¹³ Jeremy Thomas, “Lawrence Livermore National Lab to Test Plutonium Using NIF Laser,” *Contra Costa Times*, December 12, 2014, http://www.contracostatimes.com/contracosta-times/ci_27119179/lawrence-livermore-lab-test-plutonium-using-nif-laser.

Among the other nuclear-weapon/armed states, 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.”²¹⁴ However, no further detail was reported. The status of the remaining nuclear-weapon/armed states’ non-explosive testing activities in this respect is not well-known since they do not release any information.

(7) FMCT

A) Efforts toward commencing negotiations on an FMCT

In the 2014 session of the CD, its program of work, including the establishment of an Ad Hoc Committee on a Fissile Material Cut-Off Treaty (FMCT) negotiation, again could not be adopted, due to Pakistan’s strong objection, as was the case in previous years. Pakistan continues to insist that the mandate of the FMCT negotiation must not only prohibit fissile material production for nuclear weapons but also cover the existing stockpiles, and that it could not accept the adoption of the program of work in which the issues of the existing stockpile were not included. Pakistan’s Ambassador to the CD Zamir Akram reiterated in June that it would continue to block the commencement of negotiations for a treaty that aimed at just a cut-off in future production of fissile material for nuclear weapons, without addressing existing stockpiles because of its concerns that India possessed more fissile material than Pakistan, and that the NSG members permitted the expected exports of nuclear-related items and technologies to India.²¹⁵ At the First Committee of the UN General Assembly, Pakistan urged the negotiation of “a Fissile Material Treaty which not only bans future production but also reduces or at least puts under international safeguards the existing stockpiles of fissile materials.”²¹⁶

China and Israel support the commencement of negotiations on a FMCT prohibiting the future production of fissile material for nuclear weapons, but they do so less actively than the other NWS. China argues that members of the CD should “start its substantive work on such important topics as nuclear disarmament, security assurances to [NNWS], a treaty banning the production of fissile material for nuclear weapons. . . and prevention of an arms race in outer space, in a comprehensive and balanced manner.”²¹⁷ Such a stance is different from those of France, the United Kingdom and the United States, which have insisted that the commencement of negotiations for a FMCT is a top priority at the CD. India also just expressed, “Without prejudice to the priority we attach to nuclear disarmament, we support the negotiation in the CD of a non-discriminatory and internationally verifiable treaty banning the production of fissile material for nuclear weapons and other nuclear explosive devices that meets India’s national security interests.”²¹⁸

Facing difficulties to resolve the impasse, during the 2012 session of the UN General Assembly, a resolution proposed by Canada was adopted, in which the establishment of a group of governmental experts (GGE) on a

²¹⁴ NPT/CONF.2015/PC.III/14, April 25, 2014.

²¹⁵ “General Exchange of Views,” Statement by Ambassador Zamir Akram, Permanent Representative at the Conference on Disarmament, Informal Discussions on Agenda Items 1 and 2 with a General Focus on the Ban of the Production of Fissile Materials for Nuclear Weapons and Other Nuclear Explosive Devices, June 4, 2014, <http://fissilematerials.org/library/pk14a.pdf>; “On the Issue of Scope,” Statement by Ambassador Zamir Akram, Permanent Representative at the Conference on Disarmament, Informal Discussions on Agenda Items 1 and 2 with a General Focus on the Ban of the Production of Fissile Materials for Nuclear Weapons and Other Nuclear Explosive Devices, June 5, 2014, <http://fissilematerials.org/library/pk14b.pdf>.

²¹⁶ “Statement by Pakistan,” at the First Committee on the 69th Session of the United Nations General Assembly, Thematic Debate on Disarmament Machinery, October 16, 2014.

²¹⁷ NPT/CONF.2015/PC.III/13, April 29, 2014.

²¹⁸ “Statement by India,” Conference on Disarmament, September 2, 2014.

FMCT was requested.²¹⁹ The GGE launched in March 2014, and is convened for totally eight weeks until 2015. At the CD, Pakistan stated that it would not participate in the GGE, arguing that its mandate is limited to discussing a ban on a production of fissile material for nuclear weapons.²²⁰

B) The moratorium on production of fissile material for nuclear weapons

Among nuclear-weapon/armed states, China, India, Israel, Pakistan and North Korea have not declared a moratorium on the production of fissile material for weapons use. While China is widely considered not to produce fissile material for nuclear weapons currently, it is unclear why it has not declared the moratorium. North Korea, as mentioned above, is likely to continue activities for producing plutonium and enriched uranium for weapons purpose.

India is reported to be constructing a new uranium conversion facility and an enrichment facility, named the Special Material Enrichment Facility (SMEF), at the Rare Materials Plant near Mysore, which may be operational by mid-2015. They seem to have a capability to produce weapons-grade uranium to twice the amount needed for its planned nuclear-power submarine fleet. In 2011, India made clear that SMEF would not be subject to the IAEA safeguards.²²¹

Pakistan continues to construct the fourth heavy water reactor at the Khushab nuclear site, and its three heavy water reactors have been operating. The U.S. think tank ISIS analyzed that:

If the third reactor “began operating in early 2013, the first batch of its spent fuel could have been taken out already, cooled and become available to be reprocessed in 2014 or possibly 2015. ... Three operating reactors are believed to have a power of 40-50 MW and to be natural-uranium-fueled... Operating at 50% capacity each of them could produce about 5.7-7.1 kg of weapon-grade plutonium per year, and operating at 80% capacity each of them would produce about 9-11.5 kg of plutonium per year.”²²²

(8) Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine

In the Final Document of the 2010 NPT Review Conference (RevCon), the NWS were called upon to report on actions taken towards “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 Review Conferences (Action 20), and the NWS to agree on a standard reporting form, as a confidence-building measure (Action 21).

The NWS submitted their respective reports on their implementations of the NPT’s three pillars to the 2014 NPT PrepCom, using a common framework, themes and categories. This was the first attempt by the NWS to release information on their respective nuclear forces, nuclear policies and nuclear disarmament efforts comprehensively and in a common format.

²¹⁹ A/RES/67/53, January 4, 2013.

²²⁰ “Statement by Pakistan,” Conference on Disarmament, May 20, 2014.

²²¹ David Albright and Serena Kelleher-Vergantini, “India’s New Uranium Enrichment Plant in Karnataka,” *Imagery Brief*, July 1, 2014; Douglas Busvine, “India Nuke Enrichment Plant Expansion Operational in 2015 – HIS” Reuters, June 20, 2014, <http://in.reuters.com/article/2014/06/20/india-nuclear-idINKBN0EVOJR20140620>.

²²² Zia Mian, “Pakistan Begins Operating Third Khushab Plutonium Production Reactor,” *IPFM Blog*, June 30, 2014, http://fissilematerials.org/blog/2014/06/pakistan_begins_operating.html.

The “common themes and categories” were a sort of “chapters” at most. The topics covered and concreteness were different among the NWS. Furthermore, not much information was unfolded in their reports.

The U.S. report was more detailed than the others and contains a number of concrete descriptions and disclosures. Separately from the report, the United States also released declassified information on the U.S. nuclear weapons stockpile to update the information released in May 2010 as followings.²²³

- The number of the U.S. stockpile of nuclear warheads: 4,804 (as of September 2013)
- Changes in number of the stockpile: 5,113 (in 2009)→5,066 (in 2010)→4,897 (in 2011)→4,881 (in 2012)→4,804 (in 2013)
- Warhead dismantlement: 1,204 warheads since September 2009
- Changes in the number of dismantlement: 352 (in 2010); 305 (in 2011); 308 (in 2012); 239 (in 2013)
- Non-strategic nuclear weapons: the number of U.S. non-strategic nuclear weapons has declined by approximately 90% since September 30, 1991.

To a lesser extent, the French and the U.K. reports were also comprehensive and concrete. On the other hand, there was little concrete information regarding nuclear weapons capabilities (including fissile material for nuclear weapons) or their reduction in China’s report. China argues that “nuclear transparency should be guided by the important principle of ‘undiminished security for all,’ and that relevant measures should be adopted by countries on a voluntary basis in line with their national situation, taking full consideration of their specific security conditions.”²²⁴ As for the Russian report, no small part was filled with its basic thoughts and policies of nuclear issues, along with summaries of each measure, rather than concrete actions taken by Russia.²²⁵

Some NNWS were critical of the reports by the five NWS, arguing that they did not contain enough information from both qualitative and quantitative points of view. However, Australia, Canada and Japan evaluated the submissions as a good first step toward increased transparency. Meanwhile, in addition to the NWS, some NNWS—Australia, Austria, Canada, Germany, Iran, Japan, Mexico, New Zealand, the Netherlands, Switzerland and others—also submitted their reports on nuclear disarmament to the 2014 NPT PrepCom. The NPDI proposed that “the 2015 [NPT] Review Conference should urge the nuclear-weapon States to make regular reports... annually, on their nuclear disarmament activities, utilizing a standard reporting form, and to continuously work to improve the quantity and quality of information provided in the agreed standard form during the 2020 review cycle.”²²⁶

The NPDI submitted a working paper “Transparency of Nuclear Weapons” to the 2012 NPT PrepCom, which included a draft form for standard nuclear disarmament reporting on nuclear warheads, delivery vehicles, fissile material for nuclear weapons, and nuclear strategy/policies.²²⁷ Using the draft form, the following table summarizes the degree of transparency taken by the nuclear-weapon/armed states.

²²³ U.S. Department of State, “Transparency in the U.S. Nuclear Weapons Stockpile,” Fact Sheet, April 29, 2014, <http://www.state.gov/t/avc/rls/225343.htm>. See also Hans M. Kristensen, “US Nuclear Weapons Stockpile Number Declassified: Only 309 Warheads Cut By Obama Administration,” *FAS Strategic Security Blog*, April 29, 2014, <http://blogs.fas.org/security/2014/04/nuclearstockpile/#lightbox/0/>.

²²⁴ NPT/CONF.2015/PC.III/13, April 29, 2014.

²²⁵ Regarding the analysis on the reports submitted by NWS, see Andrea Berger, “The P5 Nuclear Dialogue: Five Years on,” *Occasional Paper*, Royal United Services Institute, July 2014.

²²⁶ NPT/CONF.2015/PC.III/WP.10, March 19, 2014.

²²⁷ NPT/CONF.2015/PC.I/WP.12, April 20, 2012.

Table 1-6: 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 2014		○	○	○	○				
Aggregate number of nuclear warheads dismantled in 2014									
Delivery vehicles									
Number of nuclear warhead delivery systems by type (missiles, aircraft, submarines, artillery, other)		○	△	○	○				
Reduction (in numbers) of delivery systems in 2014			○		○				
Aggregate number of delivery systems dismantled in 2014									
Nuclear disarmament since 1995									
1995-2000		○	○	○	○				
2000-2005		○	○	○	○				
2005-2010		○	○	○	○				
2010-2014		○	○	○	○				
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 highly enriched uranium produced for national security purposes (in metric tons)				○	○				

	CHN	FRA	RUS	UK	US	IND	ISR	PAK	PRK
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 6, 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	○	○	○	○	○				
Activities to promote disarmament and non-proliferation education				○	○				

○: Highly transparent △: Partially transparent

The NWS have also taken some efforts for increasing transparency. Under the New START, Russia and the United States have exchanged data and information through the Nuclear Risk Reduction Centers (NRRC), and transferred approximately 6,000 notifications since the signing the Treaty.²²⁸ Another effort is that five NWS continue to work on a glossary of definitions of the key nuclear terms for submission to the 2015 NPT RevCon. According to the joint statement on the NWS conference in April 2014, the first phase of their work was completed at the Second Experts’ Meeting of the Working Group held in September 2013.²²⁹ The joint statement also mentioned, “NWS had an exchange of views on their nuclear doctrine, strategic stability, and international security from their individual country perspectives to gain better understanding and build strategic trust.”²³⁰ While no further detail was provided, such dialogues help to increase transparency and mutual trust among the NWS.

(9) Verifications of Nuclear Weapons Reductions

Russia and the United States have implemented verifications under the New START. Despite the deteriorating bilateral relationship due to the Ukrainian issues, Russian inspectors verified the dismantlement of the 18 U.S. ICBM silos in April 2014.²³¹ Both countries have also discussed verification measures for their respective fissile

²²⁸ NPT/CONF.2015/PC.III/17, April 25, 2014.

²²⁹ “Joint Statement on the P5 Beijing Conference: Enhancing Strategic Confidence and Working Together to Implement the Nuclear Non-Proliferation Review Outcomes,” Beijing, April 14-15, 2014, <http://www.state.gov/r/pa/prs/ps/2014/04/224867.htm>.

²³⁰ “Joint Statement on the P5 Beijing Conference: Enhancing Strategic Confidence and Working Together to Implement the Nuclear Non-Proliferation Review Outcomes,” Beijing, April 14-15, 2014, <http://www.state.gov/r/pa/prs/ps/2014/04/224867.htm>.

²³¹ “Russians Inspect Montana Nuclear Launch Facilities,” *ABC News*, April 21, 2014, <http://abcnews.go.com/US/wireStory/russians-inspect-montana-nuclear-launch-facilities-23413717>.

material surplus to the defense program with the International Atomic Energy Agency (IAEA), but no conclusion has yet emerged.²³²

Three of the NWS also introduced their efforts on nuclear disarmament verifications in their reports submitted to the 2014 NPT PrepCom, as follows:

- China:²³³
 - ✧ Developing the mobile Argon-37 rapid measuring and detection system (MARDS) and the radio xenon sampling, purification and measurement system (XESPM), which would be used for the IFE14 of the CTBT in 2014;
 - ✧ Carrying out research on verification technologies regarding nuclear warhead dismantlement and authentication, and the storage and disposition of nuclear components and nuclear material, with emphasis on authentication technology of nuclear warheads and components, information barrier technology, monitoring technology used in the dismantling process, and chain-of-custody technology on storage and transportation; and
 - ✧ Conducting research on a reasonable, effective and cost-effective verification system for a FMCT.
- The United Kingdom:²³⁴
 - ✧ Conducting the U.K.-Norway Initiative, which is to address some of the technical and procedural challenges posed by effective verification of warhead dismantlement, and hosting a P5 expert-level meeting on verification, to discuss lessons learned from the Initiative in 2012;
 - ✧ Continuing an active partnership with the United States in monitoring and verification research for more than a decade, through which to apply policy, technology and program expertise to develop and evaluate targeted approaches for transparent reductions and monitoring of nuclear warhead, fissile material and associated facilities for potential disarmament and non-proliferation initiatives;²³⁵ and
 - ✧ Conducting two technical exchange visits with China, and intending to continue collaborative exchanges into arms control and verification research.
- The United States:²³⁶
 - ✧ Supporting a range of research and development activities to expand work on verification technologies—including capabilities to enable monitoring of warheads (including non-deployed one in storage) as well as capabilities to distinguish warheads by type—and investing multimillion dollars;
 - ✧ Conducting a comprehensive nuclear warhead modelling and measurement campaign to establish a comprehensive nuclear warhead and component signature set—the resulting data will support assessment of sensitive information that could be revealed as a result of future treaty verification activities, and will further guide future research and development in the areas of radiation detection and information protection;
 - ✧ Conducting field demonstrations and evaluations of nuclear warhead lifecycle “end-to-end” monitoring capabilities, to include warhead storage and transportation monitoring demonstrations and evaluations;
 - ✧ Developing the on-site inspection element of the CTBT verification regime;

²³² Tom Clements, Edwin Lyman and Frank von Hippel, “The Future of Plutonium Disposition,” *Arms Control Today*, Vol. 43, No. 6 (July/August 2013), p. 11.

²³³ NPT/CONF.2015/PC.III/13, April 29, 2014.

²³⁴ NPT/CONF.2015/PC.III/15, April 30, 2014.

²³⁵ Regarding the U.K.-U.S. cooperation, “[t]he work has sought to better understand the nuclear weapon dismantlement process, as well as to identify and develop technologies and procedures for protecting sensitive information and increasing confidence in the dismantlement process.” David Cliff, *Future Challenges in Nuclear Verification*, *Trust & Verify*, No. 144 (January 2014), p. 2.

²³⁶ NPT/CONF.2015/PC.III/16, May 1, 2014.

- ✧ Developing monitoring capabilities for defined fissile material production facilities and for possible inspections at sensitive U.S. sites;
- ✧ Continuing the U.K.-U.S. active partnership in monitoring and verification research, including a joint technical cooperation program to apply policy, technology and programme expertise to develop and evaluate targeted approaches for transparent reductions and monitoring of nuclear warheads, fissile material and associated facilities for potential disarmament and non-proliferation initiative; and
- ✧ Funding over \$110 million for research, development, test and evaluation for arms control and non-proliferation verification technology in 2013.

In addition, the United Kingdom and the United States have converted a part of their excess fissile material extracted from nuclear warheads to non-nuclear weapon purposes, some of which has been put under the IAEA safeguards. The U.S. State Department also announced to launch a new initiative on verification of nuclear disarmament. Under this International Partnership for Nuclear Disarmament Verification, “[t]he United States propose[d] to work with both nuclear weapon states and non-nuclear weapons states to better understand the technical problems of verifying nuclear disarmament, and to develop solutions,” with the Nuclear Threat Initiative being a prime partner, providing intellectual energy and resources to the project.²³⁷

At the 2014 NPT PrepCom, the NAM called for establishing an IAEA standing committee to verify nuclear disarmament.²³⁸

(10) 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 oblige them 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. However, the United States has publicized some information. According to its fact sheet in April 2014, the United States dismantled 9,952 nuclear warheads from 1994 to 2013, and 1,204 warheads since September 2009. It dismantled 352 warheads in 2010; 305 in 2011; 308 in 2012; and 239 in 2013, respectively.²³⁹

The United States also provided the following information regarding the dismantlement of its nuclear arsenal in the report submitted to the 2014 NPT PrepCom.²⁴⁰

- It has retired many thousands of nuclear warheads, which have been removed from their delivery platform, are not functional, and are in the queue for dismantlement.

²³⁷ Rose Gottemoeller, “The Vision of Prague Endures,” Prague, December 4, 2014, <http://www.state.gov/t/us/2014/234675.htm>. See also Bureau of Arms Control, Verification and Compliance, the U.S. Department of State, “An International Partnership for Nuclear Disarmament Verification,” Fact Sheet, December 4, 2014, <http://www.state.gov/t/avc/rls/234680.htm>.

²³⁸ “Statement by Indonesia, on behalf of Non-Aligned Movement,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 2, New York, May 1, 2014.

²³⁹ U.S. Department of State, “Transparency in the U.S. Nuclear Weapons Stockpile,” Fact Sheet, April 29, 2014, <http://www.state.gov/t/avc/rls/225343.htm>. See also, Hans M. Kristensen, “US Nuclear Weapons Stockpile Number Declassified: Only 309 Warheads Cut By Obama Administration,” *FAS Strategic Security Blog*, April 29, 2014, <http://blogs.fas.org/security/2014/04/nuclearstockpile/#lightbox/0/>.

²⁴⁰ NPT/CONF.2015/PC.III/16, May 1, 2014.

- Since 1992, it has retired and dismantled 12 nuclear weapon types, including the most recent types, the W79, W62, W56 and the B53.
- The last W80-0 warhead for the Tomahawk Land Attack Missile-Navy was retired from service and has been dismantled.
- During calendar year 2013, in accordance with the provisions of the New START, it eliminated 24 B-52G nuclear-capable heavy bombers; converted two B-52H heavy bombers equipped for nuclear armaments to heavy bombers equipped for non-nuclear armaments, thereby removing them from treaty accountability; hosted 19 inspections; and conducted two exhibitions of United States weapons systems.
- It eliminated 50 Peacekeeper ICBM silos and began the conversion process to render inoperative some launchers of submarine launched ballistic missiles on U. S. submarines. The cost of those conversions exceeded \$50 million for 2013, and it will spend roughly the same amount in 2014.
- It plans to dismantle all nuclear weapons retired prior to 2009 no later than the end of fiscal year 2022. It has spent over \$250 million on weapons dismantlement in the past five years.

In August, the United States eliminated the last ICBM sites operated by Malmstrom Air Force Base, which had already been deactivated.²⁴¹

Due to the sequestration of the U.S. budget, the pace of dismantlement encountered delay.²⁴² The United States reportedly may not be able to complete a plan to dismantle designated nuclear warheads by 2022 since the “administration’s fiscal 2015 budget request would reduce spending on nuclear-armed dismantlement from a current enacted level of \$54.3 million to \$30 million in the coming funding cycle.”²⁴³ The U.S. Government Accountability Office (GAO) criticized in a report that “[h]ow NNSA measures progress toward its performance goal of dismantling all weapons retired prior to fiscal year 2009 by the end of fiscal year 2022 is unclear and may make its reported progress misleading.”²⁴⁴

France, in its report submitted to the 2014 NPT PrepCom, summarized its current and past efforts as follows:²⁴⁵

- Beginning to dismantle the M4-class SSBNs
- Major reductions in the airborne component, with: early decommissioning and dismantling of the AN52 nuclear bombs carried by Jaguar and Mirage III aircraft, announced in 1991; and withdrawal of Mirage IV strategic aircraft from nuclear missions in 1996
- Announcing the decision to reduce its airborne component by a third in 2008, whose reduction was completed by 2013—all decommissioned weapons have been dismantled

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. “[I]n 2012 five warheads

²⁴¹ Jenn Rowell, “Last of Deactivated Malmstrom Missile Silos Eliminated,” *Great Falls Tribune*, August 6, 2014, <http://www.greatfalls Tribune.com/story/news/local/2014/08/06/last-deactivated-malmstrom-missile-silos-eliminated/13683811/>.

²⁴² Diane Barnes, “DOD Nonproliferation Work to Suffer Under Budget Cuts,” *Global Security Newswire*, March 4, 2013, <http://www.nti.org/gsn/article/nuclear-nonproliferation-activities-suffer-under-budget-cuts-hagel/>.

²⁴³ “The U.S. Might Slow Down Warhead Disassembly for Lack of Funds,” *Global Security Newswire*, March 31, 2014, <http://www.nti.org/gsn/article/funding-cut-may-stretch-us-timeline-warhead-dismantlement/>.

²⁴⁴ United States Government Accountability Office, “Actions Needed by NNSA to Clarify Dismantlement Performance Goal,” Report to the Subcommittee on Energy and Water Development, Committee on Appropriations, U.S. Senate, April 2014, p. 22. See also Diane Barnes, “GAO: U.S. Gives Clouded View of Nuclear-Arms Dismantlement,” *Global Security Newswire*, May 5, 2014, <http://www.nti.org/gsn/article/gao-us-risks-nuclear-arms-disassembly/>.

²⁴⁵ NPT/CONF.2015/PC.III/14, April 25, 2014.

were sent by road to Burghfield, ...[and two] were refurbished and returned north...while three stayed at Burghfield to be dismantled.”²⁴⁶ The U.K. Ministry of Defense also revealed that the “Atomic Weapons Establishment (AWE) has been running a Stockpile Reduction Programme to disassemble Trident warheads and reduce stockpile numbers” since 2002, and “[t]he warheads that have been identified as no longer required for service but are yet to be disassembled are stored at the Royal Naval Armaments Depot Coulport or as work in progress at AWE Burghfield.”²⁴⁷

B) Decommissioning/conversion of nuclear weapons-related facilities

In the respective reports submitted to the 2014 NPT PrepCom, China, France and the United States summarized their activities of decommissioning and conversion of nuclear weapons-related facilities—those activities launched prior to 2014, and which have already been completed or continuing—as follows:

- China: officially closing its nuclear weapon research and development base in Qinghai.²⁴⁸
- France:²⁴⁹
 - ✧ Deciding to undertake the immediate dismantling of production units of fissile material for nuclear weapons in 1996—it intends complete and irreversible decommissioning and will spend totally €6 billion
 - ✧ Fully decommissioning the Pierrelatte enrichment facility
 - ✧ Continuing to decommission the Marcoule UP1 reprocessing facility until 2035, which began in 1997
 - ✧ Completing the first phase of clean-up and dismantling of the three plutonium production reactors at Marcoule—the second phase will begin in 2020 and continue until 2035
- The United States:²⁵⁰
 - ✧ Consolidating the number of sites needed to maintain the U.S. nuclear stockpile
 - ✧ Reducing the number of sites which made up the nuclear complex from 18 in 1980 to eight in 2014
 - ✧ Cessation of production of plutonium for weapons in 1987 and closure of all plutonium production reactors at the Hanford Site in Richland, Washington, and at the Savannah River Site in Aiken, South Carolina
 - ✧ Closure and decommissioning of the Hanford Site nuclear reprocessing plants
 - ✧ Cessation of production of highly enriched uranium for weapons in 1964 and shutdown of the K-25 enrichment complex in Oak Ridge, Tennessee; Conversion of enrichment plants in Portsmouth, Ohio, and Paducah, Kentucky, to support civil nuclear fuel production only
 - ✧ Closure and decommissioning of the Feed Materials Production Center at Fernald, Ohio, the Rocky Flats plutonium pit production facility in Colorado, and the Mound and Pinellas plants for nuclear weapons components in Miamisburg, Ohio, and Pinellas, Florida
 - ✧ Consolidation of highly enriched uranium storage into the newly constructed highly enriched uranium Materials Facility at Y-12 in Oak Ridge, Tennessee
 - ✧ Consolidation of non-pit plutonium into the K-Area Materials Storage facility at the Savannah River Site

²⁴⁶ 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>.

²⁴⁷ “The UK Ministry of Defense’s Response to a Freedom of Information Act request Filed by Journalist Rob Edwards,” July 25, 2013, <http://robedwards.typepad.com/files/mod-foi-response-on-dismantling-nuclear-weapons.pdf>.

²⁴⁸ NPT/CONF.2015/PC.III/13, April 29, 2014.

²⁴⁹ NPT/CONF.2015/PC.III/14, April 25, 2014.

²⁵⁰ NPT/CONF.2015/PC.III/16, May 1, 2014.

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

In 2014, no significant progress was made regarding issues on fissile material declared excess for military purposes.

Meanwhile, according to its report submitted to the 2014 NPT PrepCom, the United States disclosed information on the total amount of plutonium and HEU produced by the weapons program for military or non-military use, as well as their status of disposition, as per the following:²⁵¹

- In 2009, it reported that the plutonium inventory was 95.4 metric tons. In 1994 and 2007, it declared 61.5 metric tons of plutonium as excess and removed them from further use as fissile material for use in nuclear warheads.
- The total U.S. HEU inventory as of 2004 was 686.6 metric tons. In declarations in 1994 and 2005, it declared that a total of 374 metric tons of HEU would be removed from further use as fissile material in nuclear warheads.
- To date, it has downblended a total of more than 140 metric tons of HEU from these declarations.
- Up to 160 metric tons of the excess HEU will be provided for use in naval ship power propulsion.
- 17.4 metric tons of this HEU was downblended to low-enriched uranium (LEU) in facilities eligible for safeguards, for use in the American Assured Fuel Supply
- In total, 46.6 metric tons of this HEU was downblended under IAEA safeguards.
- Under the 1993 United States-Russian Federation Highly Enriched Uranium Purchase Agreement, 500 metric tons of Russian Federation weapons-origin HEU was converted to LEU for use in American nuclear power plants

The pace of disposition of excess plutonium by the United States has slowed, however. In October 2013, the NNSA indicated that “an assessment of its options for disposing of surplus weapons-grade plutonium would not be complete until the spring of 2014” due to delays in the construction of the Mixed Oxide (MOX) Fuel Fabrication Facility (MFFF) at the Savannah River Site in South Carolina for converting surplus nuclear-weapon plutonium into MOX fuel,²⁵² due to the increasing cost of construction. In the Budget Message for FY2015, the Obama Administration proposed to place MFFF in “cold standby.” It is concerning that “any delay or major change to the program could affect the planned disposition of Russian weapons plutonium.”²⁵³

On the other hand, Russia plans not to permanently dismantle surplus weapon-grade plutonium, but rather to dispose of it through use as fuel in BN-600 and BN-800 fast breeder reactors, which produce more fuel than they fission.²⁵⁴

Among the NWS, the United Kingdom has announced that all nuclear material no longer deemed necessary for military purposes has been placed under international safeguards.²⁵⁵

²⁵¹ NPT/CONF.2015/PC.III/16, May 1, 2014.

²⁵² Douglas P. Guarino, “Administration Revises Timeline for Plutonium Disposition Review,” *Global Security Newswire*, October 11, 2013, <http://www.nti.org/gsn/article/administration-revises-timeline-plutonium-disposition-review/>.

²⁵³ Mark Holt and Mary Beth Nilitin, “Mixed-Oxide Fuel Fabrication Plant and Plutonium Disposition: Management and Policy Issues,” *CRS Report for Congress*, June 25, 2013.

²⁵⁴ Tom Clements, Edwin Lyman and Frank von Hippel, “The Future of Plutonium Disposition,” *Arms Control Today*, Vol. 43, No. 6 (July/August 2013), pp. 9-10.

²⁵⁵ NPT/CONF.2015/PC.III/15, April 30, 2014.

(11) Disarmament and Non-Proliferation Education and Cooperation with Civil Society

At the 2014 NPT PrepCom, 36 countries (including Australia, Austria, Belgium, Brazil, Canada, Chile, Egypt, Germany, Indonesia, Mexico, the Netherlands, New Zealand, Nigeria, Norway, Philippines, Poland, Sweden, Turkey and the UAE) issued the joint statement, in which they emphasized the importance of the recommendations on disarmament and non-proliferation education and cooperation with civil society written in the Final Document of the 2010 RevCon (Action 22).²⁵⁶ The UN General Assembly in 2014 adopted the resolution on this issue without a vote.²⁵⁷

A number of efforts have been made for disarmament and non-proliferation education and cooperation with civil society. For instance, at the 2014 NPT PrepCom, Japan highlighted its activities, such as posting testimonies of *Hibakusha* (atomic bomb survivors) on the Foreign Ministry's homepage,²⁵⁸ and convening the Youth Exchange Program for sharing the experience of atomic bombings among the younger generations of NPDI countries on the margins of the NPDI Ministerial Meeting in Hiroshima in April 2014.²⁵⁹ Another example is that the U.S. State Department launched the Generation Prague project in 2010—to provide a “forum and framework for collaboration” with young professionals, students, and foreign governments that were energized by the Prague speech, and intends to expand this project internationally.²⁶⁰ The EU funded an education program with €850,000 over three years. The program, implemented by the EU Consortium on Non-Proliferation and Disarmament, comprises the development of an e-learning device at master course level, and an internship program for students and Ph.D. students. The Netherlands financially supported the training program at the Vienna Center for Disarmament and Non-Proliferation, and three Ph.D. research projects on disarmament and non-proliferation.²⁶¹ Australia funded publication of *Nuclear Weapons: The State of Play* (Centre for Nuclear Non-Proliferation and Disarmament, Australian National University),²⁶² and Switzerland has financially supported the publications of *Implementation of the 2010 Non-Proliferation Treaty (NPT) Action Plan* (James Martin Center for Nonproliferation Studies),²⁶³ and *NPT Action Plan Monitoring Reports* (Reaching Critical Will).²⁶⁴

Side events held during the NPT PrepCom, and the First Committee of the UN General Assembly, where NGOs can participate, are also important elements of the efforts toward civil society cooperation.²⁶⁵ In 2014, among the states surveyed in this report: Austria, Egypt, France, Germany, Japan, the Netherlands, Philippines, Switzerland,

²⁵⁶ “Joint Statement on Disarmament and Non-Proliferation Education,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 1, New York, April 30, 2014.

²⁵⁷ A/RES/69/65, December 11, 2014. Co-sponsors are, among others, Australia, Austria, Brazil, Canada, Chile, Germany, India, Indonesia, Japan, Mexico, the Netherlands, New Zealand, Nigeria, Norway, Pakistan, Philippines, Poland, South Africa, Sweden, and the United States.

²⁵⁸ Ministry of Foreign Affairs of Japan, “Testimony of Hibakusha (atomic bomb survivors),” http://www.mofa.go.jp/policy/un/disarmament/arms/testimony_of_hibakusha/index.html.

²⁵⁹ NPT/CONF.2015/PC.III/4, April 21, 2014.

²⁶⁰ Kelsey Davenport, “Profile: State Dept. Targets ‘Generation Prague,’” *Arms Control Today*, Vol. 44, No. 7 (September 2014), pp. 41-43.

²⁶¹ NPT/CONF.2015/PC.III/20, May 21, 2014.

²⁶² Ramesh Thakur and Gareth Evans, eds., *Nuclear Weapons: The State of Play* (Canberra: Centre for Nuclear Non-Proliferation and Disarmament, 2013).

²⁶³ Gaukhar Mukhozhanova, “Implementation of the Conclusions and Recommendations for Follow-on Actions Adopted at the 2010 NPT Review Conference: Disarmament Actions 1-22,” James Martin Center for Nonproliferation Studies, April 2014.

²⁶⁴ Reaching Critical Will, “NPT Action Plan Monitoring Reports,” March 2014.

²⁶⁵ At the 2014 NPT PrepCom, the Hiroshima Prefectural Government hosted a side event, titled “Toward the 2015 NPT Review Conference: Putting Hiroshima’s Experience into Action for the Future,” <http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/npt/prepcom14/events/30April-HiroshimaPrefecture.pdf>, in which Hiroshima Governor and Mayor and several experts participated as panelists.

the United Kingdom, the United States and so on held side events at the NPT PrepCom; and Austria, Egypt, Germany, Indonesia, Japan, Kazakhstan, the Netherlands, New Zealand, Norway, Switzerland and the United States hosted such events at the UN General Assembly First Committee.²⁶⁶

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 post 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 against organizations or companies involved in producing nuclear weapons. Switzerland and Luxembourg enacted national laws, which restrict financing for nuclear weapons production. Some banks and investment funds also have policies against investing in such organizations or companies.²⁶⁷

(12) Hiroshima Peace Memorial Ceremony

On August 6, 2014, the Hiroshima Peace Memorial Ceremony was held in Hiroshima. Japan's Prime Minister Shinzo Abe and Foreign Minister Fumio Kishida attended the ceremony, along with representatives from 68 countries and the EU, including:

- Ambassadorial-level—Austria, Belgium, Germany, Indonesia, Iran, Israel, the Netherlands, New Zealand, the United Kingdom and the United States
- Non-Ambassadorial-level—Australia, Brazil, Canada, France, Egypt, India, Kazakhstan, South Korea, Mexico, Nigeria, Norway, Pakistan, Poland, Russia, Sweden, Syria (Note: underline added to denote countries whose ambassadorial-level representatives have attended the ceremony in the past three years)
- Not attending—Chile, China, Saudi Arabia, South Africa, Switzerland, Turkey, UAE, North Korea (Note: underline added to denote countries whose representatives have attended the ceremony at least once in the past three years)

²⁶⁶ See *NPT News in Review and First Committee Monitor* published in 2014 by the Reaching Critical Will.

²⁶⁷ See IKV Pax Christi and ICAN, "Don't Bank on the Bomb: A Global Report on the Financing of Nuclear Weapons Producers," October 2013.

2. Nuclear Non-Proliferation*

(1) Acceptance and Compliance with the Nuclear Non-Proliferation Obligations

A) Accession to the NPT

The Nuclear Non-Proliferation Treaty (NPT) has 190 member states (including the Holy See). Among the current 193 United Nations (UN) Member States, those remaining outside the NPT are: India and Pakistan, both of which tested and declared having nuclear weapons in 1998; Israel, which is widely believed to possess them; and South Sudan, which declared its independence and joined the United Nations in July 2011, and does not have any nuclear weapons. North Korea declared its withdrawal from the NPT twice, in 1993 and 2003, but there is no agreement among the states parties on North Korea's official status. It has refused to return to the Treaty despite the UN Security Council resolutions demanding that it do so at an early date. Meanwhile, in December 2014, South Sudan's Foreign Minister Barnaba M. Benjamin "reiterated his government's commitment to adhere to global non-proliferation norms, including by acceding to the [NPT] at an early date."²⁶⁸

B) Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation

North Korea

Since the NPT entered into force, no case of non-compliance with Articles 1 and 2 of the Treaty has been officially reported by the UN or the rest of the international community. However, if North Korea's withdrawal is not interpreted as legally valid or if it acquired nuclear weapons before announcing its withdrawal from the NPT, such acquisition of nuclear weapons would constitute non-compliance with Article 2. The U.S. State Department clearly stated in its 2014 report, titled "Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments," that "North Korea was in violation of its obligations under Articles II and III of the NPT and in noncompliance with its International Atomic Energy Agency (IAEA) Safeguards Agreement at the time that it announced its withdrawal from the NPT in 2003."²⁶⁹ In this report, the United States also implied that Iran and Syria have not complied with Article 3-1 of the NPT, but did not touch on whether they violated obligations under Article 2. The report stated that "Iran currently is in violation of obligations under the NPT, its IAEA Safeguards Agreement, and relevant UN Security Council resolutions," and "Syria remains in violation of its obligations under the NPT and its Safeguards Agreement."²⁷⁰

UN Security Council Resolution (UNSCR) 1787 in October 2006 stipulates the following:

[T]he DPRK shall abandon all nuclear weapons and existing nuclear programmes in a complete, verifiable and irreversible manner, shall act strictly in accordance with the obligations applicable to parties under the Treaty on the Non-Proliferation of Nuclear Weapons and the terms and conditions of its [IAEA] Safeguards Agreement (IAEA INFCIRC/403) and shall provide the IAEA transparency measures extending beyond these requirements, including such access to individuals, documentation, equipments and facilities as may be required and deemed necessary by the IAEA.²⁷¹

The Security Council also decided that North Korea "shall abandon all other existing weapons of mass destruction and ballistic missile programme in a complete, verifiable and irreversible manner." However, North Korea has

* This chapter is written by Hirofumi Tosaki.

²⁶⁸ "South Sudan: Foreign Minister Benjamin Calls for Redoubled International Commitment," Press Release, December 4, 2014, <http://allafrica.com/stories/201412200148.html>.

²⁶⁹ U.S. Department of State, "Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments," July 2014, pp. 24-32.

²⁷⁰ Ibid.

²⁷¹ S/RES/1718, October 14, 2006. The UN Security Council Resolution 1874 in June 2009 also demanded that North Korea "immediately comply fully with its obligations under relevant Security Council resolutions, in particular resolution 1718 (2006)."

failed to respond to the UN Security Council's decisions, and has continued nuclear weapons- and ballistic missile-related activities. The Six-Party Talks have not been reconvened since 2007. When meeting with President Putin in Russia in November 2014, Choe Ryong-hae, special envoy of the North's leader Kim Jong-un, discussed "the issues of making sustained efforts to resume the six-party talks without any precondition and creating atmosphere and environment favorable for the resumption of the talks."²⁷² Unless North Korea re-commits to the denuclearization goal of the talks, however, the United States, Japan and South Korea see no purpose in resuming talks for talks sake .

Iran

The UN Security Council has called for Iran to suspend, *inter alia*: all enrichment-related and reprocessing activities, including research and development; and work on all heavy water-related projects, including the construction of a research reactor moderated by heavy water.²⁷³ Iran, however, has not complied with the six UNSCRs; rather, it continued to produce enriched uranium.

Since September 2013, however, Iran has engaged in negotiations with the E3/EU+3 to resolve its nuclear issue. In November 2013, the parties reached an interim deal, termed the Joint Plan of Action (JPOA),²⁷⁴ in which they affirmed that "[t]he goal for [their] negotiations is to reach a mutually-agreed long-term comprehensive solution that would ensure Iran's nuclear programme will be exclusively peaceful," and listed the specific elements of a six-month, first step implementation plan, as well as the broader elements of a final, comprehensive solution, with negotiations to be concluded and implementation commenced within one year.

As the elements of this interim plan of action, they agreed, *inter alia*, the following measures:

- Iran
 - ✧ From the existing uranium enriched to 20%, retaining half as working stock of 20% oxide for fabrication of fuel for the Tehran Research Reactor (TRR), and diluting the remaining 20% UF₆ to no more than 5%
 - ✧ Not enriching uranium over 5% for the duration of the 6 months
 - ✧ Not making any further advances of its activities at the Natanz and Fordow enrichment plants, and the heavy water reactor at Arak (IR-40)
 - ✧ No new locations for enrichment activities
 - ✧ No reprocessing or construction of a facility capable of reprocessing
 - ✧ Enhancing monitoring by the IAEA (mentioned later)
- E3/EU+3
 - ✧ Pausing efforts to reduce Iran's crude oil sales, enabling Iran's current customers to purchase their current average amount of crude oil, and suspending the EU and U.S. sanctions on associated insurance and transportation services
 - ✧ Suspending U.S. and EU sanctions on Iran's petrochemical exports, and on Gold and precious material

²⁷² "Special Envoy of Kim Jong Un Visits Russia," *Korean Central News Agency*, November 25, 2014, <http://www.kcna.co.jp/item/2014/201411/news25/20141125-13ee.html>.

²⁷³ S/RES/1737, December 23, 2006. Similar demands were made in the UNSC Resolutions 1803 (March 2008) and 1929 (June 2010) adopted in response to Iran's nuclear issue.

²⁷⁴ "Joint Plan of Action," Geneva, November 24, 2013, <http://www.theguardian.com/world/interactive/2013/nov/24/iran-nuclear-deal-joint-plan-action>.

- ✧ Suspending U.S. sanctions on Iran’s auto industry, and licensing the supply and installation in Iran of spare parts for safety of flight for Iranian civil aviation
- ✧ No new nuclear-related UN Security Council sanctions and EU nuclear-related sanctions; the U.S. refraining from imposing new nuclear-related sanctions
- ✧ Establishing a financial channel to facilitate humanitarian trade for Iran’s domestic needs using Iranian oil revenues held abroad

According to the JPOA, the following elements were agreed as a final step toward a comprehensive solution:

- Having a specified long-term duration to be agreed upon
- Reflecting the rights and obligations of parties to the NPT and the IAEA Safeguards Agreements
- Lifting all UN Security Council, multilateral and national nuclear-related sanctions
- Agreeing a mutually defined enrichment program with agreed parameters consistent with practical-needs, with agreed limits on scope and level of enrichment activities, capacity, and stocks of enriched uranium
- Fully resolving concerns related to the reactor at Arak. No reprocessing or construction of a facility capable of reprocessing
- Fully implementing the agreed transparency measures and enhanced monitoring. Ratifying and implementing the Additional Protocol by Iran
- Re-opening international civil nuclear cooperation

The implementation of the first step measures started on January 20, 2014. On that day, Iran suspended enriching uranium above 5% U-235, and began to dilute 20% UF₆ to no more than 5%. The IAEA confirmed these activities.²⁷⁵ In return, the United States²⁷⁶ and the EU²⁷⁷ provided Iran with limited sanctions relief totaling approximately \$7 billion. Accordingly, sanctions on transactions related to Iran’s petrochemical exports and certain trade in gold and precious metals with Iran were suspended. Iran is also able to repatriate approximately \$700 million per month in hard currency from oil sales.

On July 20, the deadline of the first six-month JPOA period, the IAEA confirmed that Iran had implemented the first step measures, as per the following:²⁷⁸

- Not enriched uranium above 5% U-235 at any of its declared facilities;
- Completed the dilution—down to an enrichment level of no more than 5% U-235—of half of the nuclear material that had been in the form of UF₆ enriched up to 20% U-235 on January 20, 2014, and fed 100kg of UF₆ enriched up to 20% U-235 into the conversion process at the Fuel Plate Fabrication Plant (FPFP) for conversion into uranium oxide;
- Not made “any further advances” to its activities at the Fuel Enrichment Plant (FEP), the Fordow Fuel Enrichment Plant (FPFP) or the Arak reactor (IR-40 Reactor);
- Not carried out reprocessing related activities; and

²⁷⁵ GOV/INF/2014/1, January 20, 2014.

²⁷⁶ U.S. Department of State, “Implementation of the Joint Plan of Action from November 24, 2013 in Geneva Between the P5+1 and The Islamic Republic of Iran and Provision of Limited, Temporary, and Targeted Sanctions Relief,” January 20, 2014, <http://www.state.gov/r/pa/prs/ps/2014/01/220054.htm>; U.S. Department of State, “Overview of Temporary Suspension of Certain U.S. Sanctions Pursuant to the Initial Understanding Between the P5+1 and Iran,” January 20, 2014, <http://www.state.gov/r/pa/prs/ps/2014/01/220046.htm>.

²⁷⁷ Council of the European Union, “Iran: EU Suspends Certain Sanctions as Joint Plan of Action Enters into Force,” January 20, 2014, http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/EN/foraff/140660.pdf.

²⁷⁸ GOV/INF/2014/16, July 20, 2014.

- Continued to provide daily access to the enrichment facilities at Natanz and Fordow.

On the following day, the United States issued a summary on the implementation of the JPOA, and confirmed that “Iran [had] carried out the very significant commitments it made, and [had] taken steps to address the international community’s greatest concerns,” and that “Iran committed in the Joint Plan of Action to provide increased transparency into its nuclear program, including through more frequent and intrusive inspections as well as expanded provision of information to the IAEA.” At the same time, however, the United States emphasized, “Iran still faces significant economic challenges and the limited relief provided under the Joint Plan of Action did not come close to ‘fixing’ the Iranian economy.”²⁷⁹

However, the parties could not conclude an agreement by the July deadline, due to disagreements on several difficult issues, including the number of centrifuges that Iran is allowed to possess or operate; the duration of the limits; and modalities for relaxing or lifting the remaining sanctions imposed on Iran. Instead, the E3/EU+3 and Iran agreed to extend negotiations with a new deadline of November 24, and to continue the first step measures in the meantime.

After July 20, Iran continued to implement the first step measures, which was confirmed by the monthly monitoring reports published by the IAEA.²⁸⁰ According to the report in September, among others: the IAEA has continued to undertake monitoring and verification in relation to the nuclear-related measures set out in the JPOA, as extended; Iran has not enriched UF₆ above 5% U-235 at any of its declared facilities since the JPOA took effect; and Iran does not have a stock of UF₆ enriched up to 20% U-235.²⁸¹ In addition, while Iran proposed to modify its Arak heavy water reactor to limit plutonium output less than 1 kg/year,²⁸² Ali Akbar Salehi, Head of the Atomic Energy Organization of Iran (AEOI), announced the start of the modification work,²⁸³ although this has not been confirmed.

On the other hand, two questions arose about Iranian implementation of the JPOA. Firstly, the IAEA reported in November that “Iran ha[d] been intermittently feeding natural UF₆ into the IR-5 centrifuge and IR-6s centrifuge as single machines.”²⁸⁴ This was seen as a test of new centrifuges. Downplaying the allegation, however, the U.S. State Department spokesperson, said that the United States “raised that issue with Iran [...] and the] Iranians have confirmed that they [would] not continue that activity as cited in the IAEA report, so it’s been resolved.”²⁸⁵ Secondly, according to a press report in December, the United States “informed a U.N. Security Council panel of experts monitoring Iranian sanctions... that Iranian procurement agents have been increasing their efforts to illicitly obtain equipment for the IR-40 research reactor at the Arak nuclear complex. ... The U.S. allegations were detailed in a confidential [November] 7 report by an eight-member panel of experts... [which] cite[d] a ‘relative decrease

²⁷⁹ U.S. Department of State, “Summary of Understandings Related to the Implementation and Extension of the Joint Plan of Action,” July 22, 2014, <http://www.state.gov/r/pa/prs/ps/2014/07/229658.htm>.

²⁸⁰ IAEA Reports on Iran’s implementation of the JPOA were classified, but the Institute for Science and International Security (ISIS) has posted them on its homepage (<http://isis-online.org/iaea-reports/category/iran/#2014>).

²⁸¹ GOV/2014/43, September 5, 2014.

²⁸² “Iran Scaling Down Plutonium Production Plans,” *Associated Press*, June 12, 2014, <http://abcnews.go.com/International/wireStory/iran-scales-plutonium-production-plans-24101180>.

²⁸³ “Iran Modifies Arak Reactor over Nuclear Concerns,” *i24 News*, August 27, 2014, <http://www.i24news.tv/app.php/en/news/international/middle-east/41636-140827-iran-modifies-arak-reactor-over-nuclear-concerns>.

²⁸⁴ GOV/2014/58, November 7, 2014.

²⁸⁵ Jen Psaki, “Daily Press Briefing,” U.S. Department of State, November 10, 2014, <http://www.state.gov/r/pa/prs/dpb/2014/11/233921.htm>.

in centrifuge enrichment related-procurement' in recent months. But it added that it had detected 'an increase in procurement on behalf of the IR-40 Heavy Water Research Reactor at Arak.'"²⁸⁶ The AEOI denied any violation, explaining that "[b]uying equipment for Arak heavy water reactor [was] not against the Geneva agreement and what has been stated in the agreement include[d] not installing equipment, but it [did] not refer to their purchase." The AEOI did not acknowledge any purchases for the IR-40 Reactor.²⁸⁷

Meanwhile, E3/EU+3 and Iran intermittingly had consultations aiming for a conclusion of a comprehensive solution. However, they could not resolve disagreements mentioned above. As a result, in November 2014, they agreed to extend the deadline for concluding an "agreed framework" until the end of March 2015, and a final agreement by the end of June 2015. Iran has reportedly agreed during this period to accept additional restraints on its research and development of more advanced centrifuge models, to allow the IAEA additional access to centrifuge production facilities, and to convert more of its stockpile of nearly 20 percent enriched uranium oxide into fuel for the Tehran Research Reactor.²⁸⁸ In return, Iran will be able to continue repatriating approximately \$700 million per month in hard currency from oil sales. The E3/EU+3 also agreed not to impose new economic sanctions. After the re-extension of negotiations, consultations between the E3/EU+3 and Iran were resumed in Geneva in December 2014.

Withdrawal from the NPT

Although Article 10-1 of the NPT contains some guidance on how a state can legitimately withdraw from the treaty, there remains a lack of clarity over some aspects of this process. Concerns have focused on a state choosing to withdraw from the NPT, after first acquiring nuclear weapons in violation of the Treaty. Japan, South Korea and other several Western countries have proposed measures to prevent the right of withdrawal from being abused. At the 2014 NPT Preparatory Committee (PrepCom), the Non-Proliferation and Disarmament Initiative (NPDI), Canada, France, South Korea, the United States and others again cautioned against abuse of the right to withdrawal from the NPT.²⁸⁹

Chinese and Russian positions on this issue are not necessarily clear. While China argues that it "supports the international community's efforts to work out detailed measures against withdrawal from the Treaty and to raise the bar for withdrawal,"²⁹⁰ it does not propose concrete measures. Russia explained its position as follows:

[W]e consider the issue of withdrawal from the Treaty to be an important one. We believe that any decisions in this respect should not lead to a revision of Article X, reopening of the text of the Treaty or undermining of one of the fundamental principles of a State's sovereign right to withdraw from an international agreement. However, we support the need for a constructive exchange of views on the defining of agreed recommendations regarding the procedures for and consequences of a possible withdrawal from the Treaty. We believe that making States more accountable for a decision to withdraw

²⁸⁶ Colum Lynch, "U.S. Accuses Iran of Secretly Breaching U.N. Nuclear Sanctions," *Foreign Policy*, December 8, 2014, <http://foreignpolicy.com/2014/12/08/us-accuses-iran-of-secretly-breaking-un-nuclear-sanctions-exclusive/>.

²⁸⁷ "Purchase of New Equipment for Arak Heavy Water Reactor Not against Geneva Deal," *FARS News Agency*, December 9, 2014, http://english.farsnews.com/newstext.aspx?nn=13930918000386&mkt_tok=3RkMMJWWfF9wsRokvKnBZKXonjHpfsX57eQkWKsg38431UFwdcjKpmjr1YEJScJ0aPyQAgobGp5I5FEIQ7XYTLB2t60MWA%3D%3D.

²⁸⁸ "Iran to Limit Centrifuge R&D under Extension," *Al Monitor*, December 1, 2014 <http://www.al-monitor.com/pulse/originals/2014/12/irantermsofextensionnucleardeal.html#>; Gary Samore, "Iran Nuclear Negotiations: The Last Extension?" Testimony before the Committee on Foreign Affairs, U.S. Senate, December 3, 2014.

²⁸⁹ See, for example, the NPDI's working paper submitted to the 2014 NPT PrepCom (NPT/CONF.2015/PC.III/WP.13, March 25, 2014).

²⁹⁰ NPT/CONF.2015/PC.III/13, April 29, 2014.

from the Non-Proliferation Treaty in accordance with Article X thereof could be one of the ways to strengthen the Treaty.²⁹¹

The Non-Aligned Movement (NAM) countries argue that there is no need to revise or reinterpret Article 10 on a withdrawal from the NPT, which is the right of all state parties.²⁹² South Africa emphasized that the right of withdrawal was not a subject for interpretation, and Brazil proposed to focus less on punishment for withdrawing and more on incentives for staying within the Treaty.²⁹³ Iran stated, “there is no consensus on proposals for reinterpretation or limitation of the right to withdrawal [from the NPT]. . . . Any proposal regarding Article X that goes beyond the provisions of the NPT and challenges the lawfulness of the right to withdrawal or is aimed at limiting or conditioning the sovereign right of States parties to withdrawal will be unacceptable for my delegation.”²⁹⁴ It also argued that it would be more appropriate to contemplate how non-parties to the NPT can be encouraged to accede to the Treaty, rather than considering less important issues such as the withdrawal from the NPT.²⁹⁵

C) Nuclear-Weapon-Free Zones

Treaties establishing nuclear-weapon-free zones (NWFZs) have entered into force in Latin America (Tlatelolco Treaty), the South Pacific (Rarotonga Treaty), Southeast Asia (Bangkok Treaty), Africa (Pelindaba Treaty), and Central Asia (Central Asian NWFZ Treaty). In addition, Mongolia declared its territory a nuclear-weapon-free zone at the UN General Assembly (UNGA) in 1992, and the UNGA has been adopting a resolution entitled “Mongolia’s International Security and Nuclear-Weapon-Free-Status” every two years since 1998, in support of Mongolia’s declaration.²⁹⁶ All the states eligible to join the NWFZs in Latin America, Southeast Asia and Central Asia are parties to the respective NWFZ treaties.

A Conference on a Middle East Zone Free of Weapons of Mass Destruction (WMD) during 2012, agreed at the 2010 NPT Review Conference (RevCon), has yet to be convened.²⁹⁷ At the 2014 NPT Preparatory Committee (PrepCom), Jaakko Laajava, Finland’s undersecretary of state for foreign and security policy and the Facilitator of the Middle East Conference, reported that there existed divergent views between the Arab states and Israel regarding the convening of the Conference, such as its agenda, modalities, rules of procedure and timing.²⁹⁸

Middle Eastern countries—including Israel but excluding Syria—together with the conveners and facilitator, held an unofficial meeting in Glion, Switzerland in October 2013 to discuss the convening of what is usually called the Helsinki Middle East Conference. In 2014, they met three times at the same location in March, May and June, although Iran was absent from the second meeting in November 2013. Despite some progress, a wide gap still

²⁹¹ NPT/CONF.2015/PC.III/17, April 25, 2014.

²⁹² Reaching Critical Will, *NPT News in Review*, Vol. 11, No. 9 (May 2, 2013), p. 4; Reaching Critical Will, *NPT News in Review*, Vol. 11, No. 10 (May 3, 2013), p. 3.

²⁹³ Mia Ganderberger, “News in Brief,” *NPT News in Review*, Vol. 12, No. 8 (May 7, 2014), p. 5.

²⁹⁴ “Statement by Iran,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, Cluster 3 Specific Issues, New York, May 7, 2014.

²⁹⁵ *Ibid.*

²⁹⁶ 53/77D, December 4, 1998. As mentioned before, in September 2012, Mongolia and the 5 NWS signed a political declaration that formally recognizes Mongolia’s nuclear-weapon-free status.

²⁹⁷ On a WMD Free Zone in the Middle East, see, for example, Patricia M. Lewis, “All in the Timing: The Weapons of Mass Destruction Free Zone in the Middle East,” *Research Paper*, Chatham House, August 2014.

²⁹⁸ NPT/CONF.2015/PC.III/18, May 1, 2014.

remains between Israel and the Arab states. While details of the meetings are not publicized, Israel reportedly insisted it would only participate in the Conference “if it is part of a broader effort to establish lasting peace in the region,” and called on the regional countries for “initiat[ing] confidence-building measures as a first step in creating a WMD-free zone.” In response, Arab states argued that such CBMs could not be a substitute for the complete elimination of WMD.²⁹⁹ In addition to these arguments, Iran stated that a Middle East Conference should be treated “like a subsidiary forum of the [NPT] Review Conference process and therefore should follow its procedures.”³⁰⁰

Contrary to some concerns, Arab states did not boycott the 2014 NPT PrepCom even though a Helsinki Middle East Conference had not been convened. Nor did they walk out of the meeting, as Egypt did at the 2013 PrepCom. They also did not disrupt the proceedings of the 2014 PrepCom. However, such attitudes of Arab countries did not mean that their position on the Helsinki Conference changed. In their working paper submitted to the third PrepCom, Arab states “highlight[ed] a number of negative developments that eventually led to the present unacceptable situation,” among others:

- “It took over 16 months to select the facilitator and the host Government.”
- “[S]ome of the organizers began to repeat that...Israel was not a party to the [NPT]...and that the Arab States should make concessions in order to persuade Israel to participate” in a Helsinki Middle East Conference.
- “Some of the organizers focused on the need to add new elements and topics to the agenda of the conference, thereby removing it from the agreed context and contravening the clear mandate and terms of reference adopted by the 2010 Conference.”
- “[T]he conference [was] postponed...without consulting [the Arab States] or setting an alternative date.”
- “The consultative meetings (Glion, Glion 2 and Glion 3) took place in unclear circumstances: they lacked a specific agenda and were held outside the United Nations framework.”
- “The Arab States were puzzled by the facilitator’s announcement that the meetings would be postponed until after the [2014] Preparatory Committee” while he “announced that two preparatory meetings would held in Geneva before” that PrepCom.³⁰¹

Additionally, the Arab states insisted:

In the last three years, the Arab States have made a number of concessions and contributed positively to attempts to ensure the success of preparations to convene the postponed 2012 conference. For this reason, under no circumstances will the Arab States be held responsible for the failure of others. Nor will they accept any assertion that the failure was caused by the inability of the States of the region to arrive at an understanding or to compromise.

Furthermore, they warned that “[i]f the postponed 2012 conference [was] not convened and serious negotiations on the implementation of the resolution on the Middle East have not begun before the 2015 Review Conference, the Arab States [would] take the necessary measures to protect their interests,”³⁰² and that they would reconsider

²⁹⁹ Elaine M. Grossman, “Mideast Talks Held on WMD-Free Zone Prior to Ramadan Break,” *Global Security Newswire*, July 11, 2014, <http://www.nti.org/gsn/article/mideast-talks-held-wmd-free-zone-prior-ramadan-break/>. At the UN General Assembly, Israel complained that Arab states have not attempted to engage directly with Israel. See “Statement by Israel,” at the First Committee on the 69th Session of the United Nations General Assembly, General Debate, October 8, 2014.

³⁰⁰ NPT/CONF.2015/PC.II/5, April 19, 2013

³⁰¹ NPT/CONF.2015/PC.III/WP.27, April 22, 2014.

³⁰² NPT/CONF.2015/PC.III/WP.27, April 22, 2014.

their position toward the indefinite extension of the NPT.³⁰³

Concerning Northeast Asia and South Asia, while initiatives for establishing NWFZs have been proposed by the private sectors in the respective regions, there is no indication that state parties in these regions are taking any serious initiative toward such a goal.³⁰⁴ Meanwhile, at the High-Level Meeting of the UN General Assembly on Nuclear Disarmament in September 2013, Mongolian President Elbegdorj Tsakhia stated that his country was “prepared, on an informal basis, to work with the countries of Northeast Asia to see if and how a nuclear-weapon-free zone could be established in the region.”³⁰⁵ Mongolia offered to hold an International Conference on “Dimensions to create a Nuclear-Weapon Free Northeast Asia,” in Ulaanbaatar, Mongolia in November 2014.³⁰⁶ The Advisory Board on Disarmament Matters also recommended in its report in July 2013: “The Secretary-General should...consider appropriate action for the establishment of a nuclear-weapon-free zone in North-East Asia. In particular, the Secretary-General could promote a more active role for the regional forums in encouraging transparency and confidence-building among the countries of the region.”³⁰⁷

(2) IAEA Safeguards Applied to the NPT NNWS

A) Conclusion of the IAEA Safeguards Agreements

Under Article 3-1 of the NPT, “[e]ach Non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the International Atomic Energy Agency and the Agency’s safeguards system, for the exclusive purpose of verification of the fulfillment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices.” The basic structure and content of the safeguards agreement are specified in the Comprehensive Safeguards Agreement (CSA), known as INFCIRC/153, that each state negotiates with the IAEA and then signs and ratifies. As of December 2014, 12 NPT non-nuclear-weapon states (NNWS) have yet to conclude CSAs with the IAEA.³⁰⁸

An NPT NNWS or any other state may also conclude with the IAEA an Additional Protocol to its safeguards agreement, based on a model document known as INFCIRC/540. As of December 31, 2014, 118 NPT NNWS have ratified Additional Protocols. A state’s implementation of the Additional Protocol, along with the CSA, allows the IAEA Secretariat to draw a so-called “broader conclusion” that “all nuclear material in the State has remained in peaceful activities.” This conclusion is that the Agency finds no indications of diversion of declared nuclear material from peaceful nuclear activities or any undeclared nuclear material or activities in that country. Subsequently, the IAEA implements integrated safeguards defined as the “optimized combination of all safeguards measures available to the Agency under [CSAs] and [Additional Protocols], to maximize effectiveness and efficiency within available resources.”

³⁰³ “Statement by Iraq on behalf of the Arab Group,” at the Third Session of the Preparatory Committee for the 2015 NPT Review Conference, General Debate, New York, April 29, 2014.

³⁰⁴ Pakistan had proposed to establish a NWFZ in South Asia until May 1998 when it conducted nuclear tests.

³⁰⁵ “Statement by H.E. Mr. Elbegdorj Tsakhia, President of Mongolia,” at the High-Level Meeting of the United Nations General Assembly on Nuclear Disarmament, New York, September 26, 2013.

³⁰⁶ “Final Document of International Conference: Dimensions to Create a Nuclear-Weapon Free Northeast Asia,” November 26, 2014, <http://www.peaceboat.org/english/?page=view&nr=36&type=23&menu=62>.

³⁰⁷ A/28/608, July 26, 2013, p. 6.

³⁰⁸ The 12 NNWS either have nuclear material in small quantity or conduct no nuclear activity.

The current status of the signature and ratification of the CSAs and the Additional Protocols and the implementation of integrated safeguards by the NPT NNWS studied in this project is presented in the following table.

In the resolution, “Strengthening the Effectiveness and Improving the Efficiency of Agency Safeguards” adopted in September 2014, the IAEA General Conference “call[ed] on all States with unmodified [Small Quantity Protocols (SQPs)] to either rescind or amend their respective SQPs.”³⁰⁹ As of the end of 2014, 60 States have accepted SQPs in accordance with the modified text endorsed by the Board of Governors. Among the countries surveyed in this report, New Zealand amended and Nigeria withdrew the SQP. Saudi Arabia and the UAE maintain the existing SQP.

Table 2-1: The status of the conclusion and implementation of the IAEA safeguards agreement by the NNWS party to the NPT (as of the end of November 2014)

	Australia	Austria	Belgium	Brazil	Canada	Chile	Egypt	Iran	Germany	Indonesia	Japan	Kazakhstan	South Korea	Mexico
CSA	In force	In force	In force	In force	In force	In force	In force	In force	In force	In force	In force	In force	In force	In force
Additional Protocol	In force	In force	In force		In force	In force		Signed	In force	In force	In force	In force	In force	In force
Broader conclusion drawn	○	○	○		○	○			○	○	○		○	
Integrated safeguards	○	○	○		○	○			○	○	○		○	
	Netherlands	New Zealand	Nigeria	Norway	Philippines	Poland	Saudi Arabia	South Africa	Sweden	Switzerland	Syria	Turkey	UAE	North Korea
CSA	In force	In force	In force	In force	In force	In force	In force	In force	In force	In force	In force	In force	In force	In force*
Additional Protocol	In force	In force	In force	In force	In force	In force		In force	In force	In force		In force	In force	
Broader conclusion drawn	○	○		○	○	○		○	○			○		
Integrated safeguards	○			○		○			○					

* North Korea has refused to accept comprehensive safeguards since it announced its withdrawal from the NPT in 1993.

Source) IAEA, “Safeguards Statement for 2013,” https://www.iaea.org/safeguards/documents/Statement_for_SIR_2013_GOV_2014_27.pdf; IAEA, “Status List: Conclusion of Safeguards Agreements, Additional Protocols and Small Quantities Protocols,” November 5, 2014.

B) Compliance with the IAEA Safeguards Agreements

Under Article 12-C of the Statute of the IAEA, the IAEA “Board shall report the non-compliance [with safeguards agreements] to all members and to the Security Council and General Assembly of the United Nations.” Up to now, three cases of non-compliance that have been reported to the UN Security Council but none have yet been resolved: North Korea, Iran and Syria.

³⁰⁹ GC(58)/RES/14, September 26, 2014.

North Korea

The IAEA Director General summarized the current situation of the North Korea's nuclear issues in relation to the implementation of the IAEA safeguards in September 2014, as following:³¹⁰

- “From the end of 2002 until July 2007, the Agency was not able, and since April 2009 has not been able, to implement any safeguards measures in the DPRK.”
- “The Agency continues to monitor, mainly through satellite imagery, developments at the Yongbyon site.”
- “Without access to the site, the IAEA is unable to assess or confirm the exact current status of nuclear activities that North Korea seems to conduct.”

Iran

Iran has accepted IAEA inspections of its declared nuclear activities, including uranium enrichment, under the Comprehensive Safeguards Agreement. It also signed the Additional Protocol in 2003, but has yet to ratify it and stopped implementing it in 2006.

In the JPOA, concluded between the E3/EU+3 and Iran in November 2013, the following measures for enhancing monitoring of the elements of a first step were agreed:

- Provision of specified information to the IAEA, including information on Iran's plans for nuclear facilities, a description of each building on each nuclear site, a description of the scale of operations for each location engaged in specified nuclear activities, information on uranium mines and mills, and information on source material
- Submission of an updated design information questionnaire (DIQ) for the IR-40 at Arak
- Steps to agree with the IAEA on conclusion of the Safeguards Approach for the IR-40
- Daily IAEA inspector access when inspectors are not present for the purpose of Design Information Verification, Interim Inventory Verification, Physical Inventory Verification, and unannounced inspections, for the purpose of access to offline surveillance records, at Fordow and Natanz
- IAEA inspector managed access to: centrifuge assembly workshops; centrifuge rotor production workshop and storage facilities; and uranium mines and mills

In February 2014, Iran and the IAEA also agreed on seven practical measures to be implemented by Iran from May 15, namely:

- Providing mutually agreed relevant information and managed access to the Saghand mine in Yazd;
- Providing mutually agreed relevant information and managed access to the Ardakan concentration plant;
- Submission of an updated Design Information Questionnaire (DIQ) for the IR-40 Reactor;
- Taking steps to agree with the Agency on the conclusion of a Safeguards Approach for the IR-40 Reactor;
- Providing mutually agreed relevant information and arranging for a technical visit to Lashkar Ab'ad Laser Centre;
- Providing information on source material, which has not reached the composition and purity suitable for fuel fabrication or for being isotopically enriched, including imports of such material and on Iran's extraction of uranium from phosphates; and
- Providing information and explanations for the Agency to assess Iran's stated need or application for the development of Exploding Bridge Wire detonators.³¹¹

³¹⁰ GC(58)/21, September 3, 2014.

³¹¹ IAEA, “IAEA and Iran Conclude Talks in Connection with the Implementation of the Framework for Cooperation,” 9 February

Furthermore, they announced in their joint statement on May 21 that Iran and the IAEA agreed to conduct five measures mentioned below by August 25:

- Exchanging information with the Agency with respect to the allegations related to the initiation of high explosives, including the conduct of large scale high explosives experimentation in Iran;
- Providing mutually agreed relevant information and explanations related to studies made and/or papers published in Iran in relation to neutron transport and associated modelling and calculations and their alleged application to compressed materials;
- Providing mutually agreed information and arranging a technical visit to a centrifuge research and development centre;
- Providing mutually agreed information and managed access to centrifuge assembly workshops, centrifuge rotor production workshops and storage facilities; and
- Concluding the safeguards approach for the IR-40 Reactor.³¹²

According to the report by the IAEA Director General in September 2014: “[w]hile the Agency continue[d] to verify the non-diversion of declared nuclear material at the nuclear facilities and LOFs declared by Iran under its Safeguards Agreement, the Agency [was] not in a position to provide credible assurance about the absence of undeclared nuclear material and activities in Iran, and therefore to conclude that all nuclear material in Iran is in peaceful activities,³¹³ due to the lack of Iran’s ratification and implementation of the Additional Protocol.

In this report, the IAEA confirmed that among the five measures agreed with Iran on May 2014, as mentioned above, two issues—the allegation of test-detonation of exploding bridge wire (EBW) and neutron transport calculations—have yet to be resolved, stating that “Iran has...begun discussions with the Agency on the other two practical measures.”³¹⁴ Particularly, since Iran continued to revamp buildings at the Parchin military site, where Iran was considered to have conducted EBW detonation tests, it is concerned that clarifying these allegations is becoming more difficult. IAEA Director-General Yukiya Amano said in the end of October, “Now is not the best time to make progress. ...I continue to hope this issue of possible military dimensions will be clarified as soon as possible. It is the intention of Iran and it is the intention of the IAEA.”³¹⁵ At the same time, in the IAEA report in November, the Agency expressed its concerns “about the possible existence in Iran of undeclared nuclear related activities involving military related organizations, including activities related to the development of a nuclear payload for a missile,” since Iran has not “provided any explanations that enable the Agency to clarify the two outstanding practical measures”—that is, the initiation of high explosive, and neutron transport calculations.³¹⁶

Iran claimed that the allegation that the EBW test was for military purpose was “groundless,” and argued that it has developed the EBW as a safe and reliable alternative to spark gap detonators in conventional role.³¹⁷ In December 2014, Iran submitted a statement to the IAEA that allegations regarding the possible military dimensions

2014, <http://www.iaea.org/press/?p=4393>.

³¹² “Joint Statement by Iran and IAEA,” May 21, 2014, <http://www.iaea.org/newscenter/pressreleases/2014/prm201411.html>.

³¹³ GOV/2014/43, September 5, 2014.

³¹⁴ GOV/2014/43, September 5, 2014.

³¹⁵ “IAEA: Military Issues in Iran’s Nuke Program won’t Block Deal,” *Al-Monitor*, October 31, 2014, <http://www.al-monitor.com/pulse/originals/2014/10/iran-nuclear-military-program-deal.html#>.

³¹⁶ GOV/2014/58, November 7, 2014.

³¹⁷ Institute for Science and International Security (ISIS), “Briefing Notes from February 2008 IAEA Meeting Regarding Iran’s Nuclear Program,” *ISIS Report*, April 11, 2008, p. 5.

(PMD) were incorrect.³¹⁸ However, a U.S. think-tank pointed out regarding the EBW issue, that “[t]here are a limited number of non-nuclear applications; [t]he elements available to the Agency are not consistent with any application other than the development of a nuclear weapons.”³¹⁹

Syria

As for Syria, the IAEA Director General judged in May 2011 that the facility at Dair Alzour, which was destroyed by an Israeli air raid in September 2007, was very likely a clandestinely constructed, undeclared nuclear reactor. In June 2011, the IAEA Board decided to report the matter to the UN Security Council on the basis “that Syria’s undeclared construction of a nuclear reactor at Dair Alzour and failure to provide design information for the facility in accordance with Code 3.1 of Syria’s Subsidiary Arrangements [we]re a breach of Articles 41 and 42 or Syria’s NPT Safeguards Agreement, and constitute non-compliance with its obligations under its Safeguards Agreement with the Agency in the context of Article XII.C of the Agency’s Statute.”³²⁰ In August 2014, the IAEA reported that “no new information has come to the knowledge of the Agency that would have an impact on the Agency’s assessment that it was very likely that a building destroyed at the Dair Alzour site was a nuclear reactor that should have been declared to the Agency by Syria.”³²¹ While the IAEA repeatedly called on Syria to cooperate fully with the Agency so as to solve the outstanding issues, Syria has not responded to that request.

With regard to other Syrian facilities, the IAEA “informed Syria that...the 2013 physical inventory verification at the [Miniature Neutron Source Reactor (MNSR)] would be postponed until the security conditions had sufficiently improved.” Meanwhile, Syria declared the small amount of nuclear material at the MNSR. According to the IAEA Report, “Syria indicated its readiness to receive Agency inspectors, and to provide support, for the purpose of performing a physical inventory verification at the MNSR. However, as the [United Nations Department of Security and Safety’s] assessment of the security situation in Syria has not changed, the Agency is not in a position to send inspectors to the country.”³²²

(3) IAEA Safeguards Applied to NWS and Non-Parties to the NPT

A NWS is not required to conclude a CSA with the IAEA. However, to alleviate the concerns about the discriminatory nature of the NPT, the NWS have voluntarily agreed to apply safeguards to some of their nuclear facilities and fissile material that are not involved in military activities. All NWS have also concluded Additional Protocols with the IAEA.

The IAEA Annual Report 2013 (Annex) lists facilities in NWS under Agency safeguards or containing safeguarded nuclear material “concluded that nuclear material to which safeguards were applied in selected facilities remained in peaceful activities or had been withdrawn from safeguards as provided for in the agreements.”³²³ For these five NWS, the IAEA “concluded that nuclear material to which safeguards were applied in selected facilities remained in peaceful activities or had been withdrawn from safeguards as provided for in the agreements.”³²⁴ The IAEA

³¹⁸ Fredrik Dahl, “Iran Says Documents on Alleged Atom Bomb Research are Full of Mistakes,” *Reuters*, December 2, 2014, <http://www.reuters.com/article/2014/12/02/us-iran-nuclear-iaea-idUSKCN0JG12B20141202>.

³¹⁹ ISIS, “Briefing notes from February 2008 IAEA meeting,” p. 5.

³²⁰ GOV/2011/41, June 9, 2011.

³²¹ GOV/2014/44, September 3, 2014.

³²² GOV/2014/44, September 3, 2014.

³²³ *IAEA Annual Report 2013*, GC(58)/3/Annex, Table A29.

³²⁴ *IAEA Annual Report 2013*, September 2014, p. 71.

does not publish the number of inspections conducted in the NWS. The safeguarded facilities include, in:

- China: A power reactor, a research reactor, and an enrichment plant;
- France: A fuel fabrication plant, a reprocessing plant, and an enrichment plant;
- Russia: A separate storage facility;
- The United Kingdom: An enrichment plant and two separate storage facilities; and
- The United States: A separate storage facility

According to the U.K. report submitted at the 2014 NPT PrepCom, “[a]ll civil nuclear material in the United Kingdom is subject to European Atomic Energy Community (EURATOM) safeguards, and to the terms of the [U.K.-EURATOM-IAEA] tripartite safeguards agreement under the NPT.” The United Kingdom also conducts all enrichment and reprocessing activities under international safeguards, and “some of the plutonium stores at Sellafield and the gas centrifuge enrichment facilities at Capenhurst are designated for IAEA inspection.”³²⁵

France reported that it “has offered to make certain civil nuclear material subject to IAEA safeguards...under a trilateral agreement between France, EURATOM and IAEA.” It is also “subject to EURATOM safeguards inspections relating to all civilian nuclear material covered by the EURATOM Treaty.” According to France’s report, submitted to the 2014 NPT PrepCom, France received 336 inspections conducted by EURATOM, and 26 inspections by the IAEA, in 2013. The facilities subject to inspections included some part of the enrichment and reprocessing plant, and the MOX fuel fabrication plant. Regarding the Additional Protocol, IAEA can conduct a complementary access in France, like the United Kingdom and the United States. In addition, France has also voluntarily agreed to transmit further information to IAEA, such as: notification of imports and exports of nuclear material; notification of imports and exports of concentrates of uranium and thorium; and an annual statement of holdings of civil irradiated and unirradiated plutonium.³²⁶

The United States reported that “[s]ince 1980, [it] has made eligible for IAEA safeguards approximately 300 civil nuclear facilities, including nuclear power reactors, research reactors, commercial fuel fabrication plants, uranium enrichment plants and other types of facilities.” The United States also said that it has accepted approximately 800 IAEA inspections, and, since 1994, nearly 600 at five facilities containing material removed permanently from weapons programs, and that it covered the costs for such inspections through U.S. voluntary contribution to the IAEA. The United States is the only NWS that has hosted a complementary access visit by the IAEA. Two visits were conducted in 2010.³²⁷

Comparing to the three NWS mentioned above, applications of the IAEA safeguards to nuclear facilities by China and Russia are more limited. No provision for complementary access visits is stipulated in their Additional Protocols. Meanwhile, China reported that it has proposed 20 nuclear facilities to the IAEA for inspections, including six new facilities after 2010.³²⁸

The non-NPT states have concluded safeguards agreements based on INFCIRC/66. These non-NPT states have accepted IAEA inspections of the facilities that they declare as subject to these agreements. According to the IAEA

³²⁵ NPT/CONF.2015/PC.III/15, April 30, 2014.

³²⁶ NPT/CONF.2015/PC.III/14, April 25, 2014.

³²⁷ NPT/CONF.2015/PC.III/16, May 1, 2014.

³²⁸ NPT/CONF.2015/PC.III/13, April 29, 2014.

Annual Report 2013, the facilities placed under IAEA safeguards or containing safeguarded nuclear material in non-NPT states as of December 31, 2013 are as follows:

- India: Six power reactors, two fuel fabrication plants, a reprocessing plant, and a separate storage facility
- Israel: A research reactor
- Pakistan: Five power reactors and two research reactors

Regarding their activities in 2013, the IAEA “concluded that the nuclear material, facilities or other items to which safeguards were applied remained in peaceful activities.”³²⁹

Concerning the protocols additional to non-NPT states’ safeguards agreements (which differ significantly from the model Additional Protocol), the Indian-IAEA Additional Protocol entered into force on July 25, 2014. This Additional Protocol is similar to ones that the IAEA concluded with China and Russia, with provisions on providing information and protecting classified information but no provision on complementary access. No negotiation has yet begun for similar protocols with Israel or Pakistan.

The NAM countries have demanded that the NWS and non-NPT states should accept full-scope safeguards.³³⁰ They also call for the establishment of safeguarded worldwide nuclear disarmament and the development of appropriate legally binding verification arrangements, within the context of IAEA, to ensure the irreversible removal of fissile material from nuclear weapons or other nuclear explosive devices.”³³¹

(4) Cooperation with the IAEA

One of the most important measures to strengthen the effectiveness of the IAEA safeguards system is to promote the universal application of the Additional Protocol. Among the countries surveyed in this project, Australia, Austria, Belgium, Canada, Chile, France, Germany, Indonesia, Japan, South Korea, Mexico, the Netherlands, New Zealand, Nigeria, Norway, Philippines, Poland, Sweden, Switzerland, Turkey, UAE, the United Kingdom and the United States consider that the Additional Protocol is “an integral part” of the current IAEA safeguards system.³³² Although it adopts a more moderate position, China also is of the opinion that “[i]t is necessary to strengthen the safeguards function of the IAEA and promote the universality of the Comprehensive Safeguards Agreement and its Additional Protocol.”³³³

Other countries, including Brazil, Russia and South Africa, consider that the conclusion of an Additional Protocol should be voluntary, not obligatory, although they acknowledge the importance of the Additional Protocol with regard to safeguards, as a major component of the safeguarding element of the nuclear non-proliferation regime. For example, Brazil said, “While Brazil fully respects the sovereign decision of those States that decided to sign an Additional Protocol with the Agency, we recall that INFCIRC/540 was approved by the IAEA Board of

³²⁹ IAEA *Annual Report 2013*, September 2014, p. 71.

³³⁰ NPT/CONF.2015/PC.III/WP.1, March 11, 2014.

³³¹ Ibid. At the 2013 NPT PrepCom, the NPDI submitted a working paper, titled “Widening application of safeguards in the nuclear-weapon States,” which called for: reviewing the operation of the voluntary-offer safeguards agreement and/or revisiting the voluntary-offer safeguards agreement so that the safeguards will be applicable to all nuclear material designated by each nuclear-weapon State as no longer required for military purposes and relevant facilities; reviewing the existing scope of the additional protocol to add measures, if necessary, such as complementary access stipulated in the IAEA Model Additional Protocol; and Encourages those nuclear-weapon States that have not done so, to consider, when identifying certain specified nuclear material as “excess” for military uses, placing such “excess” under IAEA verification as soon as practicable, in a manner to make it irreversible. NPT/CONF.2015/PC.II/WP.23, April 5, 2013.

³³² See, for example, statements made by those countries at the 2013 NPT PrepCom.

³³³ NPT/CONF.2015/PC.III/WP.41, May 6, 2014.

Governors in the understanding of its voluntary nature, a fact that is officially reflected in that body's records."³³⁴ The NAM countries also argue that "it is fundamental to make a clear distinction between legal obligations and voluntary confidence-building measures and that such voluntary undertakings shall not be turned into legal safeguards obligations."³³⁵ Egypt and Iran also insisted that the CSA is the IAEA verification standard.³³⁶ Furthermore, Egypt stated it "note[d] with great concern efforts to promote the universality of the Model Additional Protocol in Non-Nuclear-Weapon-States as a priority that precedes the priority of universality of Comprehensive Safeguards."³³⁷

The IAEA has contemplated a state-level concept (SLC) in which the Agency considers a broad range of information about a country's nuclear capabilities and tailors its safeguards activities in each country accordingly, so as to have the IAEA safeguards more effective and efficient. In the resolution, titled "Strengthening the Effectiveness and Improving the Efficiency of Agency Safeguards," adopted at the IAEA General Conference in 2014, the important assurances on the SLC mentioned below were welcomed.³³⁸

- The SLC does not, and will not, entail the introduction of any additional rights or obligations on the part of either States or the Agency, nor does it involve any modification in the interpretation of existing rights and obligations;
- The SLC is applicable to all States, but strictly within the scope of each individual State's safeguards agreement(s);
- The SLC is not a substitute for the Additional Protocol and is not designed as a means for the Agency to obtain from a State without an Additional Protocol the information and access provided for in the Additional Protocol;
- The development and implementation of State-level approaches requires close consultation with the State and/or regional authority, particularly in the implementation of in-field safeguards measures; and
- Safeguards-relevant information is only used for the purpose of safeguards implementation pursuant to the safeguards agreement in force with a particular State—and not beyond it.

The Vienna Group of Ten, including Australia, Austria, Canada, the Netherlands, New Zealand, Norway and Sweden, consider the SLC as a measure to increase the efficiency and effectiveness of the IAEA safeguards system.³³⁹ The other Western countries also share such a view. On the other hand, Russia argues that "the new approaches of the [IAEA's] Secretariat should only use objective country-specific facts whereas its conclusions should be based upon unbiased and technically sound assessments." It also "stress[es] that any changes in the IAEA safeguards approaches can only be made after the approval by the Agency's policy-making bodies."³⁴⁰ Iran emphasized that implementing the SLC "would equal to a new agreement between the [IAEA] and the Member states with CSA," and that the "SLC should not lead to discriminatory implementation of Agency's activities in Member States."³⁴¹ The U.S. Government Accountability Office (GAO) assessed that "IAEA has not clearly defined and communicated how it will implement the state-level concept. As a result, several countries are

³³⁴ "Statement by Brazil," at the Third Preparatory Committee for the 2015 NPT Review Conference, Cluster 2, May 1, 2014.

³³⁵ NPT/CONF.2015/PC.III/WP.1, March 11, 2014.

³³⁶ "Statement by Iran," at the Third Preparatory Committee for the 2015 NPT Review Conference, Cluster 2, May 1, 2014.

³³⁷ "Statement by Egypt," at the Third Preparatory Committee for the 2015 NPT Review Conference, Cluster 2, May 1, 2014.

³³⁸ GC(58)/RES/14, September 26, 2014.

³³⁹ NPT/CONF.2015/PC.III/WP.8, March 14, 2014.

³⁴⁰ "Statement by Russia," at the Third Preparatory Committee for the 2015 NPT Review Conference, General Debate, April 29, 2014.

³⁴¹ "Statement by Iran," IAEA General Conference, September 23, 2014.

concerned that the state-level concept may be applied in a subjective, potentially discriminatory manner or that it could allow IAEA to be too intrusive into their civilian nuclear operations.”³⁴²

(5) Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies

A) Establishment and implementation of national control systems

To assess this criterion, it is instructive to consider Japan’s case. Japan serves as a member of all four multilateral export control regimes,³⁴³ including the Nuclear Suppliers Group (NSG), and it has established legislative measures and other relevant national implementation systems. Japan implements an advanced export control system enforcing two types of controls: catch-all control and list control. Under the Japanese export control system, all countries are subject to the WMD catch-all control, except for countries belonging to the four international export control regimes and having solid export controls in place, including WMD catch-all controls. Japan designates 26 such countries as “white countries.” Regarding states surveyed in this project, Australia, Austria, Belgium, Canada, France, Germany, South Korea, the Netherlands, New Zealand, Norway, Poland, Sweden, Switzerland, the United Kingdom and the United States are “white countries.” Like Japan, these countries also have their national implementation systems in place and have implemented effective export controls regarding nuclear-related items and technologies.

These countries have proactively made efforts to strengthen export controls. For example, Japan held the 21st Asian Export Control Seminar in March 2014. The purpose of this annual seminar is to “[step] up Asian and international efforts toward non-proliferation of [WMD] by raising common awareness of the importance of such non-proliferation and export controls over such weapons across Asia and by consolidating the export control capabilities there.” Persons in charge of export control from 15 countries and regions, major Western countries, the UN Security Council, and four multilateral export control regimes participated in the 2014 Seminar.

Among other countries surveyed in this project, Brazil, China, Kazakhstan, Mexico, Russia, South Africa and Turkey are members of the NSG. These countries have set up export control systems, including catch-all controls.

As pointed out in the *Hiroshima Report 2014*, concerns have been expressed about Russia’s and China’s implementation of export controls. There are few indications that their implementation has significantly improved. Although, as mentioned later, China was reported to have implemented more stringent export controls vis-à-vis North Korea after the latter’s nuclear test in February 2013, questions remain as to whether China is conducting adequate and strict enforcement of export controls overall.

In the Middle East, the UAE is one of the few countries that has enacted comprehensive strategic trade control legislation, including a provision on catch-all control. It has passed a number of laws for controlling export, re-export, transit and transshipment, and reportedly taken steps to crack down on illicit trafficking, such as expelling 500 companies in 2011.³⁴⁴ However, it is considered that the UAE “lack[s] the necessary expertise, and possibly the financial resources, to institute an effective [export control] system.”³⁴⁵ Saudi Arabia’s legal framework on

³⁴² U.S. Government Accountability Office, “IAEA Has Made Progress in Implementing Critical Programs but Continues to Face Challenges,” *GAO Highlight*, May 2013.

³⁴³ Aside from the NSG, Australia Group (AG), Missile Technology Control Regime (MTCR), and Wassenaar Arrangement (WA).

³⁴⁴ International Institute for Strategic Studies, “Making Sanctions Work: Problems and Prospects, Dubai, May 9-10, 2011,” Workshop Report, May 2011.

³⁴⁵ “Middle East and North Africa 1540 Reporting,” Nuclear Threat Initiative, January 31, 2014, <http://www.nti.org/analysis/reports/middle-east-and-north-africa-1540-reporting/>. See also Aaron Dunne, “Strategic Trade Controls in the United Arab Emirates:

export controls remains rudimentary and lacks, among others, catch-all mechanisms.³⁴⁶ Regarding Egyptian export control activities, no reliable information could be found since its February 2008 national report to the UN 1540 Committee. It is widely considered that Egypt has not instituted a strategic trade control system.³⁴⁷

Among the Asian countries surveyed in this report, Indonesia and Philippines have neither prepared a control list of dual-use items/technologies, nor implemented catch-all control. Along with economic developments in Southeast Asia, trading in sensitive items and technologies by the regional countries has been increasing. However, no Southeast Asian countries, except Malaysia and Singapore, have established an adequate export control system.

India, Israel and Pakistan have also set up national export control systems, including catch-all controls. India's quest for membership in the NSG is supported by some member states, but the group has not yet made a decision. Israel has established national legislation and national implementation systems for its export controls, based on all four multilateral export control regimes.³⁴⁸ Pakistan, according to its report to the UN 1540 Committee, has made efforts to enhance its export control systems, including the introduction of a catch-all control system, after the revelation in 2004 of the proliferation activities of the nuclear black-market network led by A. Q. Khan.³⁴⁹ Pakistan contends that its "export control regime is compatible with the guidelines of the [Missile Technology Control Regime (MTCR)], NSG and [Australia Group (AG)]."³⁵⁰ However, it is still unclear how robust or successfully implemented such export control systems are in practice.³⁵¹

At the time of writing, the status of export control implementation by North Korea, Iran and Syria is not clear. Rather, cooperation among these countries in ballistic missile development remains a concern, as mentioned below. In addition, North Korea is alleged have been involved in constructing a graphite reactor in Syria.

B) Requiring the conclusion of the Additional Protocol for nuclear export

Some of the bilateral nuclear cooperation agreements that Japan and the United States concluded recently with other capitals make the conclusion of the Additional Protocol a prerequisite for their cooperation with respective partner states. The NPT and the Vienna Group of Ten have argued that conclusion and implementation of the CSA and the Additional Protocol should be a condition for new supply arrangements with NNWS. Australia stated that "[c]ompliance with IAEA safeguards is a prerequisite for the supply of Australian uranium to any country and ensure that Australia's uranium supply is only ever used for peaceful purposes."³⁵²

C) Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues

With regard to Iranian and North Korean nuclear issues, the UN Member States are obliged to implement measures set out in the relevant resolutions adopted by the UN Security Council, including embargos on nuclear-, other

Key Considerations for the European Union," *Non-Proliferation Papers*, No. 12 (March 2012).

³⁴⁶ "Middle East and North Africa 1540 Reporting," Nuclear Threat Initiative, January 31, 2014, <http://www.nti.org/analysis/reports/middle-east-and-north-africa-1540-reporting/>.

³⁴⁷ Ibid.

³⁴⁸ A/AC.44/2013/1, January 3, 2013.

³⁴⁹ S/AC.44/2007/19, August 3, 2010.

³⁵⁰ "Pakistan Confers with Export Control Groups," *Global Security Newswire*, February 21, 2013, <http://www.nti.org/gsn/article/pakistan-mulls-joining-missile-export-group/>.

³⁵¹ Paul K. Kerr and Mary Beth Nikitin, "Pakistan's Nuclear Weapons: Proliferation and Security Issues," *CRS Report for Congress*, March 19, 2013, p. 24.

³⁵² "Statement by Australia," at the Third Preparatory Committee for the 2015 NPT Review Conference, Cluster 2, May 1, 2014.

WMD-, and ballistic missile-related items, material, and technologies. Questions have often been raised as to whether China has adequately implemented export controls vis-à-vis North Korea, although it is recognized that it is too optimistic to expect “perfection” in preventing illicit trafficking.

After the North’s nuclear test in February 2013, as mentioned in the *Hiroshima Report 2014*, China appeared to be cautiously adjusting its stance toward North Korea. In 2014, the data revealed that “China...suspended its crude oil exports to North Korea in the first five months.”³⁵³ However, it is still unclear to what extent China has implemented export controls and sanctions against North Korea since China has rarely reported on the status of its implementation.

The Panels of Experts, established pursuant to UNSCRs 1874 (2009) and 1929 (2010), which reported to their relevant UN Security Council Sanctions Committees, published annual reports on their findings and recommendations about the implementation of these resolutions.³⁵⁴ The reports highlight the Iranian and North Korean attempts to import and export proscribed items in violation of the resolutions, and the efforts of the international community to prevent illicit trafficking.

Regarding North Korea, the Panel reported, *inter alia*:

- A member state “inspected in May 2013 an air shipment stated to contain ‘machine spare parts’ and ‘relays’...originated from and/or been brokered by the [North Korea]. ...The Panel found that none of the items in the cargo met the criteria defined by the lists of prohibited items...however, all the items were spare parts or other items related to Scud ballistic missile systems.”
- “Japan...seized five aluminum alloy rods found onboard the container ship Wan Hai 313...in August 2012 [and determined] that the rods...originated from [North Korea] and met the criteria of IAEA document INFCIRC/254/Rev.7/Part.2. ...In January 2014,...Chinese authorities confirmed that the shipment had originated from the port of Nampo and said that the declared destination port was in Myanmar.”
- “The Panel concluded its investigation into the ballistic missile-related shipment seized by [the] Republic of Korea in May 2012...The Panel determined that the real consignor was Dalian Liaosin Trading Company, Ltd...and the consignee was Electric Parts Com. According to information provided by the Republic of Korea, both companies acted on behalf of Korea Tangun Trading Corporation.”
- “[T]he debris of the Unha-3 rocket salvaged by the Republic of Korea...contained a number of foreign sourced components.” The dual-use items provided enough information to identify their manufacture were made by, among others, former Soviet Union republics, China, South Korea, Switzerland, the United Kingdom and the United States.
- North Korea is likely to continue illicit trafficking, using multiple and increasingly complex procurement methods.³⁵⁵

³⁵³ “N. Korea Takes Sideswipe at China’s Policy toward Pyongyang,” *Yonhap News*, July 21, 2014, <http://english.yonhapnews.co.kr/northkorea/2014/07/21/93/0401000000AEN20140721006100315F.html>.

³⁵⁴ “Final Report of the Panel of Experts Established Pursuant to Resolution 1929 (2010),” S/2014.394, June 11, 2014; “Report of the Panel of Experts Established Pursuant to Resolution 1874 (2009),” S/2014/147, March 6, 2014.

³⁵⁵ “Report of the Panel of Experts Established Pursuant to Resolution 1874 (2009),” S/2014/147, March 6, 2014. In addition to the cases written in the report by the Panel of Experts, other cases of illicit trafficking have been reported. For example, the United Kingdom in the last 10 years has approved the export to North Korea of dual-use substances that could be used to produce chemical weapons. (“U.K. Has Been Exporting Dual-Use Chemicals to North Korea,” *Global Security Newswire*, January 9, 2014, <http://www.nti.org/gsn/article/uk-has-been-exporting-dual-use-chemicals-north-korea/>.) On loopholes in sanctions, see Hugh Griffiths and Lawrence Dermody, “Loopholes in UN Sanctions against North Korea,” 38 *North*, May 6, 2014, <http://38north.org/2014/05/griffithdermod050614/>.

U.S. scholars also reported that the North's sophistication in smugglings has been growing, with many North Korean designated entities continuing to do business around the world, particularly in China and Russia, using aliases.³⁵⁶

According to the Report on Iran, the Panel investigated 30 reported cases during its yearly mandate, and summarized some of them as follows:

- “[A] State reported to the Committee that, in December 2012, authorities intercepted and seized a shipment of carbon fibre in transit aboard the *Shahraz*, en route to Bandar Abbas, Islamic Republic of Iran.”
- “[A] State reported to the Committee that a shipment of several hundred inverters was interdicted in November 2012 en route to Bandar Abbas, Islamic Republic of Iran.”
- “Spain reported that it had initiated an investigation of a Spanish company regarding transfers from Bilbao, Spain, to an alleged front company in Turkey of electrical discharge machine tools and their components.”³⁵⁷

In the Report, the Panel analyzed that: Iran demonstrated continuing demand for high-quality dual-use goods; procurement of non-listed, dual-use items as substitutes for controlled items is ongoing; Iran has explored increasing its capability to manufacture important items domestically; and procurement by Iran reportedly has slowed down. Regarding the last point, the Panel assessed the possibilities that Iran has used more opaque means of procurement, or slowed the pace of procurement intentionally after the initiation of the JPOA.

Regarding Iranian procurement activities, Vann H. Van Diepen, “Principal Deputy Assistant Secretary of State for International Security and Non-Proliferation, stated that Iran was still ‘very active’ creating front companies and engaging in other activities to conceal procurements”³⁵⁸ of nuclear-related items despite efforts for preventing illicit trafficking. Iran itself implied the continuation of its illicit procurements. Iranian President Hassan Rouhani said, “[W]e bypass sanctions. We are proud that we bypass sanctions because the sanctions are illegal.”³⁵⁹ AEOI head Ali Akbar Salehi also reportedly commented that “Iran has indeed purchased nuclear or nuclear-related components from other countries,” bypassing the UN Security Council Resolutions that prohibit other countries from exporting sensitive items and technologies.³⁶⁰

A possibility of cooperation on nuclear and missile developments between North Korea and Iran has been a source of concern, but the actual situations are less clear. Iran denied speculation that it has had such cooperation with North Korea.³⁶¹ The United States assessed that while “there is no evidence that Iran and North Korea have engaged in nuclear-related trade or cooperation with each other, ...ballistic missile technology cooperation between the two is significant and meaningful.”³⁶² However, Director of National Intelligence (DNI) James

³⁵⁶ Jeffrey Lewis and Catherine Dill, “Smoke and Mirrors: DPRK Front Companies in China and Russia,” *38 North*, November 18, 2014, <http://38north.org/2014/11/jlewis111814/>.

³⁵⁷ “Report of the Panel of Experts Established Pursuant to Resolution 1874 (2009),” S/2014/147, March 6, 2014.

³⁵⁸ William Maclean, “Iran Pursuing Banned Items for Nuclear, Missile Work - US Official,” *Reuters*, March 16, 2014, <http://uk.reuters.com/article/2014/03/16/uk-iran-nuclear-supplies-idUKBREA2F0KD20140316>.

³⁵⁹ “Iran President Rouhani Hits Out at US Sanctions,” *BBC*, August 30, 2014, <http://www.bbc.com/news/world-middle-east-28997452>.

³⁶⁰ David Albright, Daniel Schnur and Andrea Stricker, “Iran Admits Illegally Acquiring Goods for Its Nuclear Program,” *ISIS Report*, September 10, 2014.

³⁶¹ “Iran Sees No linkage to N. Korea’s Nuke Program: Envoy,” *Yonhap News*, September 25, 2014, <http://english.yonhapnews.co.kr/search1/2603000000.html?cid=AEN20140924008651315>.

³⁶² Paul K. Kerr, Mary Beth D. Nikitin and Stenven A. Hildreth, “Iran-North Korea-Syria Ballistic Missile and Nuclear Cooperation,” *CRS Report*, April 16, 2014.

Clapper stated in February 2014, “Iran is not currently receiving assistance with its ICBM program.”³⁶³

D) Participation in the PSI

As of June 2014, a total of 104 countries—including 21 member states of the Operational Expert Group (Australia, Canada, France, Germany, Japan, South Korea, the Netherlands, New Zealand, Norway, Poland, Russia, Turkey, the United Kingdom, the United States and others) as well as Belgium, Chile, Israel, Kazakhstan, Philippines, Saudi Arabia, Switzerland, Sweden, the UAE and others—have expressed their support for the principles and objectives of the Proliferation Security Initiative (PSI), and have participated and cooperated in PSI-related activities.³⁶⁴

The interdiction activities actually carried out within the framework of the PSI are often based on information provided by intelligence agencies; therefore, most of them are classified. However, several cases were reported of interdictions involving shipments of WMD-related material to North Korea and Iran. Additionally, participating states have endorsed the PSI statement of interdiction principles and endeavored to reinforce their capabilities for interdicting WMD through exercises and outreach activities. In 2014, the United States hosted the Western Hemisphere Table Top Exercise in Miami in January, and also the Exercise Fortune Guard 2014 in Hawaii in August. 19 countries in Asia-Pacific, including Japan, participated in the latter exercise.³⁶⁵

E) Civil nuclear cooperation with non-parties to the NPT

In September 2008, the NSG agreed to grant India a waiver, allowing nuclear trade with the state. Since then, some countries have sought to move forward civil nuclear cooperation with India, including conclusion of nuclear cooperation agreements.

By 2013, Canada, France, Kazakhstan, South Korea, Russia and the United States respectively concluded bilateral nuclear cooperation agreements with India. In September 2014, Australia signed a civil nuclear cooperation agreement with India, under which Australia will be able to sell uranium for India’s nuclear power plants. One of the focuses during the negotiations was how to prevent India from diverting supplied uranium to a military purpose. Australia positively evaluated India’s ratification of the IAEA Additional Protocol. However, some criticized the agreement. For instance, John Carlson, the former head of the Australian Safeguards and Non-Proliferation Office said, “Where Australia has given reprocessing consent in the past, it’s on the basis that we approve downstream facilities where the plutonium will be used... But under the India agreement, we’re just not doing that.”³⁶⁶

India has also been engaged with the EU to conclude a civil nuclear cooperation agreement. EU’s ambassador to India, Joao Cravinho, said in November 2014, “There were concerns raised by few [sic] countries about signing an agreement because India is not a signatory of the [NPT]. However, there is a consensus on this now.”³⁶⁷

³⁶³ James Clapper, Director of National Intelligence, “Hearing On Worldwide Threats,” Senate Committee On Armed Services, February 11, 2014.

³⁶⁴ Bureau of International Security and Nonproliferation, U.S. Department of State, “Proliferation Security Initiative Participants,” June 4, 2014, <http://www.state.gov/t/isn/c27732.htm>.

³⁶⁵ “First Multinational Proliferation Security Exercise Held in Hawaii,” Commander, U.S. Pacific Fleet, August 4, 2014, <http://www.cpf.navy.mil/news.aspx/030455>.

³⁶⁶ Michael Safi, “Australia’s Uranium Deal with India ‘Risks Weakening Safeguards,’” *Guardian*, October 2, 2014, <http://www.theguardian.com/environment/2014/oct/03/australias-uranium-deal-with-india-risks-weakening-safeguards>.

³⁶⁷ “India, EU to Sign Civil Nuclear Pact by Next Year,” *Times of India*, November 16, 2014, <http://timesofindia.indiatimes.com/india/India-EU-to-sign-civil-nuclear-pact-by-next-year/articleshow/45165705.cms>.

Regarding negotiations on a Japan-India civil nuclear cooperation agreement, according to the joint statement in September 2014, “The two Prime Ministers affirmed the importance of civil nuclear cooperation between the two countries and welcomed the significant progress in negotiations on the Agreement for Cooperation in the Peaceful Uses of Nuclear Energy. They directed their officials to further accelerate the negotiations with a view to concluding the Agreement at an early date, and strengthen the two countries’ partnership in non-proliferation and nuclear safety.”³⁶⁸ However, the prospect of concluding the agreement is still uncertain. While India reportedly requests other states to accept India’s right to reprocess spent fuel, Japan is reluctant to do so due to fear of diverting fissile material to military purposes. In addition, India has opposed inclusion of a provision that Japan will suspend or cease nuclear cooperation should India conduct a nuclear test.

It has been pointed out that India’s liability law—which obliges not only nuclear reactor operators but also nuclear suppliers to be liable in case of a nuclear accident—poses one of the obstacles to some foreign firms proceeding with actual civil nuclear cooperation or concluding nuclear cooperation agreements with India. The U.S.-Indian civil nuclear cooperation has not progressed, since, in addition to the issue of the liability law, India has not agreed to the U.S. demand for end-user verification visits to India’s nuclear plants. It is pointed out that the debates regarding U.S.-India nuclear cooperation have implications for the delay in a conclusion of a Japanese-Indian civil nuclear cooperation agreement.³⁶⁹ The liability issue did not prevent Russia from agreeing in December 2014 to provide 20 nuclear reactors to India during the next 20 years.³⁷⁰

In the NSG, debates on whether India should be invited as a member or not have not yet been concluded. The NSG participating countries could not achieve consensus at the Plenary in June 2014, since several countries remain against accepting India’s participation in the NSG due to a possibility of its negative impact on the nuclear non-proliferation regime.³⁷¹ The United States, among others, has actively promoted India’s participation. At the bilateral summit in September 2014, “[a]s a critical step in strengthening global nonproliferation and export control regimes, the [U.S.] President and [Indian] Prime Minister committed to continue work towards India’s phased entry into the [NSG], the [MTCR], the Wassenaar Arrangement and the Australia Group.”³⁷²

Seeking parity with India, Pakistani Prime Minister Muhammad Nawaz Sharif insisted that Pakistan was qualified to be included in the NSG as “a responsible nuclear state.”³⁷³ Pakistan also stated at the IAEA General Conference in September 2014 that it “has the experience, the credentials and the potential to become a recipient and supplier of nuclear technology for peaceful purposes. Pakistan aspire to play its part at international level as mainstream partner, including as full member of export control regimes, particularly the [NSG].”³⁷⁴

³⁶⁸ “Tokyo Declaration for Japan-India Special Strategic and Global Partnership,” September 1, 2014, <http://www.mofa.go.jp/mofaj/files/000050549.pdf>.

³⁶⁹ Indrani Bagchi, “US Holds the Key to India’s Civil Nuclear Programme,” *Economic Times*, September 24, 2014, http://articles.economictimes.indiatimes.com/2014-09-24/news/54279515_1_india-s-nuclear-deal-nuclear-agreement.

³⁷⁰ “India, Russia Ink New Nuclear-deal; Moscow Most Important Defence Partner, Says PM Narendra Modi,” *Indian Express*, December 12, 2014, <http://indianexpress.com/article/india/india-others/russia-remains-india-important-defence-partner-says-pm-modi-both-countries-sign-key-nuclear-deal/>.

³⁷¹ “Nuclear Export Group Divided over Ties with India –Diplomats,” *Reuters*, July 2, 2014, <http://uk.reuters.com/article/2014/07/02/nuclear-trade-india-idUKL6N0PC43620140702>.

³⁷² “U.S.-India Joint Statement,” September 30, 2014, <http://www.whitehouse.gov/the-press-office/2014/09/30/us-india-joint-statement>.

³⁷³ “Pakistan Be Made Part of Nuclear Suppliers Group, Says Nawaz,” *The News*, March 25, 2014, <http://www.thenews.com.pk/Todays-News-13-29286-Pakistan-be-made-part-of-Nuclear-Suppliers-Group,-says-Nawaz>.

³⁷⁴ “Statement by Pakistan,” the 58th IAEA General Conference, September 22-26, 2014.

Meanwhile, China has been criticized for its April 2010 agreement to export two nuclear power reactors to Pakistan, which may constitute a violation of the NSG guidelines. China has claimed an exemption for this transaction under the “grandfather” clause of the NSG guidelines (i.e. it was not applicable as they became an NSG participant after the start of negotiations on the supply of the reactors). China will also supply enriched uranium to Pakistan for running those reactors.³⁷⁵ Their construction started in November 2013 in Karachi, and because all other Chinese reactors had been built at Chashma, there is a question about whether the earlier agreement to build them “grandfathered” the new ones for NSG guideline purposes.³⁷⁶

At the 2014 NPT PrepCom, the NAM countries argued that “all States parties to the Treaty shall refrain from the transfer of nuclear technology and materials to States not parties to the Treaty unless they are placed under the IAEA comprehensive safeguards,”³⁷⁷ strongly suggesting that they have become more critical about nuclear cooperation with the non-NPT parties, including India and Pakistan.

(6) Transparency in the Peaceful Use of Nuclear Energy

In addition to accepting IAEA full-scope safeguards, as described earlier, a state should aim to be fully transparent about its nuclear-related activities and future plans, in order to demonstrate that it has no intention of developing nuclear weapons. A state that concludes an Additional Protocol with the IAEA is obliged to provide information on its general plans for the next ten-year period relevant to any nuclear fuel cycle development (including nuclear fuel cycle-related research and development activities). Most countries actively promoting the peaceful use of nuclear energy have issued mid- or long-term nuclear development plans, including the construction of nuclear power plants.³⁷⁸ The international community may be concerned about the possible development of nuclear weapon programs when states conduct nuclear activities without publishing their nuclear development plans (e.g., Israel, North Korea and Syria), or are engaged in nuclear activities which seem inconsistent with their plans or natural resources (e.g., allegedly, Iran).

From the standpoint of transparency, communications received by the IAEA from certain member states concerning their policies regarding the management of plutonium, including the amount of plutonium held, are also important. Using the format of the Guidelines for the Management of Plutonium (INFCIRC/549) agreed in 1997, the five NWS, Belgium, Germany, Japan, and Switzerland annually publish data on the amount of civil unirradiated plutonium under their control. By the end of 2014, China,³⁷⁹ France,³⁸⁰ Japan,³⁸¹ and the United Kingdom³⁸² had declared their civilian plutonium holdings as of December 2013. France and the United Kingdom had reported their holdings of not only civil plutonium but also HEU. Russia and the United States did not submit the reports on their civilian plutonium holdings as of December 2012, which should have been done in 2013. The

³⁷⁵ “Pakistan Starts Work on New Atomic Site, with Chinese Help,” *Global Security Newswire*, November 27, 2013, <http://www.nti.org/gsn/article/pakistan-begins-work-new-atomic-site-being-built-chinese-help/>.

³⁷⁶ Bill Gertz, “China, Pakistan Reach Nuke Agreement,” *The Washington Free Beacon*, March 22, 2013, <http://freebeacon.com/china-pakistan-reach-nuke-agreement/>.

³⁷⁷ NPT/CONF.2015/PC.III/WP.1, March 11, 2014.

³⁷⁸ The World Nuclear Association’s website (<http://world-nuclear.org/>) provides summaries of the current and future plans of civil nuclear programs around the world.

³⁷⁹ INFCIRC/549/add.7/13, August 15, 2014.

³⁸⁰ INFCIRC/549/Add.5/18, August 15, 2014.

³⁸¹ INFCIRC/549/Add.1/17, October 10, 2014.

³⁸² INFCIRC/549/Add.8/17, August 15, 2014.

United States submitted that report in April 2014,³⁸³ and Russia did so following next month.³⁸⁴

Japan's report submitted to the IAEA was based on its annual report "The Current Situation of Plutonium Management in Japan,"³⁸⁵ which was released by the Japan Atomic Energy Commission in September 2014. According to the latter report, at the end of 2013 Japan owned 47,145 kg of plutonium, of which 10,833 kg were in Japan and 36,312 kg stored abroad. This is an increase of almost three tons (2,904 kg) compared with the 44,241 kg included in the 2012 plutonium report. Prior to this report, it was found that Japan had misreported some of its plutonium in its declarations as of December 2011 and December 2012. The reason of this misreporting was that Japan "did not take into account the 640 kg of fresh MOX fuel that was loaded in Genkai [Nuclear Power Station Unit 3 in March 2011]. Since the reactor never went operational, the fuel was still unirradiated, but was not accounted for in any of the categories of the report."³⁸⁶ However, Japan's fissile material, including plutonium misreported under the INFCIRC/549, has been adequately declared and safeguarded; that is, Japan did not violate its Safeguards Agreement.

Australia, Austria, Brazil, Canada, Chile, Egypt, Iran, Kazakhstan, South Korea, Mexico, the Netherlands, New Zealand, Nigeria, Norway, Philippines, Poland, Saudi Arabia, South Africa, Sweden, Turkey and the UAE have published the amount of fissile material holdings or at least have placed their declared nuclear material under IAEA safeguards. From this, it may be concluded that these states have given clear evidence of transparency about their civil nuclear activities.

Multilateral approaches to the fuel cycle

Several countries have sought to establish multilateral approaches to the fuel cycle, including nuclear fuel banks, as one way to dissuade NNWS from adopting indigenous enrichment technologies. Austria, Germany, Japan, Russia, the United Kingdom, the United States and the EU, as well as six countries (France, Germany, the Netherlands, Russia, the United Kingdom and the United States) jointly, have made their respective proposals. The recent development is that Kazakhstan and the IAEA were reportedly close to concluding an agreement on establishing an international nuclear fuel bank. Kazakhstan has already established the International Uranium Enrichment Center in 2007, under Russian cooperation. According to the Russian report submitted to the 2014 NPT PrepCom, "the world's first safeguarded reserve of low-enriched uranium was established at the site of the Centre in 2010, based on a Russian Federation initiative and an agreement with the IAEA. ... [Russia] is bearing all the expenses associated with storage, maintenance, ensuring the reserve's nuclear safety and security, as well as the application of safeguards."³⁸⁷ Other fuel-guarantee efforts included the EU's financial and technical contribution to establishing a bank of LEU, whose creation was authorized by IAEA in November 2010. The United States has also reserved 230 ton of LEU for the American Assured Fuel Supply since 2011.

³⁸³ INFCIRC/549/Add.6/16, 2 April 2, 2014.

³⁸⁴ INFCIRC/549/Add.9/15, May 2014.

³⁸⁵ Secretariat of the Atomic Energy Commission, Cabinet Office, "Current Situation of Plutonium Management in Japan," September 16, 2014, <http://www.aec.go.jp/jicst/NC/iinkai/teirei/siryo2014/siryo31/siryo3.pdf> (in Japanese). See also Pavel Podvig, "Japan's 2013 Plutonium Report," *IPFM Blog*, September 16, 2014, http://fissilematerials.org/blog/2014/09/japans_2013_plutonium_rep.html.

³⁸⁶ Pavel Podvig "An error in Japan's civilian plutonium declarations," *IPFM Blog*, June 7, 2014, http://fissilematerials.org/blog/2014/06/an_error_in_japans_civili.html.

³⁸⁷ NPT/CONF.2015/PC.III/17, April 25, 2014.

3. Nuclear Security*

The most significant event related to nuclear security in 2014 was the successful conclusion of the Third Nuclear Security Summit held in The Hague, the Netherlands in March. At the summit, participating states agreed to strengthen nuclear security, including minimizing their civil stockpiles of both HEU and plutonium. They also promoted signature and ratification of the Amendment to the Convention on the Physical Protection of Nuclear Material (CPPNM) and shared perceptions and expectations of the International Atomic Energy Agency (IAEA)'s role in the international nuclear security system.³⁸⁸

In April 2014, parties to the Nuclear Safety Convention completed a sixth review meeting. They agreed to convene a Diplomatic Conference in 2015, to consider a proposed amendment to the Convention to address the design and construction of both existing and new nuclear power plants.³⁸⁹ In May 2014, the IAEA convened the International Conference on Human Resource Development for Nuclear Power Programmes, which emphasized capacity building as key to having a competent nuclear workforce.³⁹⁰ Throughout the conference, participants highlighted that capacity building continues to be important in ensuring the continued availability of competent personnel for the safe, secure and sustainable use of nuclear power. Also in May 2014, the Third Workshop on Civil Liability for Nuclear Damage was held at the IAEA with 54 participants from 39 member states.³⁹¹ The first such workshop was held in May 2012 as one of the many activities carried out by the IAEA in implementing its Action Plan on Nuclear Safety. In September 2014, the fifth plenary meeting on the IAEA Regulatory Cooperation Forum (RCF) was convened in the margin of the 58th General Conference. 27 members of the forum reviewed the forum's goals of assisting the development of effective independent and robust regulatory bodies of nuclear power, as well as other objectives and activities over the previous 12 months.³⁹²

Since the end of the Cold War and dissolution of the Soviet Union, serious international concerns have been raised about the proliferation of nuclear materials and other related technologies. Moreover, the September 11 terror attacks in 2001 sounded a stark note of warning about a possible nuclear terrorism attack against the relevant countries. In these circumstances of spreading fear of nuclear terrorism, the international community has attempted to enhance existing measures on physical protection of nuclear materials and prevention of terrorist acts. Such efforts include amending the CPPNM in 2005 (the amendment has yet to enter into force), and bringing the International Convention for the Suppression of Acts of Nuclear Terrorism (Nuclear Terrorism Convention) into force in 2007. Also, in 2011, the IAEA published the fifth revision of Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Rev.5), which introduces new measures that include introducing graded approaches, creating limited access areas, enhancing defense-in-depth, emphasizing the role of Design Basis Threat (DBT) in combatting specific types of threat, highlighting the need for protecting computer systems, and assessing sabotage scenarios by external and/or insider adversaries.³⁹³

* This chapter is written by Sukeyuki Ichimasa.

³⁸⁸ "The Hague Communiqué," The Hague Nuclear Security Summit, March 25, 2014, https://www.nss2014.com/sites/default/files/documents/the_hague_nuclear_security_summit_communique_final.pdf.

³⁸⁹ IAEA, "Parties to Nuclear Safety Convention Complete Sixth Review Meeting," April 4, 2014, <https://www.iaea.org/newscenter/news/parties-nuclear-safety-convention-complete-sixth-review-meeting>.

³⁹⁰ IAEA, "Capacity Building Key to Competent Nuclear Workforce, IAEA Conference Concludes," May 16, 2014, <https://www.iaea.org/newscenter/news/capacity-building-key-competent-nuclear-workforce-iaea-conference-concludes>.

³⁹¹ IAEA, "Legal Experts Meet at IAEA to Review Civil Liability for Nuclear Damage," May 22, 2014, <https://www.iaea.org/newscenter/news/legal-experts-meet-iaea-review-civil-liability-nuclear-damage-0>.

³⁹² IAEA, "Providing Support for Nuclear Safety: Fifth Plenary Meeting of Regulatory Cooperation Forum," September 26, 2014, <https://www.iaea.org/newscenter/news/providing-support-nuclear-safety>.

³⁹³ IAEA, "Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities

As a key multinational forum, the Nuclear Security Summits have been convened biennially since 2010, with the attendance of more than 50 world leaders from key countries and international organizations, including India, Pakistan and Israel—countries which have stayed outside the NPT, the cornerstone of the international nuclear non-proliferation regime for many years. Through participation in the Summits, states disseminate national progress on strengthening nuclear security and adopt joint communiqués. Such procedures help in fostering a binding force at political levels among the participating countries. Also, the Nuclear Security Summit resulted in several “pairing” initiatives, where specific participating donors/technology holders agreed with specific recipients to take measures of capacity building for the latter ones. One disappointing development was Russia’s announcement in November 2014 that it would neither participate in preparations for the 2016 Nuclear Security Summit in Washington nor attend the summit itself, ostensibly on grounds of dissatisfaction with the U.S. concept for preparing the summit. The decision was in line, however, with an over-all deterioration of U.S.-Russian relations.³⁹⁴

A first ministerial-level “International Conference on Nuclear Security: Enhancing Global Efforts,” organized by the IAEA in 2013, in Vienna, Austria, provided a unique opportunity for summarizing the efforts taken by the member states for the enhancement of nuclear security, and mapping out the long and medium-term goals and other priority issues.³⁹⁵ At the conference, ministerial-level officials delivered statements on their respective nuclear security policies, such as that made by a Japanese representative Shunichi Suzuki, Parliamentary Senior Vice-Minister for Foreign Affairs.³⁹⁶ Also, participating countries adopted the Ministerial Declaration on the enhancing global efforts on nuclear security, which encompasses the full range of relevant issues in this area.³⁹⁷

The above-mentioned membership status of international conventions and implementation status of the measures recommended by INFCIRC/225/Rev.5, as well as official statements on the occasion of international conferences, provide an important overview for assessing the nuclear security performance of each country.

Through the efforts of the international community towards strengthening nuclear security, which rest on the basis of national responsibility, a moderate international regime seems to emerge. Such efforts are roughly divided into several categories: participation in the nuclear security summits; commitment to relevant international laws; and internalization of norms such as a nuclear security culture. Also, by following the principle of “Each State carries the full responsibility for nuclear security,”³⁹⁸ each state decides what level of nuclear security requirements is needed for implementing in accordance with its own national threat assessment.

(INFCIRC/225/Revision 5),” IAEA Nuclear Security Series No.13, 2011, http://www-pub.iaea.org/MTCD/publications/PDF/Pub1481_web.pdf.

³⁹⁴ Ministry of Foreign Affairs of the Russian Federation, “Comment by the Information and Press Department on US Media Reports that Russia does not Intend to Take Part in Preparations for the 2016 Nuclear Security Summit,” November 5, 2014, http://www.mid.ru/bdomb/brp_4.nsf/english/FDB1C2C6F7427FE4C3257D88004155B5; “Russia to Skip Nuclear Security Summit Scheduled for 2016 in Washington,” *Washington Post*, November 5, 2014, http://www.washingtonpost.com/world/national-security/russia-to-skip-nuclear-security-summit-scheduled-for-2016-in-washington/2014/11/05/1daa5bca-6535-11e4-bb14-4cfea1e742d5_story.html.

³⁹⁵ IAEA, “Enhancing Global Efforts: Summary of an International Conference Organized by the International Atomic Energy Agency Vienna,” July 1-5, 2013, http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1643_web.pdf.

³⁹⁶ “Statement by Mr. Shunichi Suzuki, Parliamentary Senior Vice-Minister for Foreign Affairs, Head of Delegation of Japan,” at the International Conference on Nuclear Security Vienna, Austria, July 1, 2013, <http://www.mofa.go.jp/mofaj/files/000007119.pdf>.

³⁹⁷ IAEA, “Ministerial Declaration, International Conference on Nuclear Security: Enhancing Global Efforts,” 2013, <http://www-pub.iaea.org/MTCD/Meetings/PDFplus/2013/cn203/cn203MinisterialDeclaration.pdf>.

³⁹⁸ IAEA, “Objective and Essential Elements of a State’s Nuclear Security Regime,” IAEA Nuclear Security Series No. 20, p. v, http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1590_web.pdf.

Even the long-time NPT non-member countries such as India, Pakistan and Israel took part in the Nuclear Security Summits. Today, it has become standard practice for the concerned countries to participate in the Summit and submit their national progress report, which is helpful in demonstrating the countries' commitment to fostering their nuclear security culture. In terms of transparency, this trend is a positive one. However, it also makes it difficult share sensitive information relating to national nuclear security measures.

Regardless of whether the country only possesses civil nuclear-related facilities, or whether the country has a nuclear facility for military purposes, information relevant to the physical protection of nuclear materials and counter-nuclear terrorism measures has been veiled in secrecy. Public information on states' physical protection and nuclear security measures is generally limited, because, for the sake of preventing nuclear terrorism, regulatory and security authorities cannot disclose sensitive security information.

On the other hand, there are obviously tremendous needs for mutual validation by states, involvement of civil society in factual investigation, and scholarly research on such areas. However, an objective assessment from a variety of angles regarding state efforts on nuclear security remains difficult due to limited information.

As previously mentioned, Nuclear Security Summits and other international conferences on nuclear security provide precious opportunities for states to share information about their national nuclear security system to the extent possible. In terms of transparency, these trends should be appreciated and encouraged. However, sensitive information related to more specific physical protection measures, such as threat assessments by states, or development of DBT on the basis of these assessments, is obviously never disclosed. Perhaps, this could be the one of the reasons why an increasing number of countries have demonstrated their enthusiasm for accepting IAEA's international review missions in recent years. In the current international nuclear security regime, receiving peer-review service from an authoritative, independent organization with appropriate confidentiality policy could be a best way to converge needs with appropriate disclosure and information management. Unlike nuclear non-proliferation, for which IAEA safeguards serve as a universal tool, it is difficult to establish performance standards, evaluation criteria and, above all, a verification mechanism for nuclear security.

Recently, civil society and research institutions have been attempting to conduct objective assessments of state commitments on nuclear security. Taking into consideration the circumstances surrounding nuclear security, these ongoing civil society assessments are an invaluable basis for discussion.

In view of these factors mentioned above, this report surveys the following items to evaluate the implementation of nuclear security-related measures of each country. In order to assess the nuclear security risks of each, this report considers: indicators of the presence of nuclear material that is "attractive" for malicious intent; facilities to produce such material; and related activities. It also examines the accession status to nuclear security-related international conventions, implementation status of existing nuclear security measures and proposals to enhance it, and official statements related to nuclear security approaches, in order to evaluate the nuclear security performance and status of each country.

(1) The Amount of Fissile Material Usable for Weapons

In accordance with the IAEA definition, a nuclear security threat is "a person or group of persons with motivation, intention and capability to commit criminal or intentional unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities or associated activities or other acts determined by the

State to have an adverse impact on nuclear security.”³⁹⁹ The IAEA recommends a graded approach that takes into account: “the current evaluation of the threat, the relative ‘attractiveness,’ the nature of the nuclear material and potential consequences associated with the unauthorized removal of nuclear material and with the sabotage against nuclear material or nuclear facilities”⁴⁰⁰ to decide nuclear security measures. Furthermore, in terms of security requirements for radioactive material, the IAEA proposed that it “should be adapted depending on whether the radioactive material concerned is sealed source, unsealed source, disused sealed source or waste, and should cover transport.” The Agency also states that: “The determination of a national threat to radioactive material in use, storage and transport and associated facilities is a key step in establishing the required security measures.”⁴⁰¹

Two kinds of malicious acts—that is, unauthorized removal and sabotage—are present in nuclear security, and the “attractiveness” of potential targets differs depending on the intention of a certain act, as does the required protection level. The intentions of unauthorized removal are to manufacture a nuclear explosive device or to disperse radioactive material. For the former intention, the more suitable the targeted nuclear material is for the construction of a nuclear explosive device, the greater its “attractiveness,” as well as the risks involved. Sabotage acts may aim to “endanger the health and safety of personnel, the public or the environment by exposure to radiation or release of radioactive substances by intentionally attacking or destroying a nuclear facility or nuclear material in use, storage or transport.”⁴⁰² Depending on the purposes of sabotage and unauthorized removal for radioactive material dispersal, the level of protection will change with changing attractiveness of the targeted materials.

IAEA’s INFCIRC/225/Rev.5 categorizes nuclear material on the basis of its type, composition, amount, and radioactive level. An assessment is then made on whether to place them into category I, II, or III, which range from higher to lower in terms of its “attractiveness” for nuclear terrorism. It then recommends taking protective measures in accordance with the categorization of the material held. In fact, there is no current comprehensive, authoritative inventory of civil HEU globally.⁴⁰³ Therefore, it is almost impossible to assess the exact amount of holdings of category I nuclear material for most countries, although estimates supported by an objective analysis can be obtained for some countries from the “Global Fissile Material Report 2013: Increasing Transparency of Nuclear Warhead and Fissile Material Stocks as a Step toward Disarmament” (discussed below), published by an independent group of international experts, the International Panel on Fissile Materials (IPFM).⁴⁰⁴

In general, plutonium with an isotopic concentration of plutonium 239 of 80% or more is more attractive than other plutonium isotopes from a standpoint of manufacturing nuclear explosive devices. Weapons-grade highly enriched uranium (HEU) is usually enriched to 90% or higher levels of U-235. Therefore, both of these nuclear materials require high-level protection measures. Through the periodical release of its “Global Fissile Material Report,” the IPFM summarizes states’ known stocks of HEU and plutonium, and promotes public awareness. Table 3-1 shows

³⁹⁹ IAEA, “Objective and Essential Elements of a State’s Nuclear Security Regime,” IAEA Nuclear Security Series No. 20, 2013, p. 13.

⁴⁰⁰ IAEA, “Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5),” IAEA Nuclear Security Series No. 13, 2011, p. 14.

⁴⁰¹ IAEA, “Nuclear Security Recommendations on Radioactive Material and Associated Facilities,” IAEA Nuclear Security Series No.14, 2011, pp. 13-14.

⁴⁰² *Ibid.*, p. 53.

⁴⁰³ NTI, “Civilian HEU Reduction and Elimination Resource Collection,” October 6, 2014.

⁴⁰⁴ International Panel on Fissile Materials, “Global Fissile Material Report 2013: Increasing Transparency of Nuclear Warhead and Fissile Material Stocks as a Step toward Disarmament,” October 2013.

the latest evaluations made by the Panel and other relevant research bodies of such fissile material holdings.

The holdings of HEU and plutonium of some countries other than the ones in Table 3-1 are estimated as follows.

- Countries assumed to retain 1 ton of HEU (category I is 5 kg and more)⁴⁰⁵: Kazakhstan (10,470-10,820 kg)⁴⁰⁶
- Countries assumed to retain 1 kg and more but less than 1 ton of HEU (category I is 5 kg and more): Australia (2 kg)⁴⁰⁷, Canada (less than 500 kg)⁴⁰⁸, Iran (7 kg)⁴⁰⁹, the Netherlands (730-810 kg)⁴¹⁰, Nigeria (1 kg)⁴¹¹, Norway (1-9 kg)⁴¹², Poland (more than 10 kg)⁴¹³
- Countries assumed to retain 1 kg and more of separated plutonium: the Netherlands⁴¹⁴

In assessing the importance of preventing illegal transfers, countries that do not possess plutonium or weapon-grade HEU but have a nuclear reactor with a reprocessing facility or a uranium enrichment facility appear to be most at risk. For the existence of the above-mentioned facilities in a country enhance the level of nuclear security risk that the country faces.

As for unauthorized removal, using nuclear or other radioactive material also constitutes a security risk. The IAEA recommends that a state defines the risk based on the amount, forms, composition, mobility, and accessibility of nuclear and other radioactive material and takes prospective measures against the defined risk. In terms of unauthorized removal, nuclear or other radioactive material and related production facilities are also potential targets. As for sabotage within a plant, the IAEA also recommends that a state “establishes its threshold(s) of unacceptable radiological consequences” and identifies the vital areas where risk associated materials, devices, and functions are located are designated “in order to determine appropriate levels of physical protection taking into account existing nuclear safety and radiation protection.”⁴¹⁵

⁴⁰⁵ James Martin Center for Nonproliferation Studies (CNS), “Civil Highly Enriched Uranium: Who Has What?” NTI, August 2011, http://www.nti.org/media/pdfs/HEU_who_has_what.pdf.

⁴⁰⁶ James Martin Center for Nonproliferation Studies (CNS), “Civilian HEU Dynamic Map,” November 2014, NTI, http://www.nti.org/gmap/other_maps/heu/.

⁴⁰⁷ Ibid.

⁴⁰⁸ Ibid.

⁴⁰⁹ Ibid.

⁴¹⁰ Ibid.

⁴¹¹ Ibid.

⁴¹² Ibid.

⁴¹³ Ibid.

⁴¹⁴ International Panel on Fissile Materials, “Global Fissile Material Report 2013.”

⁴¹⁵ IAEA, “Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5),” IAEA Nuclear Security Series No. 13, 2011.

Table 3-1: Stockpiles of Fissile Material Usable for Weapons (estimates)

[Metric Tons]	HEU						Weapon Pu.				Civilian use Pu		
	HEU	Stockpile available for weapons	Naval (fresh)	Naval (irradiated)	Civilian Material	Excess (mostly for blend-down)	Weapon Pu.	Military stockpile	Excess military material	Additional strategic stockpile	Civilian use Pu	Civilian stockpile, stored in country (Dec. 2011)	Civilian stockpile, stored outside country (Dec. 2011)
China	16 ± 4	16					1.8 ± 0.5	1.8			0.01		
France	26 ± 6	6 ± 2			4.7		6	6			57.5	57.5	
Russia	695 ± 120	616	20	10	20	29	128 ± 8	88	34	6	49.5	49.5	
U.K.	21.2	11.7		8.1	1.4		7.6	3.2	4.4		91.2	90.3	0.9
U.S.	595	260	152	100	20	63	87.6	38.3	49.3				
India	2.4 ± 0.9						5.24	0.54 ± 0.18		4.7	0.24	0.24	
Israel	0.3						0.84	0.84					
Pakistan	3 ± 1.2	3 ± 1.2					0.15 ± 0.05	0.15					
Belgium	0.7-0.727												
Germany	1.230										5.8	2	3.8
Japan	1.2-1.4										44.3	9.3	35
Switzerland	0.005-0.01										< 0.05		
N. Korea	0.042						0.03	0.03					
Others	15				15						11		11

Source) International Panel on Fissile Materials, “Global Fissile Material Report 2013: Increasing Transparency of Nuclear Warhead and Fissile Material Stocks as a Step toward Disarmament,” International Panel on Fissile Materials, October 2013; (For Switzerland and Belgium) Reports of the member countries under the Guidelines for the Management of Plutonium (INFCIRC/549); (For Belgium, Germany, Japan, Switzerland, North Korea) James Martin Center for Nonproliferation Studies (CNS), “Civilian HEU Dynamic Map,” November 2014, NTI, http://www.nti.org/gmap/other_maps/heu/. (This table was originally shown in the *Hiroshima Report—Evaluation of Achievement in Nuclear Disarmament, Non-Proliferation and Nuclear Security: 2014*,” March 2014, p. 69. Some parts are updated.)

Table 3-2 : Nuclear Fuel Cycle Facilities

	China	France	Russia	U.K.	U.S.	India	Israel	Pakistan	Australia	Austria	Belgium	Brazil	Canada	Chile	Egypt	Germany ⁴¹⁶	Indonesia	Iran
Nuclear Power Plant	○	○	○	○	○	○		○			○	○	○			○		○
Research Reactor	○	○	○	○	○	○ a	○	○	○ d	○	○	○	○		○	○	○	○
Uranium Enrichment Facility	○	○	○	○	○	○ a		○ a				○				○		○
Reprocessing Facility	○	○	○ b	○	○	○	○ a	○ a			△ c	△ d						

	Japan	Kazakhstan	South Korea	Mexico	Netherlands ⁴¹⁷	New Zealand	Nigeria	Norway	Philippines	Poland	Saudi Arabia	South Africa	Sweden	Switzerland	Syria	Turkey	UAE	North Korea
Nuclear Power Plant	○	○	○	○	○							○	○	○			△ e	
Research Reactor	○	○	○	○	○			○				○	△ f	○	○	○		○ a
Uranium Enrichment Facility	○				○							△ c						△ g
Reprocessing Facility	△ h																	△ a, i

- a) Military use
- b) Military and civilian use
- c) Under decommissioning
- d) Under shut down
- e) Under construction
- f) Under shut down and decommissioning
- g) Under construction, the actual status is unknown
- h) Under test operation
- i) Stand-by

Source) International Atomic Energy Agency (IAEA), *Nuclear Fuel Cycle Information System*, <http://infcis.iaea.org/NFCIS/About.cshtml>; International Panel on Fissile Materials (IPFM), “Global Fissile Material Report 2013: Increasing Transparency of Nuclear Warhead and Fissile Material Stocks as a Step toward Disarmament,” October 2013. <http://fissilematerials.org/library/gfmr13.pdf>

According to data compiled by Nuclear Threat Initiative (NTI), the IAEA’s database on world research reactors shows that 247 research reactors are currently in operation across 55 countries, another 19 reactors are temporarily shut down, and 481 reactors have been shut down or decommissioned.⁴¹⁸ In this regard, it has been pointed out that many of the research reactors that have been shut down, but not decommissioned, still have spent HEU fuel on-site. Also, it has been reported that over 20,000 spent fuel assemblies from research reactors are enriched to

⁴¹⁶ Uranium enrichment facility of this country is owned by URENCO.

⁴¹⁷ Uranium enrichment facility of this country is owned by URENCO.

⁴¹⁸ Nuclear Threat Initiative, “Civilian HEU Reduction and Elimination Resource Collection,” October 6, 2014, <http://www.nti.org/analysis/reports/civilian-heu-reduction-and-elimination/>.

levels above 20 percent and nearly half of these stored fuel assemblies are enriched to levels at or above 90 percent. Therefore, in term of managing nuclear security risks around reactors, measures against illegal transfer are always going to be indispensable, whether the reactors are in operation, temporarily shut down or decommissioned.

Table 3-2 outlines the presence of nuclear power plants, research reactors, uranium enrichment facilities, and reprocessing facilities in surveyed countries, as risk indicators of unauthorized removal for a nuclear explosive device, or possession of nuclear material usable for weapons.

With regard to the issue of fissile material attractiveness, radiological security has become a weighty subject on the occasion of the nuclear security summits. In the communiqué of the Hague Nuclear Security Summit, 23 countries jointly released a “Gift Basket” statement on enhancing radiological security.⁴¹⁹ The following are the surveyed countries included in this Gift Basket approach: Australia, Canada, Germany, Japan, Kazakhstan, South Korea, the Netherlands, New Zealand, Norway, Sweden, Turkey, the UAE, the United Kingdom and the United States.

(2) Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security-Related Initiatives, and Application to Domestic Systems

A) Accession status to nuclear security-related conventions

This section deals with the accession status of each country to the following nuclear security and safety-related conventions: Convention on the Physical Protection of Nuclear Material (CPPNM); Amendment to CPPNM (CPPNM Amendment); International Convention for the Suppression of Acts of Nuclear Terrorism (Nuclear Terrorism Convention); Convention on Nuclear Safety (Nuclear Safety Convention); Convention on Early Notification of a Nuclear Accident; Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management; and Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency.

The CPPNM became effective in 1987. As of September 2014, 151 countries have brought the treaty into force.⁴²⁰ CPPNM requires its party states to take appropriate protection measures for international transfer of nuclear material used for peaceful purposes, and not permit its transfer in the case that such measures are not in place. It also calls for the criminalization of acts including unauthorized receipt, possession, use, transfer, alteration, disposal or dispersal of nuclear material, and actions which cause damage to any person or property, as well as theft or robbery of nuclear material.

The CPPNM Amendment has not yet entered into force at the present time of writing this report. With the objective of preventing nuclear terrorism, the international community has underscored the urgency of it. In 2000, in compliance with rising international awareness against the illegal transfer of nuclear materials and fear of nuclear terrorism, the Working Group of the Informal Open-Ended Expert Meeting met to discuss whether there was a need to revise the Convention.⁴²¹ In its final report adopted in 2001, the working group recommended the

⁴¹⁹ The Hague Nuclear Security Summit, “Statement on Enhancing Radiological Security,” March 24, 2014, https://www.nss2014.com/sites/default/files/documents/statement_on_enhancing_radiological_security_final_version_of_24_march2.pdf.

⁴²⁰ IAEA, “Convention on the Physical Protection of Nuclear Material,” September 22, 2014, http://www.iaea.org/sites/default/files/cppnm_status.pdf.

⁴²¹ Nuclear Threat Initiative, “Convention on the Physical Protection of Nuclear Material (CPPNM),” <http://www.nti.org/treaties-and-regimes/convention-physical-protection-nuclear-material-cppnm/>.

strengthening of the existing Convention by a well-defined amendment. In 2003, the final report that recommended the extension of the scope of the CPPNM adopted by the Group of Experts was distributed to the States Parties by the IAEA Director General.⁴²² Then, in 2005, it was adopted by consensus at a diplomatic conference to amend the Convention and strengthen its provisions.⁴²³ This amendment greatly expands CPPNM scope by calling for party states to take protective measures to secure nuclear facilities and nuclear material in use, storage and transport, and to impose regulations to prevent sabotage against nuclear facilities. The CPPNM Amendment will only enter into force after it has been ratified by two-thirds of the parties (99 countries) to the Convention. As of November 2014, 83 out of 151 states have approved the Amendment.⁴²⁴

The Nuclear Terrorism Convention, which entered into force in 2007, requires party states to criminalize acts of possession and use of radioactive material or nuclear explosive devices with malicious intent, and against those seeking to use and damage nuclear facilities in order to cause radioactive dispersal.

The Nuclear Safety Convention became effective in 1996, which is aimed at ensuring and enhancing the safety of nuclear power plants. Party states of this Convention are required to take legal and administrative measures, report to the review committee established under this convention, and accept peer review in order to ensure the safety of nuclear power plants under their jurisdiction.

The Convention on Early Notification of a Nuclear Accident entered into force in 1986. It obligates its party states to immediately report to the IAEA when a nuclear accident has occurred, including the type, time, and location of the accident and relevant information.

The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management became effective in 2001. It calls for its member states to take legal and administrative measures, report to its review committee, and undergo peer review by other parties, for the purpose of ensuring safety of spent fuel and radioactive waste.

The Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency entered into force in 1987. This convention establishes the international framework that enables equipment provision and dispatch of experts in the event of emergencies, in order to prevent and/or minimize nuclear accidents and radioactive emergencies.

Some, if not all, of these nuclear safety-related conventions can be interpreted as providing protective measures for nuclear security purposes, and thus could be listed as nuclear security-related international conventions.

Table 3-3 summarizes the signature and ratification status of each country to these conventions.

⁴²² Ibid.

⁴²³ Ibid.

⁴²⁴ IAEA, "Amendment to the Convention on the Physical Protection of Nuclear Material," November 11, 2014.

Table 3-3: Signature and Ratification Status for Major Nuclear Security and Safety-Related Conventions

	China	France	Russia	U.K.	U.S.	India	Israel	Pakistan	Australia	Austria	Belgium	Brazil	Canada	Chile	Egypt	Germany	Indonesia	Iran
CPPNM	○	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
CPPNM Amendment	○	○	○	○		○	○		○	○	○		○	○		○	○	
Nuclear Terrorism Convention	○	○	○	○	△	○	△		○	○	○	○	○	○	△	○	○	
Nuclear Safety Convention	○	○	○	○	○	○	△	○	○	○	○	○	○	○	△	○	○	
Convention on Early Notification of a Nuclear Accident	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	○	○	○	○	○				○	○	○	○	○	○		○	○	
Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

	Japan	Kazakhstan	South Korea	Mexico	Netherlands	New Zealand	Nigeria	Norway	Philippines	Poland	Saudi Arabia	South Africa	Sweden	Switzerland	Syria	Turkey	UAE	North Korea
CPPNM	○	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
CPPNM Amendment	○	○		○	○		○	○		○	○		○	○			○	
Nuclear Terrorism Convention	○	○	○	○	○	△	○	○	△	○	○	○	○	○	△	○	○	
Nuclear Safety Convention	○	○	○	○	○		○	○	△	○	○	○	○	○	△	○	○	
Convention on Early Notification of a Nuclear Accident	○	○	○	○	○	○	○	○	○	○	○	○	○	○	△	○	○	△
Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	○	○	○		○		○	○	△	○	○	○	○	○			○	
Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency	○	○	○	○	○	○	○	○	○	○	○	○	○	○	△	○	○	△

○: ratification, acceptance, approval, and accession △: signature

B) INFCIRC/225/Rev.5

INFCIRC/225/Rev.5 introduces new measures on nuclear security, among others creation of limited access areas, graded approaches, the enhancement of defense-in-depth, and protection against “Stand-off Attack,” counter measures against insider threats, development of nuclear security culture as a preventive measure against insider threats, and the provision of redundancy measures to ensure the functions of the central response station during an emergency. Implementation of the protective measures in accordance with the recommendation made by this fifth revision has been encouraged internationally, with a view to establishing a stronger nuclear security system. Since 2010, the communiqués of the Nuclear Security Summits have clearly declared that all participating states should make efforts to take up these recommended measures.⁴²⁵ For instance, according to the communiqué of the most recent Nuclear Security Summit in The Hague, participating states attach great value to the IAEA’s support for national efforts to improve nuclear security. Also, the communiqué mentions that the IAEA’s nuclear security guidance, contained in the IAEA Nuclear Security Series of publications, provides the basis for effective nuclear security measures at national level. That is the reason why the participating states encourage all states to utilize this

⁴²⁵ “Washington Communiqué,” 2010 Washington Nuclear Security Summit, April 13, 2010; “Seoul Communiqué,” 2012 Seoul Nuclear Security Summit, March 27, 2012; “The Hague Communiqué,” 2014 Hague Nuclear Security Summit, March 25, 2014.

guidance as appropriate.⁴²⁶

In this regard, the application status of the recommended measures of INFCIRC/225/Rev.5 can serve as a significant indicator to assess the nuclear security system of this report's surveyed countries.

This report refers to official statements made available in the Hague Nuclear Security Summit, the "International Conference on Nuclear Security: Enhancing Global Efforts" organized by the IAEA (hereinafter referred to as IAEA Nuclear Security Conference), and other opportunities to evaluate the national nuclear security stance and performance of each state.

Status of Each Country in Implementing the Measures Recommended in INFCIRC/225/Rev.5⁴²⁷

The following section summarizes the measures announced on the occasion of the Hague Nuclear Security Summit and the International Conference on Nuclear Security in 2013, and subsequently taken by some countries to implement INFCIRC/225/Rev.5.

In the field of the development of legal instruments, Belgium, Brazil, Canada, Germany, Kazakhstan, South Korea, and New Zealand have declared that they have also established legal instruments based on the INFCIRC/225/Rev.5.

In the area of strengthening the physical protection measures, South Korea is trying to take measures corresponding to INFCIRC/225/Rev.5. Brazil is revising its regulations on nuclear and radiological security, taking into account international best practices and the provisions of the 2005 Amendment of the CPPNM, as well as INFCIRC/225/Rev.5. In response to the intrusion incident at the Y-12 National Security Complex in 2011, the United States completed zero-based security assessments at all National Nuclear Security Administration (NNSA) facilities, completed security upgrades at the Y-12 National Security Complex, and is on schedule to complete security upgrades at the Los Alamos National Laboratory facility in 2014. Also, the United States took measures to enhance force-on-force and performance testing for U.S. facilities, and installed security upgrades at over 240 domestic facilities. The United States conducted 17 domestic exercises in 2012-2014, to increase nuclear preparedness, response, recovery and resilience. Belgium has strengthened and updated its legal and regulatory framework regarding physical protection, in compliance with the CPPNM Amendment and INFCIRC/225/Rev.5. Also, Belgium has updated the Design Basis Threat (DBT) for the nuclear sector nationwide, in particular, the specific reference threat for each nuclear operator has been established. Canada has strengthened its domestic security requirements by producing new Regulatory Documents and updating others such as requirements for Nuclear Response Forces, related to performance testing, including force-on-force exercises at high-security nuclear sites. The Design Basis Threat Analysis is currently being updated, including developing measures to produce strengthened Fitness for Duty requirements, particularly for persons entering a protected area. Germany is developing comprehensive guidelines to provide enhanced security, including a graded approach based on the potential risk of radioactive material, and defining requirements and measures for each security level.

With regard to cyber-terrorism, the Netherlands has introduced a DBT concerning cyber security for the domestic nuclear sector in 2013, and announced that the DBT will be fully implemented in March 2014. Belgium has announced the establishment of a DBT addressing the cyber threat in the upcoming years. Canada is working

⁴²⁶ "The Hague Communiqué."

⁴²⁷ "Progress statements made in the Hague Nuclear Security Summit," <https://www.nss2014.com/en/nss-2014/reference-documents>.

toward the development and issuance of a national standard for cyber protection, which reflects international best practices. Germany has announced that since 2010, a new regulatory framework concerning cyber security, including a national DBT, has entered into force. Switzerland has declared that a National Strategy for the Protection of Switzerland against Cyber Risks was adopted in June 2012.

In the field of protection measures against insider threats, Japan accelerated research and consultation towards establishing a system to determine the trustworthiness of persons, while continuing to enhance countermeasures against insider threats, with measures such as access control and the two-man rule. Belgium reported that its Federal Agency for Nuclear Control had organized domestic workshops devoted to the issue of insider threats, to raise awareness against possible incidents.

Table 3-4: Application Status and Efforts for Recommended Measures of INFCIRC/225/Rev.5

	China	France	Russia	U.K.	U.S.	India	Israel	Pakistan	Australia	Austria	Belgium	Brazil	Canada	Chile	Egypt	Germany	Indonesia	Iran
INFCIRC/225/Rev.5	○	○	○	○	○	○		○	○		○	○	○	○		○	○	
	Japan	Kazakhstan	South Korea	Mexico	Netherlands	New Zealand	Nigeria	Norway	Philippines	Poland	Saudi Arabia	South Africa	Sweden	Switzerland	Syria	Turkey	UAE	North Korea
INFCIRC/225/Rev.5	○	○	○	○	○	○						○	○	○		○	○	

“○” is shown for only the countries for which the related information is available or that have made official remarks about their effort for INFCIRC/225/Rev.5.

In terms of nuclear security culture, Brazil declared that its National Regulatory Authority has been making efforts with the national nuclear industry to strengthen its nuclear security culture, through organizing workshops, seminars and training courses. Germany has stressed the enhancement of its national nuclear security culture through training and education for personnel in nuclear facilities, through an integrated approach to equally assure nuclear safety and security. South Korea has developed guidance on implementing its nuclear security culture,⁴²⁸ provided education and training in nuclear security for all its nuclear industry-related personnel, and hosted workshops on nuclear security culture. In November 2014, Japan co-organized with the IAEA a Regional Workshop on Nuclear Security Culture in Practice.⁴²⁹

(3) Efforts to Maintain and Improve the Highest Level of Nuclear Security

A) Minimization of HEU in civilian use

In a 2013 op-ed article, the senior U.S. statesmen sometimes known as the ‘Four Horsemen’—George P. Shultz, William J. Perry, Henry A. Kissinger and Sam Nunn—raised concern that nuclear materials necessary for building a nuclear bomb are currently stored at hundreds of sites in 28 countries, and that many of these sites are not well

⁴²⁸ Naoko Noro, “Summary of Country reports-Current Status of 12 FNCA Member States,” paper presented at the Forum of Nuclear Cooperation in Asia, February 27, 2014.
⁴²⁹ Japan Atomic Energy Agency, *ISCN News Letter* (No.0213), December 2014, pp. 7-8.

secured, leaving the materials vulnerable to theft or sale on the black market. The four statesmen advocated that world leaders should commit to developing a comprehensive global materials security system for tracking, accounting for, managing and securing of those materials.⁴³⁰

Currently, HEU has been utilized for civilian purposes through its use in research reactors and isotope production reactors. However, as is often described as being “two sides of the same coin,” it is the case that HEU can also be used for manufacturing nuclear explosive devices. If it is removed from regulatory control without authorization, such as by theft, it is possible that non-state actors as well as states could produce nuclear explosive devices.

To address this concern, the Global Threat Reduction Initiative (GTRI) was inaugurated in 2004 by the U.S. Bush Administration, so as to manage the return of Russian and U.S.-origin HEU located in civilian sites to its country of origin, and conversion of research reactors to operate with low enriched uranium (LEU). Under the auspices of the U.S. Obama Administration, the Nuclear Security Summits in 2010 and 2012 supported this effort as one of the most important activities to improve nuclear security. Moreover, the Communiqué of the latest Nuclear Security Summit in The Hague encouraged states to minimise their stocks of HEU and to keep their stockpile of separated plutonium to the minimum level, both being consistent with national requirements.

The U.S. National Nuclear Security Administration (NNSA) reported that, GTRI has greatly accelerated efforts to remove vulnerable civilian nuclear and radiological materials since 2004. GTRI and its predecessor programs have removed or confirmed the disposition of more than 5,140 kg of HEU and plutonium, and clean-up activities for all HEU in 26 countries (and Taiwan), namely: Austria, Brazil, Bulgaria, Chile, Colombia, Czech Republic, Denmark, Georgia, Greece, Hungary, Iraq, South Korea, Latvia, Libya, Mexico, Philippines, Portugal, Romania, Serbia, Slovenia, Spain, Sweden, Taiwan, Thailand, Turkey, Ukraine, and Vietnam.⁴³¹

At the Hague Nuclear Security Summit and other occasions, the following updates on commitments to minimizing HEU use were made:

- China decommissioned two HEU research reactors in a step-by-step manner, and is now actively advancing the conversion of another HEU reactor to using low enriched uranium. It has cooperated with Ghana to convert its HEU research reactor under the framework of the IAEA.
- France cooperates closely with other countries to develop high-density LEU fuel powder production technology as an alternative to HEU for research reactors.
- Russia implemented a program for the repatriation to the Russian Federation of HEU (both fresh and spent) and removal of all HEU fuel from nine countries: Bulgaria, Latvia, Libya, Romania, Serbia, Ukraine, Czech Republic, Vietnam and Hungary. HEU fuel has also been partially returned from five countries: Germany, Poland, Uzbekistan, Kazakhstan and Belarus. In this regard, 790 kg of fresh uranium and 1,269 kg of spent HEU fuel have been returned from 14 countries since 2002. Russia has conducted an assessment of six research nuclear reactors and confirmed the technical possibility for their conversion from HEU to LEU. At present, it has focused on development and certification of new high-density LEU fuel needed for the conversion of relevant reactors in Tomsk and the Kurchatov National Research Center.
- The United States took necessary steps to bring 21 kg of separated plutonium and 1,845 kg of HEU into the

⁴³⁰ George P. Shultz, William J. Perry, Henry A. Kissinger and Sam Nunn, “Next Steps in Reducing Nuclear Risks: The Pace of Nonproliferation Work Doesn’t Match the Urgency of the Threat,” *Wall Street Journal*, March 5, 2013.

⁴³¹ National Nuclear Security Administration, “GTRI: Removing Vulnerable Civilian Nuclear and Radiological Material Fact Sheet,” May 29, 2014.

U.S. for secure storage and disposition. Since the Seoul Nuclear Security Summit, it has spent \$72 million on research and development for new research reactor fuels, to enable shorter timelines for domestic and international reactor conversions to LEU fuel. It has also downblended about 13 metric tons of its HEU, cooperated with Russia in the downblending of about 2 metric tons of Russian HEU, and, working in some cases with Russia, supported the removal and elimination of over 400 kg of HEU from ten countries—in the aggregate, enough for about 500 nuclear weapons. It has successfully completed the HEU Purchase Agreement with Russia, under which 500 metric tons of Russian weapons origin HEU—the equivalent for approximately 20,000 nuclear warheads—was converted into LEU and used in U.S. power reactors to produce 10% of all U.S. electricity during the past 15 years. In cooperation with multiple international partners, the U.S. intends to continue to lead efforts to develop new research reactor fuels, to allow for the conversion of the remaining high performance research reactors, both in the United States and abroad, to the use of LEU fuel.

- Belgium has jointly announced, with the U.S., the successful removal of all excess fresh HEU and plutonium from Belgium. Under a joint effort with GTRI, Belgium had developed a new glove box facility for plutonium packaging, training and certification of personnel in specialized packaging operations, and to validate certificates for a purpose-designed nuclear material package. These techniques are also intended to help other countries adopt the same approach.
- Brazil has converted all of its nuclear research reactors for the use of LEU fuel. All HEU nuclear fuel elements have been repatriated to the country of origin. The new Brazilian Multipurpose Reactor is also designed to use LEU.
- Canada has committed to eliminating the use of HEU in the production of medical isotopes and intends to do so by 2016. Canada continues the process of repatriation of its U.S.-origin HEU fuel by 2018, and also continues to support international efforts to minimize HEU through such actions as providing technical support for a reactor conversion and cleanout project in Jamaica. It has provided approximately US\$8 million for successful US-led reactor conversion and HEU cleanout projects in Mexico (\$5 million) and Vietnam (\$3 million).
- Chile has reduced the enrichment of its uranium enrichment to less than 20 percent and has no HEU nuclear fuel.
- Japan has jointly pledged with the U.S. to remove and dispose of all HEU and separated plutonium from the Fast Critical Assembly (FCA) at the Japan Atomic Energy Agency (JAEA).
- South Korea, based on joint cooperation with Belgium, France, Germany and U.S., has developed a new high-density LEU fuel, as part of the efforts to convert HEU fuel used in high performance research reactors to LEU fuel.
- Poland, under GTRI's Russian Research Reactors Fuel Return Program, is repatriating its HEU spent nuclear fuel to Russia, with its last shipment planned for 2016, when 51 fuel elements with 12.1 kg of uranium-235 will be returned. This will allow Poland to eliminate all HEU fuel from its territory.

B) Prevention of illicit trafficking

In order to regulate nuclear transfers and counter illicit transfers of nuclear material, the Communiqué of The Hague Nuclear Security Summit stated the vital importance of using all tools to locate and secure nuclear material that is out of regulatory control, including effective export control arrangements and law enforcement mechanisms. In particular, and subject to states' national laws and procedures, the measures include sharing information, best practices and expertise, through bilateral, regional and multilateral mechanisms in relevant areas such as nuclear detection, forensics, and law enforcement are underscored. Furthermore, the development of new technologies to

enhance enforcement capacity of customs personnel. Also involved is participation in the IAEA Incident and Trafficking Database (ITDB), and information-sharing through INTERPOL and the World Customs Organization (WCO) regarding individuals involved in the illicit trafficking of nuclear or other radioactive materials.

The IAEA ITDB is the database on incidents related to unauthorized possession, illicit trafficking, illegal dispersal of radioactive material, and discovery of nuclear and other radioactive material out of regulatory control. From January 1993 to December 2013, a total of 2,477 incidents were reported to the ITDB by participating states and some non-participating states. By providing and sharing information of relevant incidents, participating countries are expected to engage in international surveillance of illicit trafficking to strengthen their efforts for its prevention, and for nuclear security performance as a whole. As of December 2013, 125 countries have joined the ITDB, and all the countries surveyed in this report, other than Syria, Egypt and North Korea, have participated in it.

According to the ITDB 2014 Fact Sheet, 146 incidents were confirmed to the ITDB in 2013.⁴³² Of these, six incidents involved possession and related criminal activities, 47 involved theft or loss, and 95 involved other unauthorized activities.⁴³³ There were also five incidents involving IAEA Category I-III radioactive sources, four of which were thefts.⁴³⁴ In the light of protecting sensitive information, detailed information on incidents and illicit trafficking is not published. Therefore, as it is not possible to assess the involvement of the surveyed countries, this report considers only their respective participation status.

Preventive measures against illicit trafficking of nuclear and other radiological material include the development of legal instruments for export control, and the installation of detection capabilities, such as the installation of sensing devices for radiological material at national borders. The following describes some of the efforts taken as preventive measures against illicit trafficking of nuclear and other radiological material:

- Brazil has contributed to the ITDB and the IAEA Nuclear Security Information Portal (NUSEC). At the regional level, it has been engaged in efforts of the MERCOSUR and Associated States to prevent, detect and respond to the threat of illicit trafficking of nuclear and radioactive materials, including training courses for border officials, exchange of information and best practices.
- Canada has been participating in international information sharing on illicit trafficking in nuclear material through contributions to the ITDB and through bilateral cooperation. It is also continuing to implement a risk-based security compliance inspection program of licensing of radioactive sources, and has implemented comprehensive import and export control programs for both Category I and II radioactive sources.
- Chile has developed an active regional agenda on security matters against the background of the MERCOSUR agreements on Illicit Traffic in Nuclear and/or Radioactive Material (GTETIMNR). It also reported that a bilateral exercise drill between Chile and Argentina took place in June 2014 at border posts, to combat illicit trafficking.
- Germany has taken part in international information-sharing on the illicit trafficking of nuclear materials through participation in the ITDB, NUSEC, and Global Initiative to Combat Nuclear Terrorism (GICNT), Implementation and Assessment Group (IAG). In terms of the illicit trafficking in nuclear or other radioactive materials, the German Federal Criminal Police Office closely cooperates in the framework of Interpol's Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Program, the common

⁴³² IAEA, "IAEA Annual Report 2013," p. 67.

⁴³³ IAEA, "Incident and Trafficking Database (ITDB)."

⁴³⁴ Ibid.

Interpol/Europol project “Rutherford” and so on.

- South Korea has been sharing information with the international community on the illicit trafficking of nuclear and radioactive materials by participating in the ITDB and NUSEC. It launched a pilot project, jointly with Vietnam and the IAEA, to establish the Radioactive Source Location Tracking system in Vietnam.
- Philippines has participated in the ITDB and reported that, through the assistance of the U.S., the Philippine National Police will be equipped with a Mobile Detection System, which will enhance capabilities for preventing, mitigating, and apprehending suspects and criminals in the act of radiological and nuclear material smuggling. It also informed that the Port of Manila and Cebu Port have installed Radiation Portal Monitors. Under the Instrument for Stability (IFS) Project of the European Union, with the US-DOE under the Megaports Initiative Project, and with the IAEA, the Nuclear Training Center of the Philippine Nuclear Research Institute undertook the training of frontline officers and other stakeholders involved in border control, which will ensure the sustainability of human resource development in nuclear security.

Table 3-5 shows the implementation status regarding the minimization of HEU for peaceful purposes and measures for the prevention of illegal transfer of nuclear material and other radiological materials, based on official statements made at the Hague Nuclear Security Summit or other opportunities.

Table 3-5: The implementation status of the minimization of HEU for peaceful purposes and measures for the prevention of illegal transfer

	China	France	Russia	U.K.	U.S.	India	Israel	Pakistan	Australia	Austria	Belgium	Brazil	Canada	Chile	Egypt	Germany	Indonesia	Iran
HEU minimization for peaceful purposes	○	○	○	○	○	○	○		○	○	○	○	○	○		○		
Participation in the ITDB	○	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○	○
Preventive measures against illegal transfer	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○ ⁴³⁵	○		

	Japan	Kazakhstan	South Korea	Mexico	Netherlands	New Zealand	Nigeria	Norway	Philippines	Poland	Saudi Arabia	South Africa	Sweden	Switzerland	Syria	Turkey	UAE	North Korea
HEU minimization for peaceful purposes	○	○	○	○	○	○	○	○	○	○		○	○	○ ⁴³⁶		○ ⁴³⁷		
Participation in the ITDB	○	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○	
Preventive measures against illegal transfer	○	○	○	○	○	○ ⁴³⁸	○	○	○	○		○	○	○		○	○	

“○” is provided to the countries for which public information on the effort in these areas is obtained.

⁴³⁵ A. M. Ali, “Legal Elements for Nuclear Security: Egyptian Nuclear Law as a Case Study,” paper presented at the XI Radiation Physics & Protection Conference, November 25-28, 2012, Nasr City - Cairo, Egypt, p. 333, http://www.iaea.org/inis/collection/NCLCollectionStore/_Public/45/099/45099916.pdf.

⁴³⁶ U.S. National Nuclear Security Agency, “Fact Sheet: GTRI’s Convert Program: Minimizing the Use of Highly Enriched Uranium,” May 29, 2014.

⁴³⁷ Ibid.

⁴³⁸ U.S. National Nuclear Security Administration, “Press Release: US, New Zealand Collaborate to Combat Trafficking of Nuclear Materials,” July 23, 2013.

C) Acceptance of international nuclear security review missions

In order to support the development of the nuclear security system and capabilities, the IAEA provides its member states with advisory services upon request, such as the International Nuclear Security Advisory Service (INSServ), the International Physical Protection Advisory Service (IPPAS), the IAEA State Systems for Accountancy and Control (SSAC) Advisory Service (ISSAS) and the Integrated Nuclear Security Support Plan (INSSP). The INSServ provides recommendations to improve a broad spectrum of nuclear security activities of the state, by reviewing its nuclear security system and requirements. Also upon the request of a member state, the IPPAS provides recommendations to improve the physical protection system of nuclear material, associated facilities, and transport systems of the state. As IPPAS reviews a state's nuclear security system in detail, with a particular focus on the state's physical protection system, it is regarded as a more in-depth review service compared to INSServ. In IPPAS missions, an IPPAS team, consisting of physical protection experts organized by the IAEA, visits government organizations and nuclear facilities in a state, reviews the physical protection system of the facility in detail, and conducts hearing investigations, in order to assess whether or not the reviewed physical protection system is in line with the recommendations of the IAEA INFCIRC/225 and to provide advice where necessary for its improvement. On the other hand, ISSAS provides those national authorities who request them with recommendations and suggestions for improvements to their SSACs of nuclear material. The missions evaluate the regulatory, legislative, administrative and technical components of the SSAC at both the state and facility level, and assess how the SSAC meets the obligations contained in the state's safeguards agreement and additional protocol, as applicable. INSSP provides a platform for nuclear security work to be implemented over a period of time, thus ensuring sustainability. This review mission enables the IAEA, the state concerned, and any donors financing the work, to plan and coordinate activities from both a technical and a financial point of view - optimizing the use of resources and avoiding duplications.

For a member state, acceptance of the IAEA missions is a valuable opportunity to have an authoritative third-party peer review of its national nuclear security system. Moreover, such review missions provide some sort of public certification for a receiving state of its efforts to enhance nuclear security related capabilities. It could be pointed out that there are many motives behind it, for instance: a need for internal or external endorsement of a state's positive attitudes towards nuclear security; a sense of trust in the confidentiality policy of the IAEA; and a rise in the awareness of compliance with the relevant international norms.

In particular, the IPPAS had been referenced quite often in the context of developing nuclear security system and capability. Since the IPPAS is an international service to review details of the national physical protection system that includes sensitive information about a requesting state, it is expected to greatly contribute to the improvement of the states' nuclear security performance in general. Therefore, acceptance of the IPPAS indicates that the state is seriously working to strengthen its nuclear security system.

Since the IPPAS was initiated in 1996, 56 IPPAS missions have been conducted in 37 states (see table 3-7). In 2014, Australia, Indonesia, South Korea, the United States and so on received the IPPAS. Canada has announced its intention to host a review mission of the IPPAS during 2015.

D) Technology development —nuclear forensics

By definition, nuclear forensics is the technological method for the investigation of nuclear and other radiological material that has been removed without authorization from regulatory control and seized by a law enforcement authority of state. Following the increased threat perception of nuclear terrorism, technological development of

nuclear forensics has been required so as to complement existing efforts to strengthen nuclear security.

The role of nuclear forensics is to investigate the original location, history, and transport path of the seized material, and the intent of its removal, by analyzing its composition and physical and chemical form. Nuclear forensics activities include the categorization and characterization of seized material and the interpretation of their results. In the latter case, comparison of the results with a database and numerical simulation are included as part of the interpretation.

International cooperation to build a nuclear forensics capability in each country was recommended during the 2010 Nuclear Security Summit.⁴³⁹ Subsequently, in the communiqué of the Nuclear Security Summit in 2012, the importance of international cooperation in developing nuclear forensics capacity was reaffirmed.⁴⁴⁰ Also, the communiqué of the Nuclear Security Summit in 2014 welcomed the progress and recent development of several instruments that improve the use of traditional forensic methods, and emphasized the need to further international cooperation within the IAEA and develop innovative forensic methods and tools for investigating incidents involving nuclear and other radioactive materials.⁴⁴¹

As such an international cooperation initiative, the Nuclear Forensics International Technical Working Group (ITWG) was established in 1996 for the purpose of addressing the issue of illegal transfers following the end of the Cold War. The ITWG serves as the platform to support the technological development and sharing of nuclear forensic methods.

As reviewed in the previous *Hiroshima Report*, France, the United Kingdom, the United States, Australia, Canada, Japan, South Korea, Sweden, and Switzerland are at the forefront of work on the development of nuclear forensics capability (see Table 3-6, which is based on the reports made at the ITWG-17 in 2012).⁴⁴²

Other than these countries, Israel and Canada engaged in a two-year technical exchange in 2014-2015 to establish procedures and best practices for nuclear forensics, which will potentially be implemented under the umbrella of the GICNT. Chile announced on the occasion of the 2014 Nuclear Security Summit that a border drill with Argentina on detection of radioactive material, nuclear forensics, response and mitigation, would be carried out during the first half of 2014, which would allow both countries to assess security capabilities and to accumulate knowledge for their strengthening.

⁴³⁹ The White House, Office of the Press Secretary, “Work Plan of the Washington Nuclear Security Summit,” April 13, 2010.

⁴⁴⁰ “Seoul Communiqué.”

⁴⁴¹ “The Hague Communiqué.”

⁴⁴² Center of the Promotion of Disarmament and Non-Proliferation the Japan Institute for International Affairs, *Hiroshima Report—Evaluation of Achievement in Nuclear Disarmament, Non-Proliferation and Nuclear Security: 2014*, March 2014, p. 82.

Table 3-6: Nuclear forensics capabilities that were reported at the ITWG-17

	Uranium	Plutonium	Other radioactive material*	Evidence contaminated by radiological material
Categorization	France U.K. U.S. Australia Canada Japan South Korea Sweden Switzerland	France U.K. U.S. Canada South Korea Sweden	Canada Japan South Korea Sweden Switzerland	U.S. Canada
Characterization	France U.K. U.S. Canada Japan South Korea Switzerland European Commission Joint Research Centre Institute for Transuranium Elements (EC JRC- ITU) ⁴⁴³	France U.K. U.S. Canada Japan South Korea Switzerland EC JRC-ITU	U.K. U.S. Canada Japan South Korea Switzerland EC JRC-ITU	U.S. Canada EC JRC-ITU
Interpretation	France U.S. Canada Japan Switzerland EC JRC-ITU	France U.S. Canada Japan Switzerland EC JRC-ITU	U.S. Japan EC JRC-ITU	U.S. Canada EC JRC-ITU

* Irradiated fuel, Th, Cm, Cs, Am, Industrial radiation source, Sealed source

(This table was originally shown in the *Hiroshima Report 2014*, p. 82.)

E) Capacity building and support activities

Since 2010, in response to increased awareness about the importance of nuclear security capacity building and international cooperation in this area, many participating countries at the Nuclear Security Summits reported their intentions to establish or support the establishment of Centers of Excellence (COE) for nuclear security training. These states include Brazil, Canada, China, France, India, Japan, Kazakhstan, South Korea, the Netherlands, Pakistan, Philippines, Russia, Saudi Arabia, South Africa, Switzerland, the United Kingdom and the United States.

Of particular note, Brazil established the Brazilian Nuclear Physical Security Support Centre in 2012, in a partnership with the IAEA. With the aim of training and qualifying personnel in the area of physical security, five national courses and one regional course have been conducted since its creation. Belgium hosted three IAEA workshops in 2013, directly related to the nuclear security activities of the Agency, and also organized international training courses on preparedness and response for CBRN (Chemical, Biological, Radiological, Nuclear). India announced that it would establish a Global Centre for Nuclear Energy Partnership (GCNEP), based on international participation from the IAEA and other interested foreign partners including France, Russia and United States. The GCNEP will consist of five Schools dealing with a number of issues including Nuclear Security, with four courses planned to be conducted during 2014.

⁴⁴³ All EU member states participate in the activity of the EC JRC-ITU.

Japan established the Integrated Support Center for Nuclear Nonproliferation and Nuclear Security (ISCN) at the Japan Atomic Energy Agency (JAEA) in December 2012, and is currently providing training and support activities in the areas of nuclear security and safeguards. In July 2014, ISCN co-organized a seminar on nuclear security with Vietnam. ISCN also held an international training course on preventive and protective measures against insider threats from July to November 2014.⁴⁴⁴

In spite of the above-mentioned remarkable developments, it has also been pointed out the problem of overlap and duplication in the activities of these COEs who have similar objectives and targets and carry out their training activities in the same region without prior coordination. To reduce such redundancies and to facilitate exchange of experts, information and training material, the International Network for Nuclear Security Training and Support Centres (NSSC Network) was established in 2012 under the leadership of the IAEA.

In August 2014, “A technical meeting on the Nuclear Security Plan 2014-2017—Implementation of the International Network for Nuclear Security Training and Support Centres (NSSC)” was held at the IAEA Headquarters, with attendance of 42 participants from 29 member states. At the meeting, greater cooperation and collaboration with the International Nuclear Security Education Network (INSEN)⁴⁴⁵ was discussed, and information regarding the development and implementation of the Mapping Project and database of members was reviewed.⁴⁴⁶

F) IAEA Nuclear Security Plan and Nuclear Security Fund

In March 2002, the IAEA Board of Governors approved the first four-year Nuclear Security Plan as a program to combat the risk of nuclear terrorism. The fourth Nuclear Security Plan covering the period 2014-2017, which is the latest at this writing, was approved in August 2013 and has been implemented.⁴⁴⁷ On the other hand, since 2002 when the IAEA established the Nuclear Security Fund (NSF) as a voluntary funding mechanism to prevent, detect, and respond to nuclear terrorism, the Agency has been calling on member states to make voluntary contributions to it. According to the IAEA Annual Report 2013, total revenue of the NSF amounted to €25.70 million in 2013.⁴⁴⁸ It shows a €0.70 million increase over that of the previous year.

G) Participation in international efforts

The establishment of a “Global Partnership against the Spread of Weapons and Materials of Mass Destruction” (G8GP) was agreed at the G8 Kananaskis Summit in 2002. In addition to the G8 member states (including France, Germany, Japan, the U.K., the U.S. and Russia), donor participants (Australia, South Korea, Sweden, Switzerland, etc.) have participated in the G8GP and carried out various projects, in particular denuclearization cooperation in Russia. The membership of the G8GP had expanded to 28 states at the end of 2014.⁴⁴⁹

⁴⁴⁴ ISCN, “Events: Training Courses on Nuclear Security,” http://www.jaea.go.jp/04/iscn/iscn_old/11_pastevent_en.html.

⁴⁴⁵ IAEA, “International Nuclear Security Education Network (INSEN) Network,” 2012.

⁴⁴⁶ IAEA, “Chair’s Report of the outcome of the Technical Meeting: Working Group Meeting of the International Network for Nuclear Security Training and Support Centres (NSSC Network),” IAEA Headquarters, Vienna, August 18-20, 2014.

⁴⁴⁷ IAEA, “Nuclear Security Plan 2014-2017 (GOV/2013/42-GC(57)/19),” August 2, 2013.

⁴⁴⁸ IAEA, “IAEA Annual Report 2013,” p. 68.

⁴⁴⁹ The following are partner states (surveyed states are underlined). Core partners: the U.S., Canada, Germany, France, Italy, the U.K., Japan, Russia, EU. Other partner states: Australia, Belgium, Czech Republic, Denmark, Finland, Hungary, Ireland, Kazakhstan, South Korea, Mexico, the Netherlands, New Zealand, Norway, the Philippines, Poland, Spain, Sweden, Switzerland, Ukraine. Partner states that are considering participation in it: Argentina, Austria, Brazil, Chile, China, India, Kuwait, Morocco, Qatar, Saudi Arabia, Singapore, South Africa, Turkey, UAE, Jordan.

The G8 Summit in St. Petersburg in 2006 agreed to the establishment of the GICNT, as proposed by Russia and the United States. Participating states were to make efforts to fulfill its eight principles, including: the improvement of physical protection measures for nuclear and other radiological material; the enhancement of security of civilian nuclear facilities and of detection capability of illegal transfers; and the prevention of financial assistance to terrorists. Its membership has expanded to 85 states (including Australia, China, France, Germany, India, Israel, Japan, South Korea, Pakistan, Russia, Sweden, Switzerland, the U.K. and the U.S.) with four international organizations as official observers.⁴⁵⁰ Since the first meeting in Morocco in 2006, GICNT has held plenary meetings in 2007, 2008, 2009, 2010, 2011 and 2013. Moreover, since 2010, the IAG was established as a working arm of the GICNT partnership. IAG has several priority functional areas with working groups, such as Nuclear Detection Working Group (NDWG), Nuclear Forensic Working Group (NFWG) and Response and Mitigation Working Group (RMWG).⁴⁵¹

In this report, it is expected that the acceptance of international nuclear security review missions such as IPPAS by the IAEA; the national effort for nuclear forensics; and the commitment to nuclear security capacity-building and support, will contribute to enhancing surveyed countries' nuclear security-related capabilities and performances, and make more effective their respective nuclear security systems. Furthermore, the contributions to the IAEA NSF and participation in the G8GP and the GICNT are indicators of the seriousness of states to enhance their commitment to nuclear security and can be used in undertaking an overall evaluation of each country's nuclear security system. Table 3-7 below shows the participation status in and effort for these nuclear security initiatives.

⁴⁵⁰ GICNT, "GICNT Partner Nations and Official Observer Organizations," December 2013," http://www.gicnt.org/download/partners/GICNT_List_of_Partner_Nations_-_December_2013.pdf.

⁴⁵¹ GICNT, "Fact Sheet," December 2013, http://www.gicnt.org/download/sop/GICNT_Fact_Sheet_-_December_2013.pdf.

Table 3-7: The participation status in and effort for nuclear security initiatives

	China	France	Russia	U.K.	U.S.	India	Israel	Pakistan	Australia	Austria	Belgium	Brazil	Canada	Chile	Egypt	Germany	Indonesia	Iran
IPPAS	△	○		○	○				○				○	○	○		○	○
Nuclear Forensics		○	○	○	○			○	○		○		○	○		○		
Capacity Building & Support Activities	○	○	○	○	○	○		○	○	○		○	○	○		○		
Nuclear Security Fund	○	○	○	○	○	○					○ 452		○			○		
G8 Global Partnership	△	○	○	○	○	△			○	△	○	△	○			○		
GICNT	○	○	○	○	○	○	○	○	○	○	○		○	○		○		

	Japan	Kazakhstan	South Korea	Mexico	Netherlands	New Zealand	Nigeria	Norway	Philippines	Poland	Saudi Arabia	South Africa	Sweden	Switzerland	Syria	Turkey	UAE	North Korea
IPPAS	△	○	△	○	○	○		○	○	△			○	○		○	△	
Nuclear Forensics	○		○		○			○				○	○	○		○		
Capacity Building & Support Activities	○	○	○		○			○			○	○		○			○	
Nuclear Security Fund	○		○		○	○		○					○					
G8 Global Partnership	○	○	○	○	○	○		○	○	○	△	△	○	○		△	△	
GICNT	○	○	○	○	○	○		○	○	○			○	○		○	○	

IPPAS: “△” is assigned for the countries that are planning to accept IPPAS or have held a related workshop.

G8 Global Partnership: “△” is assigned for the countries that are considering of the participation in it.

⁴⁵² U.S. Department of State, “Article: Preventing Nuclear Terrorism the Nuclear Security Summit and Beyond,” National Press Club, Washington, DC, March 13, 2012, <http://www.state.gov/t/isn/rls/rm/185869.htm>.

Part II: Evaluation: Country-by-Country Analysis

Introduction—Evaluation Points and Criteria

In this “Evaluation” part, the performances of the 36 countries surveyed in this project on three areas, that is, nuclear disarmament, non-proliferation and nuclear security, are evaluated numerically, based upon study and analysis compiled in the “Report” section.

Evaluation of the four groups—nuclear-weapon states (NWS), non-parties to the Nuclear Non-Proliferation Treaty (NPT), non-nuclear-weapon states (NNWS), and one particular state (North Korea)—is made separately because of their different characteristics. Since different sets of criteria are applied to different groups of countries, full points differ according to the group each country belongs to. Then, as a measure to visualize a comparison of 36 countries’ relative performances, each country’s performances in each area is shown on a chart in percentage terms.

[Full Points for each group of countries]

Groups	(1) NWS	(2) Non-NPT Parties	(3) NNWS	(4) Other
Areas	China, France, Russia, U.K., U.S.	India, Israel, Pakistan	Australia, Austria, Belgium, Brazil, Canada, Chile, Egypt, Germany, Indonesia, Iran, Japan, Kazakhstan, South Korea, Mexico, the Netherlands, New Zealand, Nigeria, Norway, Philippine, Poland, Saudi Arabia, South Africa, Sweden, Switzerland, Syria, Turkey, UAE	North Korea*
Nuclear Disarmament	94	91	39	91
Nuclear Non-Proliferation	47	43	61	61
Nuclear Security	41	41	41	41

※ North Korea declared its suspension from the NPT in 1993 and its withdrawal in 2003, and conducted nuclear tests in 2006, 2009 and 2013. However, there is no agreement among the states parties on North Korea’s official status.

Following is point and scale of measurement of each evaluation criteria.

[Nuclear Disarmament]

	Evaluation criteria	Maximum points	Scale of measurement
1	Status of Nuclear Forces (estimates)	-20	-5 (~50); -6 (51~100) ; -8 (101~200) ; -10 (201~400) ; -12 (401~1000) ; -14 (1001~2000) ; -16 (2001~4000) ; -17 (4001~6000) ; -19 (6001~8000) ; -20 (8001~) (not applicable to the NNWS)
2	Commitment to Achieve a World without Nuclear Weapons	14	
	A) Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	6	On each resolution: 0 (against); 1 (abstention); 2 (in favor)
	B) Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2	0 (against); 1 (abstention); 2 (in favor)
	C) Announcement of significant policies and important activities	3	Add 1 point for each policy, proposal and other initiatives having a major impact on the global momentum toward a world without nuclear weapons (maximum 3 points).

	Evaluation criteria	Maximum points	Scale of measurement
	D) Humanitarian consequences of nuclear weapons	3	Add 1 (participating in the Nayarit and Vienna Conference, respectively); add 1 (participating in the Joint Statement at the First Committee of the UN General Assembly)
3	Reduction of Nuclear Weapons	22	
	A) Reduction of nuclear weapons	15	<ul style="list-style-type: none"> • Add 1 ~ 10 points in accordance with the decuple rate of reduction from the previous fiscal year for a country having declared the number of nuclear weapons. • For a country having not declared it, add some points using the following formula: (the previous target – the latest target) ÷ the estimated number of nuclear weapons × 10. • Add 1 (engaging in nuclear weapons reduction over the past 5 years); add 1 (engaging in nuclear weapons reduction under legally-binding frameworks such as New Strategic Arms Reduction Treaty); add 1 (announcing further reduction plan and implementing it in 2013) • Give a perfect score (15 points) in case of the total abolition of nuclear weapons. (not applicable to the NNWS)
	B) A concrete plan for further reduction of nuclear weapons	3	0 (no announcement on a plan of nuclear weapons reduction); 1 (declaring a rough plan of nuclear weapons reduction); 2 (declaring a plan on the size of nuclear weapons reduction); 3 (declaring a concrete and detailed plan of reduction) (not applicable to the NNWS)
	C) Trends on strengthening/modernizing nuclear weapons capabilities	4	0 (modernizing/reinforcing nuclear forces in a backward move towards nuclear weapons reduction; 2 ~ 3 (modernizing/ reinforcing nuclear forces which may not lead to increasing the number of nuclear weapons; 4 (not engaging in nuclear modernization/reinforcement) (not applicable to the NNWS)
4	Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	8	
	A) The current status of the roles and significance of nuclear weapons	-8	-7 ~ -8 (judged based on the declaratory policy) (not applicable to the NNWS)
	B) Commitment to the “sole purpose,” no first use, and related doctrines	3	0 (not adopting either policy); 2 (adopting a similar policy or expressing its will to adopt either policy in the future); 3 (already adopting either policy) (not applicable to the NNWS)
	C) Negative security assurances	2	0 (not declaring); 1 (declaring with reservations); 2 (declaring without reservations) (not applicable to the NNWS)
	D) Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	3	Add 0.5 point for the ratification of one protocol; a country ratifying all protocols marks 3 points (not applicable to countries expect NWS)

	Evaluation criteria	Maximum points	Scale of measurement
	E) Relying on extended nuclear deterrence		-5 (not applicable to the NWS and Non-NPT Parties) (applied solely to the NNWS) -5 (a country relying on the nuclear umbrella and participating in nuclear sharing); -3 (a country relying on the nuclear umbrella); 0 (a country not relying on the nuclear umbrella)
5	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	4	0 ~ 1 (maintaining a high alert level); 2 (maintaining a certain alert level); 3 (de-alerting during peacetime); add 1 point for implementing measures for increasing the credibility of (lowered) alert status (not applicable to the NNWS)
6	CTBT	11	
	A) Signing and ratifying the CTBT		4 0 (not signing); 2 (not ratifying); 4 (ratifying)
	B) The moratorium on nuclear test explosions pending CTBT's entry into force		3 0 (not declaring); 2 (declaring); 3 (declaring and closing the nuclear test sites) (not applicable to the NNWS)
	C) Cooperation with the CTBTO Preparatory Commission		2 0 (no cooperation or no information); 1 ~ 2 (paying contributions, actively participating in meetings, and actively engaging in the outreach activities for the Treaty's entry into force)
	D) Contribution to the development of the CTBT verification systems		2 Add 1 point for establishing and operating the IMS; add another 1 point for participating in the discussions on enhancing the CTBT verification capabilities
	E) Nuclear testing		-3 -3 (conducting nuclear test explosions in the past 5 years); -1 (conducting nuclear tests without explosion or the status is unclear); 0 (not conducting any nuclear tests) (not applicable to the NNWS)
7	FMCT	10	
	A) Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT		5 Add 1 (expressing a commitment); add 1 ~ 2 (actively engaging in the promotion of early commencement); add 1 ~ 2 (making concrete proposals on the start of negotiations)
	B) The moratorium on the production of fissile material for use in nuclear weapons		3 0 (not declaring); 1 (not declaring but not producing fissile material for nuclear weapons); 2 (declaring); 3 (declaring and taking measures for the cessation of the production as declared) (not applicable to the NNWS)
	C) Contribution to the development of verification measures		2 0 (no contribution or no information); 1 (proposing a research on verification measures); 2 (engaging in R&D for verification measures)
8	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	6	Add 1 ~ 2 (disclosing the nuclear strategy/doctrine); add 1 ~ 2 (disclosing the status of nuclear forces); add 1 ~ 2 (disclosing the status of fissile material usable for nuclear weapons) (not applicable to the NNWS)
9	Verifications of Nuclear Weapons Reductions	7	

	Evaluation criteria	Maximum points	Scale of measurement
	A) Acceptance and implementation of verification for nuclear weapons reduction	3	0 (not accepting or implementing); 2 (limited acceptance and implementation); 3 (accepting and implementing verification with comprehensiveness and completeness); <u>deduct 1 ~2 points in case of non-compliance or problems in implementation</u> (not applicable to the NNWS)
	B) Engagement in research and development for verification measures of nuclear weapons reduction	1	0 (not engaging or no information); 1 (engaging in R&D)
	C) The IAEA inspections to fissile material declared as no longer required for military purposes	3	0 (not implementing), 1 (limited implementation); 3 (implementing); add 1 point if a country engages in the efforts for implementing or strengthening the implementation, except in the case of already implementing (not applicable to the NNWS)
10	Irreversibility	7	
	A) Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	3	0 (not implementing or no information); 1 (perhaps implementing but not clear); 2 ~ 3 (implementing) (applied solely to the NNWS) Add 1~2 points in case of engaging in support for dismantlement (maximum 2 points)
	B) Decommissioning/conversion of nuclear weapons-related facilities	2	0 (not implementing or no information); 1 (implementing in a limited way); 2 (implementing extensively) (applied solely to the NNWS) Add 1~2 points in case of engaging in support (maximum 2 points)
	C) Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	2	0 (not implementing or no information); 1 (implementing in a limited way); 2 (implementing); 3 (implementing extensively) (not applicable to the NNWS)
11	Disarmament and Non-Proliferation Education and Cooperation with Civil Society	4	Add 1 (submitting a report to the UN); add 1~2 (implementing disarmament and non-proliferation education); add 1 (cooperating with civil society)
12	Hiroshima Peace Memorial Ceremony	1	0 (not attending) ; 0.5 (not attending in 2013 but has attended more than once during the past 3 years) ; 1 (attending)

[Nuclear Non-Proliferation]

	Evaluation criteria	Maximum points	Scale of measurement
1	Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	20	
	A) Accession to the NPT	10	0 (not signing or declaring withdrawal); 3 (not ratifying); 10 (in force)

	Evaluation criteria	Maximum points	Scale of measurement
	B) Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7	<ul style="list-style-type: none"> • 0 (non-complying with Article 1 or 2 of the NPT); 3~4 (having not yet violated Article 1 or 2 of the NPT but displaying behaviors that raise concerns about proliferation, or not complying with the UNSC resolutions adopted for relevant nuclear issues); 7 (complying). • As for the non-NPT states (maximum 3 points) : 2 (not complying with the UNSC resolutions adopted for relevant nuclear issues); 3 (other cases)
	C) Nuclear-Weapon-Free Zones	3	1 (signing the NWFZ treaty); 3 (ratifying the treaty)
2	IAEA Safeguards Applied to the NPT NNWS	18	
	A) Signing and Ratifying a Comprehensive Safeguards Agreement	4	0 (not signing); 1 (not ratifying); 4 (in force)
	B) Signing and Ratifying an Additional Protocol	5	0 (not signing); 1 (not ratifying); 5 (in force)
	C) Implementation of the integrated safeguards	4	0 (not implementing); 2 (broader conclusion) 4 (implementing)
	D) Compliance with the IAEA Safeguards Agreement	5	0 (not resolving the non-compliance issue); 5 (complying)
3	IAEA Safeguards Applied to NWS and Non-Parties to the NPT	7	
	A) Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	3	0 (not applying); 2 (applying INFCIRC/66); 3 (applying Voluntary Offer Agreement)
	B) Signing, ratifying, and implementing the Additional Protocol	4	0 (not signing); 1 (not ratifying); 3 (in force); add 1 point if widely applied to peaceful nuclear activities
4	Cooperation with the IAEA	4	
	A) Efforts for strengthening the safeguards	4	Add 1 (contributing to the development of verification technologies); add 1 ~ 2 (contributing to the universalization of the Additional Protocol); add 1 (other efforts)
5	Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	15	
	A) Establishment and implementation of the national control systems	5	0 (not establishing); 1 (establishing but insufficient); 2 (establishing a system to a certain degree); 3 (establishing an advanced system, including the Catch-all); add 1~2 (if continuing to implement appropriate export controls); <u>deduct 1~2 (not adequately implementing)</u>
	B) Requiring the conclusion of the Additional Protocol for nuclear export	2	0 (not requiring or no information); 1 (requiring for some cases); 2 (requiring)
	C) Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3	0 (not implementing or no information); 2 (implementing); 3(actively implementing); <u>deduct 1 ~ 3 (depending on the degree of violation)</u>
	D) Participation in the PSI	2	0 (not participating); 1 (participating); 2 (actively participating)

	Evaluation criteria	Maximum points		Scale of measurement
	E) Civil nuclear cooperation with non-parties to the NPT		3	0 (exploring active cooperation); 1~2 (contemplating cooperation, subject to implementing additional nuclear disarmament and non-proliferation measures); 3 (showing a cautious attitude or being against it)
6	Transparency in the Peaceful Use of Nuclear Energy	4		
	A) Reporting on the peaceful nuclear activities		2	0 (not reporting or no information); 1 (reporting but insufficiently); 2 (reporting)
	B) Reporting on plutonium management		2	0 (not reporting or no information); 1 (reporting); 2 (reporting on not only plutonium but also uranium) ; add 1 (ensuring a high level of transparency in plutonium although not being obliged to report)

[Nuclear Security]

	Evaluation criteria	Maximum points		Scale of measurement
1	The Amount of Fissile Material Usable for Weapons	-16		Firstly, -3 (if possessing fissile material usable for nuclear weapons). Then, deduct if: <ul style="list-style-type: none"> • HEU: -5 (>100t) ; -4 (>20 t) ; -3 (>10 t) ; -2 (>1t); -1 (possessing less than 1t) • Weapon-grade Pu: -5 (>100t); -4 (>20 t) ; -3 (>10 t) ; -2 (>1t); -1 (possessing less than 1t) • Reactor-grade Pu: -3 (>10t); -2 (>1t); -1 (possessing less than 1t)
2	Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	21		
	A) Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention		3	0 (not signing the Treaty); 1 (not ratifying the Treaty); 2 (not signing or ratifying the Amendment); 3 (both the Treaty and Amendment in force)
	B) International Convention for the Suppression of Acts of Nuclear Terrorism		2	0 (not signing); 1 (not ratifying); 2 (in force)
	C) Convention on Nuclear Safety		2	0 (not signing); 1 (not ratifying); 2 (in force)
	D) Convention on Early Notification of a Nuclear Accident		2	0 (not signing); 1 (not ratifying); 2 (in force)
	E) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management		2	0 (not signing); 1 (not ratifying); 2 (in force)
	F) Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency		2	0 (not signing); 1 (not ratifying); 2 (in force)
	G) INFCIRC/225/Rev.5		4	0 (not applying or no information); 2 (applying to the national implementation system); 4 (applying and implementing adequately)
	H) Enactment of laws and establishment of regulations for the national implementation		4	0 (not establishing domestic laws and regulations and the national implementation system); 1~2 (establishing them but insufficiently); 4 (establishing appropriately)

	Evaluation criteria	Maximum points		Scale of measurement
3	Efforts to Maintain and Improve the Highest Level of Nuclear Security	20		
	A) Minimization of HEU in civilian use		4	0 (no effort or no information); 1 (limited efforts); 3 (active efforts); add 1 (committed to further enhancement)
	B) Prevention of illicit trafficking		5	0 (not implementing or no information); 2 (limited implementation); 4 (active implementation); add 1 (committed to further enhancement)
	C) Acceptance of international nuclear security review missions		2	0 (not accepting or no information); 1 (accepting); 2 (actively accepting)
	D) Technology development —nuclear forensics		2	0 (not implementing or no information); 1 (implementing); 2 (actively implementing)
	E) Capacity building and support activities		2	0 (not implementing or no information); 1 (implementing); 2 (actively implementing)
	F) IAEA Nuclear Security Plan and Nuclear Security Fund		2	0 (no effort or information); 1 (participating); 2 (actively participating)
	G) Participation in international efforts		3	0 (not participating); 1 (participating in a few frameworks); 2 (participating in many or all frameworks); add 1 (if contributing actively)

As for the evaluation section, a set of objective evaluation criteria is established by which the respective country's performance is assessed.

The Research Committee of this project recognizes the difficulties, limitations and risk of “scoring” countries' performances. However, the Committee also considers that an indicative approach is useful to draw attention to nuclear issues, so as to prompt debates over priorities and urgency.

The different numerical value within each category (i.e., nuclear disarmament, nuclear non-proliferation and nuclear security) reflects each activity's importance within that area, as determined through deliberation by the Research Committee of this project. However, the differences in the scoring arrangements within each of the three categories does not necessarily reflect its relative significance in comparison with others, as it has been driven by the differing number of items surveyed. Thus, the value assigned to nuclear disarmament (full points 94) does not mean that it is more than twice as important as nuclear non-proliferation (full points 61) or nuclear security (full points 41).

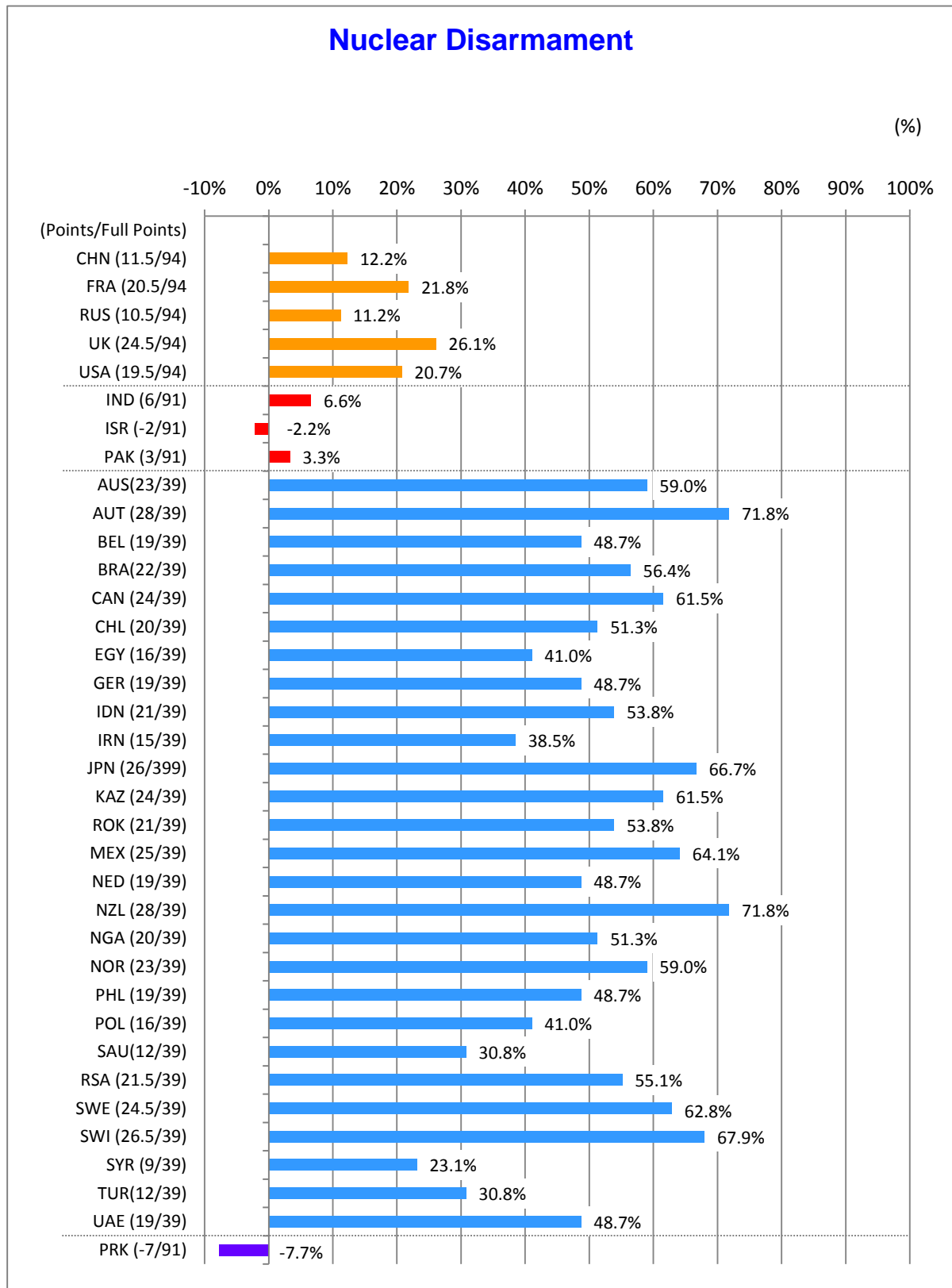
Regarding “the number of nuclear weapons” (in the nuclear disarmament section) and “the amount of fissile material usable for nuclear weapons” (in the nuclear security section), the assumption is that the more nuclear weapons or weapons-usable fissile material a country possesses, the greater the task of reducing them and ensuring their security. However, the Research Committee recognizes that “numbers” or “amounts” are not the sole decisive factors. It is definitely true that other factors—such as implications of missile defense, chemical and biological weapons, or conventional force imbalance and a psychological attachment to a minimum overt or covert nuclear weapon capability—would affect the issues and the process of nuclear disarmament, non-proliferation and nuclear security. However, they were not included in our criteria for evaluation because it was difficult to make objective scales of the significance of these factors. In addition, in view of the suggestions and comments made to the *Hiroshima Report 2013*, the Research Committee modified criteria of the following items: current status of the roles and significance of nuclear weapons in national security strategies and policies; relying on extended nuclear deterrence; and nuclear testing.

After all, there is no way to mathematically compare the different factors contained in the different areas of disarmament, non-proliferation and nuclear security. Therefore, the evaluation points should be taken as indicative of the performances in general but by no means as an exact representation or precise assessment of different countries' performances. Since the *Hiroshima Report 2014*, these items have been negatively graded if applicable.

In addition, radar charts were produced for the NWS to illustrate where each country stands in different aspects of nuclear disarmament. For this purpose the 12 issues used for nuclear disarmament evaluation were grouped into six aspects: (1) the number of nuclear weapons, (2) reduction of nuclear weapons, (3) commitment to achieving a "world without nuclear weapons," (4) operational policy, (5) the status of signature and ratification of, or attitudes of negotiation to relevant multilateral treaties, and (6) transparency.

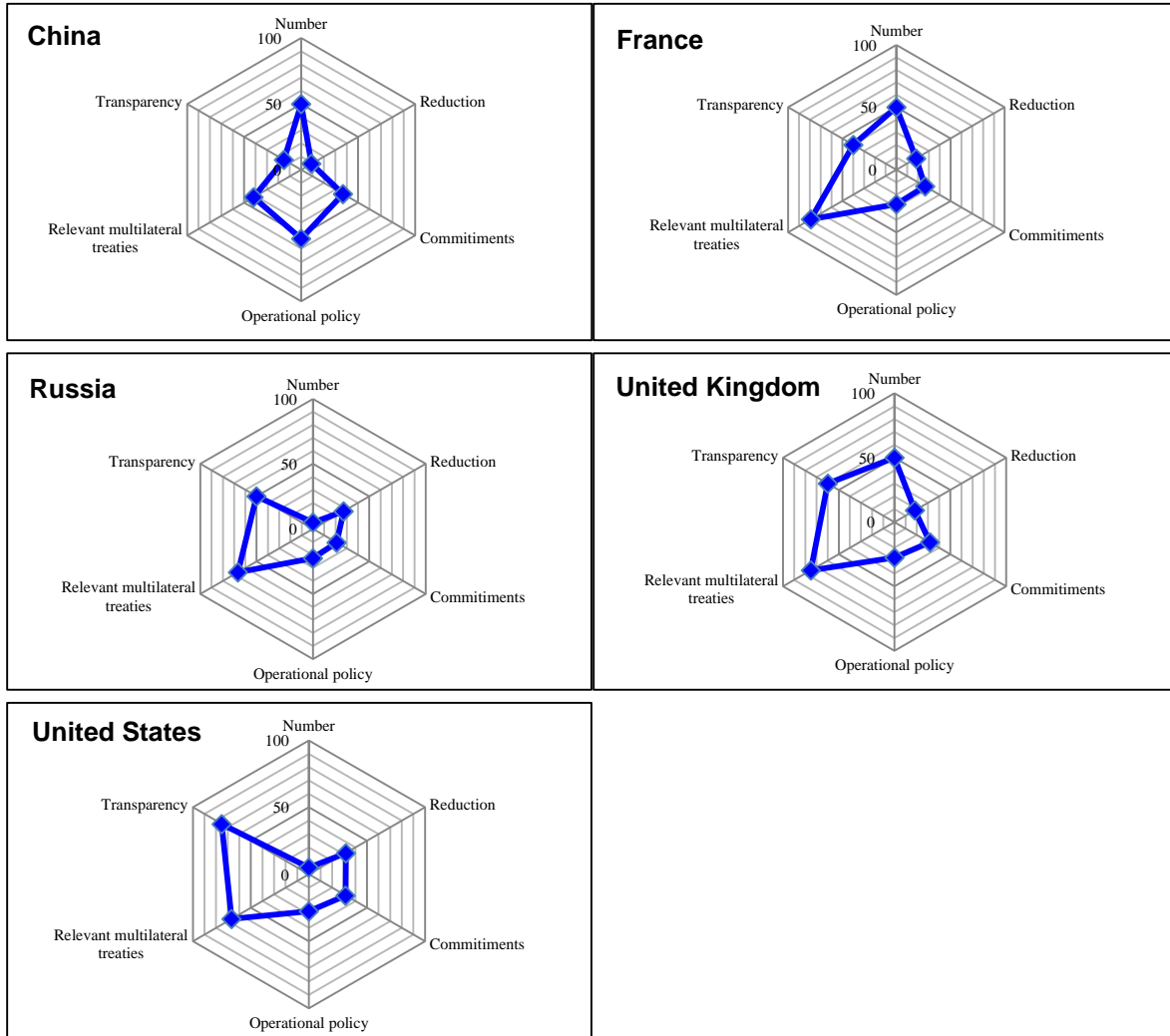
Aspects	Issues
Number	The Number of Nuclear weapons
Reduction	Reduction of Nuclear weapons
Commitments	Commitments to achieving a world without nuclear weapons
	Disarmament and non-proliferation educations and cooperation with the civil society
	Hiroshima Peace Memorial Ceremony
Operational policy	Diminishing roles and significance of nuclear weapons in the national security strategies and policies
	De-alerting, or measures for maximizing decision time to authorize the use of nuclear weapons
Relevant multilateral treaties	Comprehensive Nuclear-Test-Ban Treaty (CTBT)
	Fissile Material Cut-Off Treaty (FMCT)
Transparency	Transparency regarding nuclear forces, fissile material for nuclear weapons, and nuclear strategy/doctrine
	Verifications of nuclear weapons reductions
	Irreversibility

1. Area Summary
(1) Nuclear Disarmament

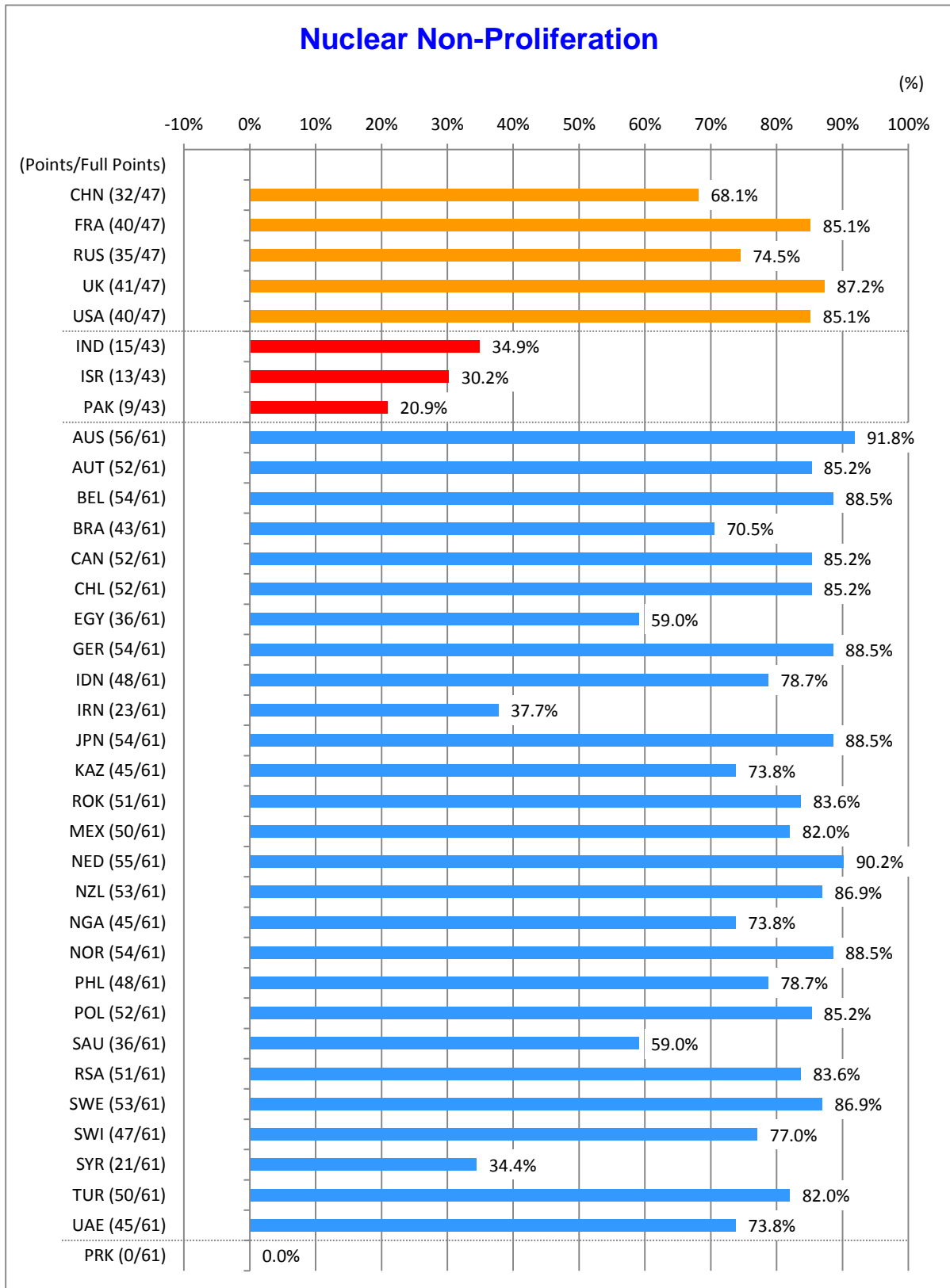


6-point Nuclear Disarmament Radar Charts

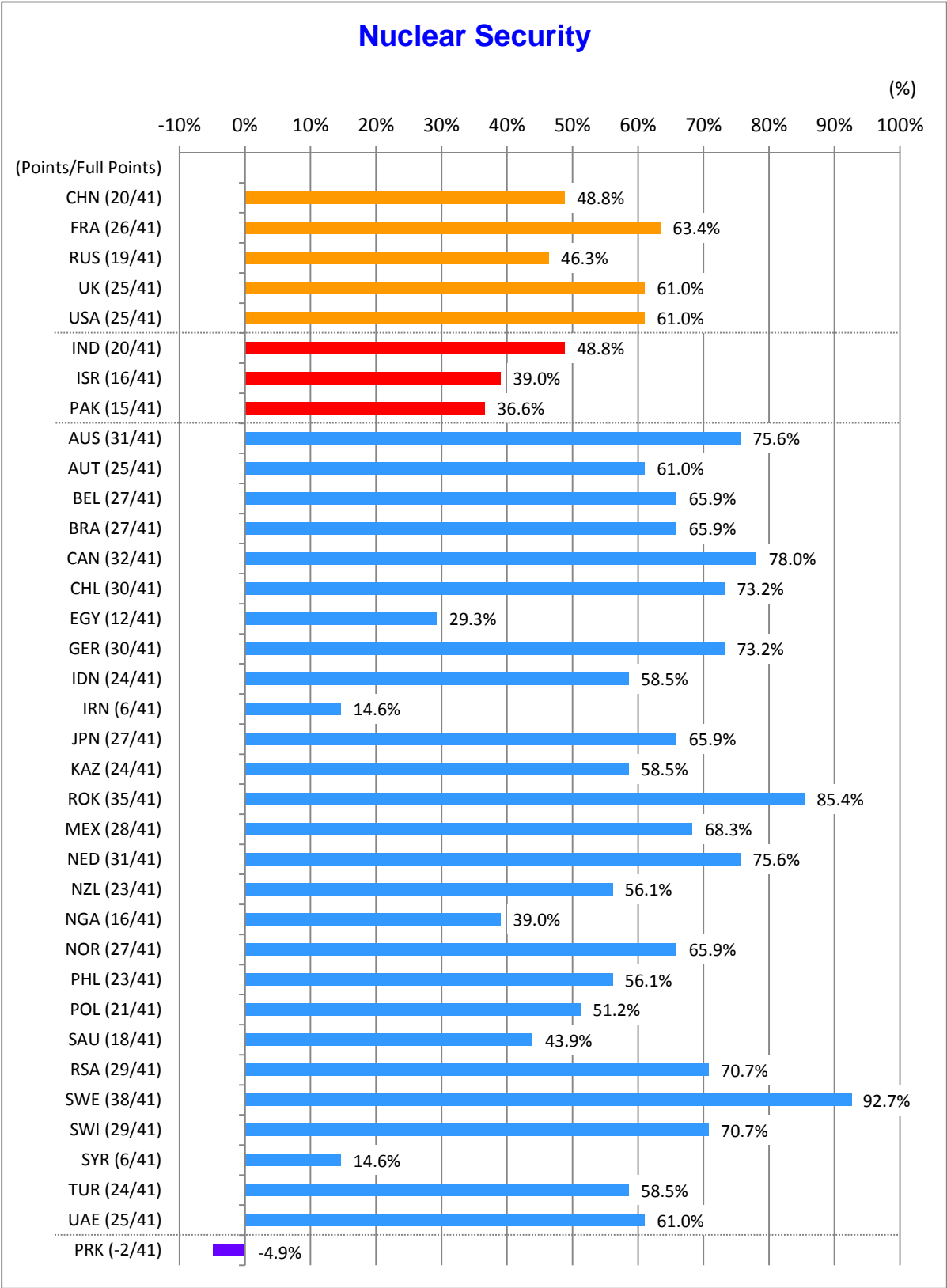
According to the following radar charts illustrating where each nuclear-weapon state stands in different aspects of nuclear disarmament, China is required to improve its efforts for nuclear weapons reduction and transparency. To a lesser extent, France could be more transparent regarding its nuclear weapons-related issues. Russia and the United States are urged to undertake further reductions of their nuclear arsenals. The performances of the United Kingdom are relatively well-balanced.



(2) Nuclear Non-Proliferation



(3) Nuclear Security



2. Country-by-Country Summary

(1) Nuclear-Weapon States

China

China is estimated to possess approximately 250 nuclear warheads, and continues active modernization of its nuclear forces. Among the five NWS, it is the only country that has yet to reduce its nuclear arsenals. China declares no-first-use and the unconditional negative security assurance. While arguing the importance of transparency in intentions, China has maintained the least transparency about nuclear weapons capabilities among the NWS. China remains one of the non-ratifiers of the CTBT. China mentioned its efforts for research and development on some nuclear disarmament verification measures. Questions remain as to whether China is conducting adequate and strict implementation of nuclear-related export controls. It is in the process of incorporating INFCIRC/225/Rev.5 into its nuclear security regulations.

(1) Nuclear Disarmament Points 11.5/94

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	-10/-20
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	4/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	0/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	0/15
	A concrete plan for further reduction of nuclear weapons	0/3
	Trends on strengthening/modernizing nuclear weapons capabilities	2/4
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	-7/-8
	Commitment to the “sole purpose,” no first use, and related doctrines	3/3
	Negative security assurances	2/2
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	1.5/3
	Relying on extended nuclear deterrence	—
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	3/4
CTBT	Signing and ratifying the CTBT	2/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	2/3
	Cooperation with the CTBTO Preparatory Commission	1/2
	Contribution to the development of the CTBT verification systems	1/2
	Nuclear Testing	-1/-3
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	1/3
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	1/6
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	0/3
	Engagement in research and development for verification measures of nuclear weapons reduction	1/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	0/3
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/3
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	0/2
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	0/1

(2) Nuclear Non-Proliferation Points 32/47

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	—
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	—
	Signing and Ratifying an Additional Protocol	—
	Implementation of the integrated safeguards	—
	Compliance with the IAEA Safeguards Agreement	—
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	3/3
	Signing, ratifying, and implementing the Additional Protocol	3/4
Cooperation with the IAEA	Efforts for strengthening the safeguards	1/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	3/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	0/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 20/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-10/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	1/3

France

France has announced its maximum number of nuclear warheads as 300, and has reduced its overall nuclear forces. It has also converted fissile material excess for military purpose to civilian purposes, which has been placed under the international safeguards. On the other hand, there was little progress in diminishing the role of nuclear weapons; it maintains the existing nuclear strategy and heavily conditional forms of negative security assurance. France has engaged in nuclear non-proliferation and security proactively, including acceptance and implementation of related treaties and arrangements.

(1) Nuclear Disarmament Points 20.5/94

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	-10/-20
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	2/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	0/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	0/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	1/15
	A concrete plan for further reduction of nuclear weapons	0/3
	Trends on strengthening/modernizing nuclear weapons capabilities	3/4
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	-7/-8
	Commitment to the "sole purpose," no first use, and related doctrines	0/3
	Negative security assurances	1/2
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	1.5/3
	Relying on extended nuclear deterrence	—
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	2/4
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	3/3
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	-1/-3
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	2/3
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	3/6
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	0/3
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	1/3
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	2/3
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	1/2
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	2/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 40/47

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	—
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	—
	Signing and Ratifying an Additional Protocol	—
	Implementation of the integrated safeguards	—
	Compliance with the IAEA Safeguards Agreement	—
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	3/3
	Signing, ratifying, and implementing the Additional Protocol	3/4
Cooperation with the IAEA	Efforts for strengthening the safeguards	3/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	0/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	2/2

(3) Nuclear Security Points 26/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-12/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	2/2
	Capacity building and support activities	2/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

Russia

Russia has reduced its strategic nuclear forces under the New START agreement. Still, it is estimated to possess 8,000 nuclear warheads. Russia is alleged to have violated the Intermediate-range Nuclear Force (INF) Treaty. It has implemented measures on nuclear non-proliferation and nuclear security, though to a lesser extent than the western countries. Russia has accumulated the largest stock of fissile material usable for weapons.

(1) Nuclear Disarmament Points 10.5/94

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	-19/-20
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	2/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	0/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	0/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	3/15
	A concrete plan for further reduction of nuclear weapons	0/3
	Trends on strengthening/modernizing nuclear weapons capabilities	3/4
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	-7/-8
	Commitment to the "sole purpose," no first use, and related doctrines	0/3
	Negative security assurances	1/2
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	1.5/3
	Relying on extended nuclear deterrence	—
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	1/4
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	2/3
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	-1/-3
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	3/3
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	2/6
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	3/3
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	0/3
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	2/3
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	2/2
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 35/47

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	—
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	—
	Signing and Ratifying an Additional Protocol	—
	Implementation of the integrated safeguards	—
	Compliance with the IAEA Safeguards Agreement	—
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	3/3
	Signing, ratifying, and implementing the Additional Protocol	3/4
Cooperation with the IAEA	Efforts for strengthening the safeguards	2/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	4/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	0/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	0/2

(3) Nuclear Security Points 19/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-16/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	2/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

The United Kingdom

The number of the U.K. nuclear arsenal has decreased incrementally. The United Kingdom plans to reduce them to no more than 120 operationally available warheads and a total stockpile of no more than 180 warheads by the mid 2020s. The U.K. attended the third International Conference on the Humanitarian Impact of Nuclear Weapons in Vienna. It has proactively engaged in nuclear non-proliferation and security, including acceptance and implementation of related treaties and arrangements.

(1) Nuclear Disarmament Points 24.5/94

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	-10/-20
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	2/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	0/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	1/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	1/15
	A concrete plan for further reduction of nuclear weapons	0/3
	Trends on strengthening/modernizing nuclear weapons capabilities	3/4
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	-7/-8
	Commitment to the “sole purpose,” no first use, and related doctrines	0/3
	Negative security assurances	1/2
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	1.5/3
	Relying on extended nuclear deterrence	—
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	2/4
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	2/3
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	-1/-3
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	2/3
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	4/6
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	0/3
	Engagement in research and development for verification measures of nuclear weapons reduction	1/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	3/3
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	2/3
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	1/2
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	2/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 41/47

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	—
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	—
	Signing and Ratifying an Additional Protocol	—
	Implementation of the integrated safeguards	—
	Compliance with the IAEA Safeguards Agreement	—
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	3/3
	Signing, ratifying, and implementing the Additional Protocol	3/4
Cooperation with the IAEA	Efforts for strengthening the safeguards	3/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	1/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	2/2

(3) Nuclear Security Points 25/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-12/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	2/2
	Capacity building and support activities	2/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

The United States

The United States, possessing 7,300 nuclear warheads, continues to implement the New START. It attended the third International Conference on the Humanitarian Impact of Nuclear Weapons in Vienna. On the other hand, the United States has not introduced new or significant measures for diminishing the role of its nuclear forces in 2014. Nor could it achieve the ratification of the CTBT. It has proactively led the efforts to bolster nuclear non-proliferation and security.

(1) Nuclear Disarmament Points 19.5/94

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	-19/-20
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	2/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	0/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	1/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	3/15
	A concrete plan for further reduction of nuclear weapons	1/3
	Trends on strengthening/modernizing nuclear weapons capabilities	3/4
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	-7/-8
	Commitment to the "sole purpose," no first use, and related doctrines	2/3
	Negative security assurances	1/2
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	0.5/3
	Relying on extended nuclear deterrence	—
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	1/4
CTBT	Signing and ratifying the CTBT	2/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	2/3
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	-1/-3
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	2/3
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Dctrine	5/6
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	3/3
	Engagement in research and development for verification measures of nuclear weapons reduction	1/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	1/3
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	2/3
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	2/2
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	2/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 40/47

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	—
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	—
	Signing and Ratifying an Additional Protocol	—
	Implementation of the integrated safeguards	—
	Compliance with the IAEA Safeguards Agreement	—
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	3/3
	Signing, ratifying, and implementing the Additional Protocol	4/4
Cooperation with the IAEA	Efforts for strengthening the safeguards	3/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	0/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	0/2

(3) Nuclear Security Points 25/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-12/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	2/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	1/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	5/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	2/2
	Capacity building and support activities	2/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

(2) Non-Parties to the NPT

India

India is estimated to possess 90-110 nuclear warheads, having added incrementally. It also continues to develop ICBM and SLBM capabilities, and to produce fissile material for weapons. India maintains a moratorium on nuclear test explosions, but refuses to sign the CTBT. It ratified the IAEA Additional Protocol in 2014.

(1) Nuclear Disarmament Points 6/91

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	-8/-20
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	2/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	2/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	0/15
	A concrete plan for further reduction of nuclear weapons	0/3
	Trends on strengthening/modernizing nuclear weapons capabilities	2/4
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	-7/-8
	Commitment to the "sole purpose," no first use, and related doctrines	3/3
	Negative security assurances	2/2
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	—
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	3/4
CTBT	Signing and ratifying the CTBT	0/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	2/3
	Cooperation with the CTBTO Preparatory Commission	0/2
	Contribution to the development of the CTBT verification systems	0/2
	Nuclear Testing	-1/-3
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	0/3
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	1/6
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	0/3
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	0/3
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/3
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	0/2
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 15/43

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	0/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	2/3
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	—
	Signing and Ratifying an Additional Protocol	—
	Implementation of the integrated safeguards	—
	Compliance with the IAEA Safeguards Agreement	—
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	2/3
	Signing, ratifying, and implementing the Additional Protocol	3/4
Cooperation with the IAEA	Efforts for strengthening the safeguards	0/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	4/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	—
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	0/2

(3) Nuclear Security Points 20/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-8/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	0/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	1/3

Israel

Israel has consistently pursued the policy of “nuclear opacity” while estimated to possess approximately 80 nuclear warheads. Due to such a policy, its nuclear capabilities and posture remain unclear. Israel has yet to ratify the CTBT. Its performance regarding participations in international cooperation on nuclear disarmament, non-proliferation and security received low evaluations.

(1) Nuclear Disarmament Points -2/91

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	-6/-20
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	1/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	0/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	0/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	0/15
	A concrete plan for further reduction of nuclear weapons	0/3
	Trends on strengthening/modernizing nuclear weapons capabilities	2/4
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	-7/-8
	Commitment to the “sole purpose,” no first use, and related doctrines	0/3
	Negative security assurances	0/2
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	—
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	2/4
CTBT	Signing and ratifying the CTBT	2/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	0/3
	Cooperation with the CTBTO Preparatory Commission	0/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	-1/-3
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	0/3
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	0/6
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	0/3
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	0/3
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/3
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	0/2
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 13/43

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	0/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	3/3
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	—
	Signing and Ratifying an Additional Protocol	—
	Implementation of the integrated safeguards	—
	Compliance with the IAEA Safeguards Agreement	—
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	2/3
	Signing, ratifying, and implementing the Additional Protocol	0/4
Cooperation with the IAEA	Efforts for strengthening the safeguards	0/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	1/2
	Civil nuclear cooperation with non-parties to the NPT	—
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	0/2
	Reporting on plutonium management	0/2

(3) Nuclear Security Points 16/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-5/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	1/2
	Convention on Nuclear Safety	1/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	0/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	0/4
	Enactment of laws and establishment of regulations for the national implementation	3/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	1/3

Pakistan

Pakistan seems to be increasing its nuclear arsenal incrementally. It continues to develop short- and medium-range ballistic missiles. While maintaining a moratorium on nuclear test explosions, it refuses to sign the CTBT. Pakistan continues to block the commencement of negotiations on an FMCT at the CD.

(1) Nuclear Disarmament Points 3/91

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	-8/-20
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	3/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	2/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	0/15
	A concrete plan for further reduction of nuclear weapons	0/3
	Trends on strengthening/modernizing nuclear weapons capabilities	2/4
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	-7/-8
	Commitment to the "sole purpose," no first use, and related doctrines	0/3
	Negative security assurances	2/2
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	—
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	3/4
CTBT	Signing and ratifying the CTBT	0/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	2/3
	Cooperation with the CTBTO Preparatory Commission	0/2
	Contribution to the development of the CTBT verification systems	0/2
	Nuclear Testing	-1/-3
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	0/3
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	1/6
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	0/3
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	0/3
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/3
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	0/2
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	0/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 9/43

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	0/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	2/3
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	—
	Signing and Ratifying an Additional Protocol	—
	Implementation of the integrated safeguards	—
	Compliance with the IAEA Safeguards Agreement	—
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	2/3
	Signing, ratifying, and implementing the Additional Protocol	0/4
Cooperation with the IAEA	Efforts for strengthening the safeguards	0/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	2/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	1/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	—
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	0/2

(3) Nuclear Security Points 15/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-6/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	2/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	0/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	0/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	0/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	1/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	1/3

(3) Non-Nuclear-Weapon States

Australia

Australia has proactively engaged in nuclear disarmament, non-proliferation and nuclear security. At the First Committee of the UN General Assembly, it led the issuing of the “Joint Statement on the Humanitarian Consequences of Nuclear Weapons” as an alternative for those countries which concur on the principle regarding the humanitarian consequences of nuclear weapons but cannot participate in the New Zealand-version statement due to their security policies.

(1) Nuclear Disarmament Points 23/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	4/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	1/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	-3/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	3/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 56/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	3/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	3/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	1/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 31/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-4/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	2/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	3/3

Austria

Austria has engaged in nuclear disarmament proactively, such as hosting the third International Conference on the Humanitarian Impact of Nuclear Weapons in Vienna. On nuclear non-proliferation and nuclear security, Austria has also participated in and implemented the related treaties and measures, though its participation in international cooperation on nuclear security was less in comparison.

(1) Nuclear Disarmament Points 28/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	5/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	1/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	4/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 52/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	2/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 25/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	0/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	2/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	1/3

Belgium

Belgium has engaged in nuclear disarmament, non-proliferation and nuclear security proactively, such as acceding to, and complying with, the related treaties and arrangements. On the other hand, it is hosting U.S. non-strategic nuclear weapons as part of NATO's nuclear sharing policy.

(1) Nuclear Disarmament Points 19/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	4/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	0/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	-5/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	2/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 54/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	3/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 27/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-4/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	2/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	1/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

Brazil

Brazil has actively advocated promotion of nuclear disarmament at disarmament fora, including the NPT Preparatory Committee and the UN General Assembly. While it complies with nuclear non-proliferation obligations, Brazil continues to be reluctant about accepting the IAEA Additional Protocol. Brazil has acceded to the nuclear security-related treaties and establishment of regulations for national implementation, but its participation in international cooperation on nuclear security is less in comparison.

(1) Nuclear Disarmament Points 22/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	5/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	1/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 43/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	3/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	0/5
	Implementation of the integrated safeguards	0/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	1/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 27/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	2/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	3/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	1/3

Canada

Canada has proactively engaged in nuclear disarmament, non-proliferation and nuclear security. Canada has taken an initiative to establish a group of governmental experts (GGE) on a FMCT in 2014-2015. It has undertaken remarkable activities in promoting an FMCT, such as advocating discussions on obligations and measures that should be included in the treaty. Canada has also undertaken active cooperation with civil society.

(1) Nuclear Disarmament Points 24/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	4/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	1/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	-3/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	4/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	3/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 52/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	3/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	0/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 32/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-5/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	2/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

Chile

Chile has implemented measures on nuclear disarmament, non-proliferation and nuclear security steadily, except those on cooperating for actual nuclear disarmament. In addition, more efforts are needed to strengthen its nuclear-related export controls system.

(1) Nuclear Disarmament Points 20/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	6/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	1/2
	Contribution to the development of the CTBT verification systems	1/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	2/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	0/1

(2) Nuclear Non-Proliferation Points 52/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	3/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	1/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	2/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 30/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	3/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	1/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	1/3

Egypt

Egypt has been active toward establishing a WMD-free zone in the Middle East. While increasing frustration that an International Conference on a Middle East Zone Free of Weapons of Mass Destruction has not been able to be convened even in 2014, Egypt did not boycott or walk out from the 2014 NPT PrepCom. Meanwhile, it has yet to conclude the IAEA Additional Protocol. Nor does it ratify the CTBT. In addition, no reliable information could be found regarding its implementation of export controls. On nuclear security, there is much to be done to join the related treaties and implement national measures.

(1) Nuclear Disarmament Points 16/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	5/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	2/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	1/2
	Contribution to the development of the CTBT verification systems	0/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 36/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	1/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	0/5
	Implementation of the integrated safeguards	0/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	0/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	1/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 12/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	0/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	1/2
	Convention on Nuclear Safety	1/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	0/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	0/4
	Enactment of laws and establishment of regulations for the national implementation	2/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	0/4
	Prevention of illicit trafficking	2/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	0/3

Germany

Germany has proactively engaged in nuclear disarmament, non-proliferation and nuclear security, such as acceding to and complying with the related treaties and arrangements. On the other hand, it is hosting U.S. non-strategic nuclear weapons as part of NATO's nuclear sharing policy.

(1) Nuclear Disarmament Points 19/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	4/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	0/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	-5/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	—
	Cooperation with the CTBTO Preparatory Commission	1/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	3/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 54/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	3/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	0/2

(3) Nuclear Security Points 30/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-4/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	1/2
	Capacity building and support activities	2/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

Indonesia

Indonesia has actively advocated promotion of nuclear disarmament at various nuclear disarmament fora, including the NPT Preparatory Committee. It has concluded the IAEA Additional Protocol, of which the NAM countries are less enthusiastic about acceptance. It has made efforts for establishing national implementation systems regarding nuclear security. On export controls, however, Indonesia has yet to prepare a list of dual-use items and technologies, or to implement catch-all control.

(1) Nuclear Disarmament Points 21/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	6/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	1/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 48/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	3/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	1/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	1/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 24/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	0/4
	Prevention of illicit trafficking	2/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	0/3

Iran

Iran continues to implement the interim measures of the Joint Plan of Action with the E3/EU+3. However, they could not conclude a comprehensive agreement in 2014. Allegations of the possible military dimensions (PMD) of Iran's nuclear activities have yet to be solved. Meanwhile, Iran has not ratified the CTBT or the IAEA Additional Protocol. There is much to be done to join the related treaties and implement national measures. Its performance in nuclear security also needs to be improved, including conclusion of related treaties and establishment of national implementation systems.

(1) Nuclear Disarmament Points 15/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	5/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	2/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	—
	Cooperation with the CTBTO Preparatory Commission	0/2
	Contribution to the development of the CTBT verification systems	1/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	0/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 23/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	3/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	1/5
	Implementation of the integrated safeguards	0/4
	Compliance with the IAEA Safeguards Agreement	0/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	0/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	0/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	0/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	1/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 6/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-4/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	0/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	0/2
	Convention on Nuclear Safety	0/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	0/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	0/4
	Enactment of laws and establishment of regulations for the national implementation	2/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	0/4
	Prevention of illicit trafficking	2/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	0/3

Japan

Japan has proactively engaged in nuclear disarmament, non-proliferation and nuclear security, as one of the countries that lead efforts to promote and strengthen those areas, particularly for achieving a world without nuclear weapons, promoting entry into force of the CTBT, undertaking disarmament and non-proliferation education, and bolstering the IAEA safeguards and export controls. Japan's Foreign Minister proactively proposed to promote nuclear disarmament and non-proliferation. Japan signed two joint statements on the humanitarian consequences of nuclear weapons issued at the First Committee of the UN General Assembly.

(1) Nuclear Disarmament Points 26/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	5/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	1/2
	Announcement of significant policies and important activities	1/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	-3/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	4/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 54/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	3/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	2/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 27/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-8/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	2/2
	Capacity building and support activities	2/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

Kazakhstan

Kazakhstan has actively advocated the importance of the CTBT. In particular, it has taken initiative in establishing the ATOM (Abolish Testing. Our Mission) project. Kazakhstan has steadily acceded to the nuclear-related treaties and established national implementation systems.

(1) Nuclear Disarmament Points 24/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	6/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 45/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	3/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	0/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	0/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	1/2
	Civil nuclear cooperation with non-parties to the NPT	0/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 24/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-5/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	2/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	2/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	3/3

South Korea

South Korea scores high on nuclear security, in particular, based on its accession to the related treaties, establishment of national implementation system and participation in terms of international cooperation. South Korea has also steadily implemented nuclear disarmament and non-proliferation-related measures, while it did not participate in the Joint Statements on the Humanitarian Consequences of Nuclear Weapons.

(1) Nuclear Disarmament Points 21/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	5/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	1/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	2/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	-3/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 51/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	3/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	0/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 35/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	2/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	2/2
	Capacity building and support activities	2/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

Mexico

Mexico hosted the second International Conference on the Humanitarian Impact of Nuclear Weapons in February. The Mexican chairman of the Conference mentioned pursuance of a legal measure toward banning nuclear weapons. Mexico has actively advocated promotion of nuclear disarmament at, among others, the NPT Preparatory Committee and the UN General Assembly, and has also steadily implemented nuclear-related measures.

(1) Nuclear Disarmament Points 25/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	6/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	1/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 50/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	3/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	0/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	1/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 28/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	0/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	2/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	3/3

The Netherlands

The Netherlands hosted the third Nuclear Security Summit, and has proactively engaged in nuclear disarmament, non-proliferation and nuclear security. It has carried out a program to promote international cooperation on technology development of nuclear forensics. Meanwhile, the Netherlands is hosting U.S. non-strategic nuclear weapons as part of NATO's nuclear sharing policy.

(1) Nuclear Disarmament Points 19/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	4/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	0/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	-5/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	2/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 55/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	3/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 31/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-5/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	2/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	2/2
	Capacity building and support activities	2/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

New Zealand

New Zealand has actively advocated promotion of nuclear disarmament at various fora, including the UN General Assembly, where it led the issuing of the “Joint Statement on the Humanitarian Consequences of Nuclear Weapons,” subsequent to the previous year. Among the three areas, New Zealand rates relatively low on nuclear security due to the lack of accession to the related treaties.

(1) Nuclear Disarmament Points 28/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	5/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	3/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 53/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	3/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	0/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	2/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 23/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	2/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	1/2
	Convention on Nuclear Safety	0/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	0/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	2/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	2/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

Nigeria

Nigeria has acceded and complied with core treaties regarding nuclear issues, including the NPT and the CTBT. On the other hand, its implementations on export controls and nuclear security-related measures are not necessarily adequate.

(1) Nuclear Disarmament Points 20/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	6/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	0/2
	Contribution to the development of the CTBT verification systems	1/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	2/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 45/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	3/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	0/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	1/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	1/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 16/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-4/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	0/4
	Enactment of laws and establishment of regulations for the national implementation	2/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	2/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	0/3

Norway

Norway has proactively engaged in nuclear disarmament, non-proliferation and nuclear security. While it is under nuclear extended deterrence as a NATO member, Norway has emphasized the issue of humanitarian consequences of nuclear weapons, and taken initiative for its promotion proactively with others actors.

(1) Nuclear Disarmament Points 23/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	4/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	1/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	-3/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	1/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	2/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 54/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	2/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 27/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-4/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	0/4
	Enactment of laws and establishment of regulations for the national implementation	2/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	1/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

Philippine

Philippines has acceded and complied with nuclear disarmament and non-proliferation-related treaties and agreements. It is required to enhance efforts for implementing nuclear security-related measures, but, under cooperation provided by the western countries, Philippines has sought to bolster a system for preventing illicit trafficking.

(1) Nuclear Disarmament Points 19/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	6/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	0/2
	Contribution to the development of the CTBT verification systems	1/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	2/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	0/1

(2) Nuclear Non-Proliferation Points 48/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	3/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	2/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	1/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	1/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	1/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 23/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	2/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	1/2
	Convention on Nuclear Safety	1/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	1/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	0/4
	Enactment of laws and establishment of regulations for the national implementation	2/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	3/3

Poland

Poland continues to accede and comply with treaties and agreements regarding nuclear disarmament, non-proliferation and nuclear security. Like other NATO countries, Poland maintains a cautious stance on legally banning nuclear weapons. Relatively, it needs to enhance efforts for implementing some of the nuclear security measures.

(1) Nuclear Disarmament Points 16/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	4/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	0/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	-3/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	2/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 52/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	1/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 21/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-4/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	0/4
	Enactment of laws and establishment of regulations for the national implementation	3/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	3/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	3/3

Saudi Arabia

While Saudi Arabia has complied with the NPT, it has neither signed the CTBT nor concluded the IAEA Additional Protocol. Saudi's National implementation regarding export controls as well as measures for nuclear security also come short, comparing to the other countries.

(1) Nuclear Disarmament Points 12/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	6/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	0/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	—
	Cooperation with the CTBTO Preparatory Commission	0/2
	Contribution to the development of the CTBT verification systems	0/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	0/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	0/1

(2) Nuclear Non-Proliferation Points 36/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	0/5
	Implementation of the integrated safeguards	0/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	0/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	1/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	1/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 18/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	0/4
	Enactment of laws and establishment of regulations for the national implementation	1/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	0/4
	Prevention of illicit trafficking	2/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	1/3

South Africa

South Africa has been steadily implementing nuclear-related measures, such as accession to, and compliance with, the related treaties. Its participation in terms of international cooperation on nuclear security is less in comparison.

(1) Nuclear Disarmament Points 21.5/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	5/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	1/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	0.5/1

(2) Nuclear Non-Proliferation Points 51/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	3/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	2/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	1/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 29/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	2/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	1/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	1/3

Sweden

Sweden participated in the New Zealand-led “Joint Statement on the Humanitarian Consequences of Nuclear Weapons” for the first time. Sweden has actively advocated promotion of nuclear disarmament, and also proactively engaged in other areas. In particular, it rates highly on most of the items regarding nuclear security, including accession to the related treaties, establishment of national implementation systems and participation of the international cooperation.

(1) Nuclear Disarmament Points 24.5/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	5/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	1/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	1/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	0.5/1

(2) Nuclear Non-Proliferation Points 53/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	4/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	2/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	1/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 38/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	4/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	2/2
	Capacity building and support activities	2/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	2/2
	Participation in international efforts	3/3

Switzerland

Switzerland has actively advocated promotion of nuclear disarmament at the various fora, including the UN General Assembly and the NPT Preparatory Committee. It has also taken proactive attitudes regarding cooperation with civil society. It enacted national laws, which restrict financing for nuclear weapons production. Switzerland has steadily implemented nuclear non-proliferation and security-related measures.

(1) Nuclear Disarmament Points 26.5/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	4/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	3/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	1/2
	Decommissioning/conversion of nuclear weapons-related facilities	1/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	4/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	0.5/1

(2) Nuclear Non-Proliferation Points 47/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	0/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	2/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	3/3
	Participation in the PSI	1/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	0/2

(3) Nuclear Security Points 29/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-5/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	4/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	2/2
	Capacity building and support activities	1/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	3/3

Syria

The Syrian case of non-compliance with the IAEA Safeguards Agreement has not yet been resolved. Few meaningful efforts were undertaken in nuclear disarmament, non-proliferation and nuclear security. Syria neither acceded to the CTBT nor the nuclear security-related treaties. It has not concluded the IAEA Additional Protocol. It has yet to take appropriate measures on export controls.

(1) Nuclear Disarmament Points 9/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	5/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	1/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	0/4
	The moratorium on nuclear test explosions pending CTBT’s entry into force	—
	Cooperation with the CTBTO Preparatory Commission	0/2
	Contribution to the development of the CTBT verification systems	0/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	0/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	0/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	1/1

(2) Nuclear Non-Proliferation Points 21/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	4/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	0/5
	Implementation of the integrated safeguards	0/4
	Compliance with the IAEA Safeguards Agreement	0/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	0/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	0/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	0/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	0/2
	Reporting on plutonium management	0/2

(3) Nuclear Security Points 6/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	0/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	1/2
	Convention on Nuclear Safety	1/2
	Convention on Early Notification of a Nuclear Accident	1/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	0/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	1/2
	INFCIRC/225/Rev.5	0/4
	Enactment of laws and establishment of regulations for the national implementation	2/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	0/4
	Prevention of illicit trafficking	0/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	0/3

Turkey

Turkey is not particularly active on nuclear disarmament compared to other non-nuclear-weapon states. It is hosting U.S. non-strategic nuclear weapons as part of NATO's nuclear sharing policy. Turkey has implemented concrete measures on nuclear non-proliferation and nuclear security, with a few exceptions in terms of acceding to treaties and participating in international cooperation regarding nuclear security.

(1) Nuclear Disarmament Points 12/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	4/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	0/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	-5/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	2/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	0/1

(2) Nuclear Non-Proliferation Points 50/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	2/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	1/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	5/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	2/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 24/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	2/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	0/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	2/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	2/5
	Acceptance of international nuclear security review missions	2/2
	Technology development —nuclear forensics	2/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	1/3

UAE

UAE is one of a few countries in the Middle East that have concluded the IAEA Additional Protocol. On export controls, UAE established national legislation, which includes a catch-all control, but it is not clear how effectively UAE has implemented such measures. UAE's performance in implementing nuclear security has generally progressed, except certain areas of participation in international cooperation.

(1) Nuclear Disarmament Points 19/39

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	—
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	6/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	3/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	—
	A concrete plan for further reduction of nuclear weapons	—
	Trends on strengthening/modernizing nuclear weapons capabilities	—
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	—
	Commitment to the “sole purpose,” no first use, and related doctrines	—
	Negative security assurances	—
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	0/-5
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	—
CTBT	Signing and ratifying the CTBT	4/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	—
	Cooperation with the CTBTO Preparatory Commission	2/2
	Contribution to the development of the CTBT verification systems	0/2
	Nuclear Testing	—
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	1/5
	The moratorium on the production of fissile material for use in nuclear weapons	—
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	—
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	—
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	—
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/2
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	—
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	1/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	0/1

(2) Nuclear Non-Proliferation Points 45/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	10/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	7/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	4/4
	Signing and Ratifying an Additional Protocol	5/5
	Implementation of the integrated safeguards	0/4
	Compliance with the IAEA Safeguards Agreement	5/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	1/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	3/5
	Requiring the conclusion of the Additional Protocol for nuclear export	1/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	2/3
	Participation in the PSI	1/2
	Civil nuclear cooperation with non-parties to the NPT	3/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	2/2
	Reporting on plutonium management	1/2

(3) Nuclear Security Points 25/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	0/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	3/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	2/2
	Convention on Nuclear Safety	2/2
	Convention on Early Notification of a Nuclear Accident	2/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	2/2
	INFCIRC/225/Rev.5	2/4
	Enactment of laws and establishment of regulations for the national implementation	2/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	3/4
	Prevention of illicit trafficking	4/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	1/3

(4) Other

North Korea

North Korea, which declared to withdraw from the NPT in 2003, ignores or reneges on most of the nuclear-related treaties, agreements, obligations and norms. It has conducted three nuclear tests, emphasized bolstering its nuclear deterrent, and attempted to further produce fissile material for nuclear weapons. North Korea has also repeatedly threatened to conduct additional nuclear tests.

(1) Nuclear Disarmament Points -7/91

Article	Evaluation Criteria	Points
Status of Nuclear Forces	Status of Nuclear Forces (estimates)	-5/-20
Commitment to Achieve a World without Nuclear Weapons	Voting behavior on the UNGA resolutions on nuclear disarmament proposed by Japan, NAC and NAM	2/6
	Voting behavior on the UNGA resolutions calling for commencement of negotiations on a Nuclear Weapons Convention	2/2
	Announcement of significant policies and important activities	0/3
	Humanitarian consequences of nuclear weapons	0/3
Reduction of Nuclear Weapons	Reduction of nuclear weapons	0/15
	A concrete plan for further reduction of nuclear weapons	0/3
	Trends on strengthening/modernizing nuclear weapons capabilities	0/4
Diminishing the Role and Significance of Nuclear Weapons in the National Security Strategies and Policies	The current status of the roles and significance of nuclear weapons	-7/-8
	Commitment to the "sole purpose," no first use, and related doctrines	0/3
	Negative security assurances	1/2
	Signing and ratifying the protocols of the treaties on nuclear-weapon-free zones	—
	Relying on extended nuclear deterrence	—
De-alerting	De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons	3/4
CTBT	Signing and ratifying the CTBT	0/4
	The moratorium on nuclear test explosions pending CTBT's entry into force	0/3
	Cooperation with the CTBTO Preparatory Commission	0/2
	Contribution to the development of the CTBT verification systems	0/2
	Nuclear Testing	-3/-3
FMCT	Commitment, efforts, and proposals toward immediate commencement of negotiations on an FMCT	0/5
	The moratorium on the production of fissile material for use in nuclear weapons	0/3
	Contribution to the development of verification measures	0/2
Transparency	Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear Strategy/Doctrine	0/6
Verifications of Nuclear Weapons Reductions	Acceptance and implementation of verification for nuclear weapons reduction	0/3
	Engagement in research and development for verification measures of nuclear weapons reduction	0/1
	The IAEA inspections to fissile material declared as no longer required for military purposes	0/3
Irreversibility	Implementing or planning dismantlement of nuclear warheads and their delivery vehicles	0/3
	Decommissioning/conversion of nuclear weapons-related facilities	0/2
	Measures for the fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes	0/2
Education	Disarmament and Non-proliferation Education and Cooperation with Civil Society	0/4
Hiroshima Peace Memorial Ceremony	Hiroshima Peace Memorial Ceremony	0/1

(2) Nuclear Non-Proliferation Points 0/61

Article	Evaluation Criteria	Points
Acceptance and Compliance with the Nuclear Non-Proliferation Obligations	Accession to the NPT	0/10
	Compliance with Articles 1 and 2 of the NPT and the UNSC resolutions on non-proliferation	0/7
	Nuclear-Weapon-Free Zones	0/3
IAEA Safeguards Applied to the NPT NNWS	Signing and Ratifying a Comprehensive Safeguards Agreement	0/4
	Signing and Ratifying an Additional Protocol	0/5
	Implementation of the integrated safeguards	0/4
	Compliance with the IAEA Safeguards Agreement	0/5
IAEA Safeguards Applied to NWS and Non-Parties to the NPT	Application of the IAEA safeguards (Voluntary Offer Agreement or INFCIRC/66) to their peaceful nuclear in facilities	—
	Signing, ratifying, and implementing the Additional Protocol	—
Cooperation with the IAEA	Efforts for strengthening the safeguards	0/4
Implementing Appropriate Export Controls on Nuclear-Related Items and Technologies	Establishment and implementation of the national control system	0/5
	Requiring the conclusion of the Additional Protocol for nuclear export	0/2
	Implementation of the UNSCRs concerning North Korean and Iranian nuclear issues	0/3
	Participation in the PSI	0/2
	Civil nuclear cooperation with non-parties to the NPT	0/3
Transparency in the Peaceful Use of Nuclear Energy	Reporting on the peaceful nuclear activities	0/2
	Reporting on plutonium management	0/2

(3) Nuclear Security Points -2/41

Article	Evaluation Criteria	Points
The Amount of Fissile Material	The Amount of Fissile Material Usable for Weapons	-5/-16
Status of Accession to Nuclear Security and Safety-Related Conventions, Participation in Nuclear Security Related Initiatives, and Application to Domestic Systems	Convention on the Physical Protection of Nuclear Material and the 2005 Amendment to the Convention	0/3
	International Convention for the Suppression of Acts of Nuclear Terrorism	0/2
	Convention on Nuclear Safety	0/2
	Convention on Early Notification of a Nuclear Accident	1/2
	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	0/2
	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	1/2
	INFCIRC/225/Rev.5	0/4
	Enactment of laws and establishment of regulations for the national implementation	1/4
Efforts to Maintain and Improve the Highest Level of Nuclear Security	Minimization of HEU in civilian use	0/4
	Prevention of illicit trafficking	0/5
	Acceptance of international nuclear security review missions	0/2
	Technology development —nuclear forensics	0/2
	Capacity building and support activities	0/2
	IAEA Nuclear Security Plan and Nuclear Security Fund	0/2
	Participation in international efforts	0/3

Appendix

Chronology (January-December 2014)

Jan	Starting the implementation of the first step measures under the Joint Plan of Action (JPOA) between E3/EU+3 and Iran (20 th)
Feb	The Second Conference on the Humanitarian Impact of Nuclear Weapons in Nayarit, Mexico (13 th -14 th)
Mar	The Nuclear Security Summit 2014 in The Hague (24 th -25 th) The first meeting of the Group of Governmental Experts (GGE) on a FMCT Russia carried out a large-scale nuclear war exercise near the border with Ukraine
Apr	The 8th Ministerial Meeting of the NPDI in Hiroshima (11 th -12 th) The P5 (Nuclear-Weapon States) Conference in Beijing (15 th) The Marshall Islands files Applications in the International Court of Justice (ICJ) against the nine nuclear-weapon/armed states (24 th) The Third Session of the Preparatory Committee for the 2015 Nuclear Non-Proliferation Treaty Review Conference in New York (28 th -May 9 th) The U.S. updating the information on the U.S. nuclear weapons stockpile (29 th)
May	Five nuclear-weapon states signing the Protocol to the Central Asian NWFZ Treaty (6 th) U.S. conducting the “Exercise Global Lightning 14” (12 th -16 th) Joint Statement by Iran and IAEA (21 st)
Jun	NSG Plenary in Buenos Aires
Jul	The U.S. determining the Russian non-compliance with the INF Treaty Extending the negotiations of a comprehensive agreement between the E3/EU+3 and Iran (20 th) The amendment of the U.K.-U.S. Mutual Defense Agreement (24 th) Entry into force of the India-IAEA Additional Protocol to the Safeguards Agreement (25 th)
Aug	Hiroshima Peace Memorial Ceremony (6 th) Nagasaki Peace Ceremony (9 th) The Technical Meeting on the Nuclear Security Plan (18 th -20 th) PSI Exercise “Fortune Guard” in Hawaii
Sep	Australia-India Civil Nuclear Cooperation Agreement (5 th) IAEA General Conference (22 nd -26 th) Friends of the CTBT Foreign Ministers’ Meeting (26 th)
Oct	Joint statements on the humanitarian consequences of nuclear weapons (20 th)
Nov	Extending the negotiations of a comprehensive agreement between the E3/EU+3 and Iran (20 th) CTBT Integrated Field Exercise (IFE14) in Jordan
Dec	The U.S. announcing International Partnership for Nuclear Disarmament Verification (4 th) The Third Conference on the Humanitarian Impact of Nuclear Weapons in Vienna (8 th -9 th) Adopting the U.N. General Assembly resolutions (11 th)

Abbreviation

ALCM	Air Launch Cruise Missile
AG	Australia Group
ASEAN	Association of Southeast Asian Nations
AWE	Atomic Weapons Establishment
BMD	Ballistic Missile Defense
CBM	Confidence Building Measures
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosives
CD	Conference on Disarmament
COE	Center of Excellence
CPGS	Conventional Prompt Global Strike
CPPNM	Convention on the Physical Protection of Nuclear Material
CTBT	Comprehensive Nuclear-Test-Ban Treaty
CTBTO	CTBT Organization
CTR	Cooperative Threat Reduction
CWC	Chemical Weapons Convention
DBT	Design Basis Threat
EBW	Exploding Bridge Wire
EC JRC-ITU	European Commission Joint Research Centre Institute for Transuranium Elements
EU	European Union
EURATOM	European Atomic Energy Community
FMCT	Fissile Material Cut-Off Treaty
G8GP	G8 Global Partnership
GAO	Government Accountability Office
GEM	Group of Eminent Persons
GGE	Group of Governmental Experts
GICNT	Global Initiative to Combat Nuclear Terrorism
GLCM	Ground-Launched Cruise Missile
GTRI	Global Threat Reduction Initiative
HEU	Highly Enriched Uranium
IAEA	International Atomic Energy Agency
ICAN	International Campaign to Abolish Nuclear Weapons
ICBM	Inter-Continental Ballistic Missile
ICC	International Criminal Court
ICJ	International Court of Justice
ICNND	International Commission on Nuclear Non-proliferation and Disarmament
IDC	International Data Center
IMS	International Monitoring System
INF	Intermediate-range Nuclear Forces
INSServ	International Nuclear Security Advisory Service
INSSP	Integrated Nuclear Security Support Plan
INTERPOL	International Criminal Police Organization
IPPAS	International Physical Protection Advisory Service
ISCN	Integrated Support Center for Nuclear Nonproliferation and Nuclear Security
ISSAS	IAEA State System for Accountancy and Control (SSAC) Advisory Service
ITDB	Incident and Trafficking Database
ITWG	Nuclear Forensics International Technical Working Group
JPOA	Joint Plan of Action
LEU	Low Enriched Uranium
LOF	Locations outside Facilities
LOW	Launch on Warning
LRSO	Long-Range Stand Off
LUA	Launch under Attack
MFFF	Mixed Oxide Fuel Fabrication Facility
MIRV	Multiple Independently-targetable Reentry Vehicle

MOX	Mixed Oxide
MTCR	Missile Technology Control Regime
NAC	New Agenda Coalition
NAM	Non-Aligned Movement
NATO	North Atlantic Treaty Organization
NNSA	National Nuclear Security Administration
NPDI	Non-Proliferation and Disarmament Initiative
NPEG	Non- Proliferation Experts Group
NPT	Nuclear Non-Proliferation Treaty
NRRC	Nuclear Risk Reduction Center
NSF	Nuclear Security Fund
NSG	Nuclear Suppliers Group
NUSEC	Nuclear Security Information Portal
NWBT	Nuclear Weapons Ban Treaty
NWC	Nuclear Weapons Convention
OPANAL	Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean
PAROS	Prevention of an Arms Race in Outer Space
PSI	Proliferation Security Initiative
PTS	Provisional Technical Secretariat
RCF	Regulatory Cooperation Forum
RI	Radioactive Isotope
SIR	Safeguards Implementation Report
SLBM	Submarine Launched Ballistic Missile
SLC	State-Level Concept
SLCM	Submarine Launched Cruise Missile
SRBM	Short-Range Ballistic Missile
SSAC	State Systems of Accountancy and Control
SSBN	Ballistic Missile Submarine Nuclear-Powered
SSN	Attack Submarine
SSP	Stockpile Stewardship Program
START	Strategic Arms Reduction Treaty (Talks)
WA	Wassenaar Arrangement
WCO	World Customs Organization
WMD	Weapons of Mass Destruction

