

Introduction

(1) OVERVIEW

The most prominent event regarding nuclear issues in 2017 was convening the negotiation conference on the Treaty on Prohibition of Nuclear Weapons (TPNW), and its adoption. The negotiation conference, having been decided by the UN General Assembly Resolution in 2016, was held in March and June-July 2017. The TPNW was adopted there on July 7, and opened for signature at the UN Headquarters on September 20. Proponent countries codified the treaty—legally prohibiting, *inter alia*, possession and use of nuclear weapons—under their belief that legislating a prohibition norm on nuclear weapons, derived from their humanitarian dimensions, is an essential step toward total elimination of nuclear weapons. In the history of nuclear disarmament, it is a first treaty that legally bans nuclear weapons, and of which civil society proactively joined the process of establishment.

Nuclear-armed states and allies opposing the treaty did not participate in the negotiation conference (except the Netherlands). All of those countries also declared not to sign the TPNW. They—including Australia, Canada, Germany and Japan which have proactively advocated promotion of nuclear disarmament—faces criticisms by proponents of the TPNW. However, as opponents argue, the number and roles of nuclear weapons will not be immediately reduced merely by the conclusion of the treaty. Besides, it would take considerable time before a prohibition norm on nuclear weapons is accepted as a universal international norm. How to bridge the rift between proponents and opponents of the TPNW requires urgent effort for revitalizing nuclear disarmament. In the meantime, North Korea's nuclear problem has worsened further in 2017. The North conducted the sixth nuclear test on September 3, whose explosive yield was estimated at approximately 160 kt, the largest-ever of its nuclear tests. North Korea announced the success of testing

a hydrogen bomb for inter-continental ballistic missiles (ICBMs). North Korea also repeated flight tests of ballistic missiles, including ICBMs, and demonstrated rapid progress of developing its nuclear and missile capabilities. In addition, a number of its illicit activities, cleverly circumventing sanction measures under the UN Security Council Resolutions, were again reported in 2017.

On the contrary, certain results have been seen over the international community's efforts to strengthen nuclear security. The nuclear security summit, which came to an end in 2016, provided certain transparency to the efforts of countermeasures against nuclear terrorism in each country and raised the interests of the international community, including the media. Therefore, throughout 2017, the matter of how to inherit the outcomes and lessons of the nuclear security summit became a focus of attention. The result was that numerous international conferences and other events related to maintenance and improvement of the highest standard of nuclear security were held throughout the year, mainly by the International Atomic Energy Agency (IAEA). It should be appreciated that a number of these ongoing efforts have been implemented. The Amendment of the Convention on the Physical Protection of Nuclear Material (CPPNM Amendment), that came into force in 2016, is also steadily increasing its member states. There are also an increasing number of regions where nuclear materials such as highly enriched uranium (HEU) and plutonium, which are attractive for terrorists, are totally removed. Meanwhile, the worldwide inventory of nuclear materials which have a potential for being diverted to make nuclear weapons is still on the rise as a result of an increase in inventory of civilian plutonium. In addition, addressing new problems, including cyber security, is an urgent issue.

(2) ITEMS

In the *Hiroshima Report 2018*, 65 items (32 for nuclear disarmament, 17 for nuclear non-proliferation and 16 for nuclear security) for study, analysis and evaluation of the selected countries' performance are 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;
- The final draft of a Final Document for the 2015 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 2018* basically maintains the same structure and items as previous years, with one additional item on the TPNW:

1. Nuclear Disarmament

- (1) Status of Nuclear Forces (estimates)
- (2) Commitment to Achieving a World without Nuclear Weapons
 - A) Voting behavior on UNGA resolutions on nuclear disarmament proposals by Japan, NAC and NAM
 - B) Announcement of significant policies and

important activities

- C) Humanitarian consequences of nuclear weapons
- (3) Treaty on the Prohibition of Nuclear Weapons (TPNW)
 - A) Signing and ratifying the TPNW
 - B) Voting behavior on UNGA resolutions regarding a legal prohibition of nuclear weapons
- (4) 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
- (5) 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 "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
- (6) De-alerting or Measures for Maximizing Decision Time to Authorize the Use of Nuclear Weapons
- (7) CTBT
 - A) Signing and ratifying the CTBT
 - B) Moratoria 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
- (8) FMCT
 - A) Efforts toward commencing negotiations on an FMCT
 - B) Moratoria on production of fissile material for nuclear weapons
- (9) Transparency in Nuclear Forces, Fissile Material for Nuclear Weapons, and Nuclear

Strategy/Doctrine

- (10) Verifications of Nuclear Weapons Reductions
- (11) Irreversibility
 - A) Implementing or planning dismantlement of nuclear warheads and their delivery vehicles
 - B) Decommissioning/conversion of nuclear weapons-related facilities
 - C) Measures for fissile material declared excess for military purposes, such as disposition or conversion to peaceful purposes
- (12) Disarmament and Non-Proliferation Education and Cooperation with Civil Society
- (13) Hiroshima Peace Memorial Ceremony

2. Nuclear Non-Proliferation

- (1) Acceptance and Compliance with Nuclear Non-Proliferation Obligations
 - A) Accession to the NPT
 - B) Compliance with Articles I and II 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 IAEA Safeguards Agreements
 - B) Compliance with 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 and Plutonium 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

(3) COUNTRIES SURVEYED IN THIS PROJECT

In the *Hiroshima Report 2017*, the performances of 36 countries were surveyed, based on their nuclear significance and geographical distribution—including members of the Non-Proliferation and Disarmament Initiative (NPDI), members of the New Agenda Coalition (NAC), participants of the Joint Statements on the Humanitarian Consequences of Nuclear Weapons. The *Hiroshima Report 2018* maintains to survey those same countries, as follows:

- 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,

the Philippines, Poland, Saudi Arabia, South Africa, Sweden, Switzerland, Syria, Turkey and UAE); and

- Other (North Korea¹)

(4) APPROACH

This project focuses on the time period of calendar year 2017. Reference documents are basically from open sources, such as speeches, remarks, votes and working papers delivered at disarmament fora (e.g., NPT Review Conference, UN General Assembly, IAEA General Conference, Conference on Disarmament, Nuclear Security Summit, and the Negotiation Conference on the TPNW) 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 risks 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 101) does not mean that it is more important than 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, 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 *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.

[1] North Korea declared its suspension from the NPT in 1993 and its withdrawal in 2003, and conducted nuclear tests in 2006, 2009, 2013, twice in 2016, and 2017. However, there is no agreement among the states parties on North Korea's official NPT status.