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Nuclear security: outcome of the 2012 Seoul Nuclear Security Summit

Working paper submitted by the Republic of Korea

The 2012 Seoul Nuclear Security Summit was held on 26 and 27 March 2012. The Republic of Korea, as the host country of the 2012 Seoul Nuclear Security Summit, hereby provides a summary of the outcome of the Seoul Summit for the information of, and consideration by, States parties. The following summary reflects the sole observation and assessment of the Republic of Korea in regard to the Summit.

Participants

Fifty-three¹ heads of State and Government, as well as representatives of the United Nations, the International Atomic Energy Agency (IAEA), the European Union (EU) and the International Criminal Police Organization (INTERPOL), attended the 2012 Seoul Nuclear Security Summit. Compared to the 2010 Washington Summit, there were seven new participants: Azerbaijan, Denmark, Gabon, Hungary, Lithuania, Romania and INTERPOL. EU was represented by both the President of the European Council and the President of the European Commission, making the number of participating leaders 58 in total.

Summit Programme

The Seoul Summit was held on 26 and 27 March 2012 at the Convention Exhibition Center. The Summit officially began on the evening of 26 March with a welcome reception and a working dinner. A morning session, a working luncheon and an afternoon session then took place on 27 March.

¹ Republic of Korea (Chair), Algeria, Argentina, Armenia, Australia, Azerbaijan, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Egypt, Finland, France, Gabon, Georgia, Germany, Hungary, India, Indonesia, Israel, Italy, Japan, Jordan, Kazakhstan, Lithuania, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Philippines, Poland, Romania, Russian Federation, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, United Arab Emirates, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America and Viet Nam.



The agenda for each session was as follows:

- 26 March 26 (Monday)
 - Working dinner: Review of the progress made since the 2010 Washington Summit
- 27 March (Tuesday)
 - Plenary session I: National measures and international cooperation to enhance nuclear security, including future commitments
 - Working lunch: Nuclear security-safety interface
 - Plenary session II: National measures and international cooperation to enhance nuclear security, including future commitments (continued)

Seoul Communiqué

The Seoul Communiqué (see annex) has achieved significant progress in the following aspects. First, it provides important timelines for advancing nuclear security objectives, such as the target year (end of 2013) for States to announce voluntary actions on minimizing the use of highly enriched uranium and the goal year (2014) for bringing the amended Convention on the Physical Protection of Nuclear Material into effect. Second, it reflects the need to address both the issues of nuclear security and nuclear safety in a coherent manner for the sustainable peaceful uses of nuclear energy. It also emphasizes the need to better secure spent nuclear fuel and radioactive waste. Third, it sets out specific measures to prevent radiological terrorism, an issue which was only briefly touched upon at the Washington Summit.

The Seoul Communiqué builds on the objectives and measures set out in the 2010 Washington Communiqué to identify the following 11 areas of priority and importance in nuclear security and presents specific actions in each area: the global nuclear security architecture; the role of IAEA; nuclear materials; radioactive sources; nuclear security and safety; transportation security; combating illicit trafficking; nuclear forensics; nuclear security culture; information security; and international cooperation.

The Seoul Communiqué sets out the following specific actions in the above 11 areas:

- Eliminating and disposing of highly enriched uranium no longer in use
- Minimizing the use of highly enriched uranium: encouraging voluntary announcements by the end of 2013 of specific actions to minimize the use of highly enriched uranium
- Welcoming international efforts to develop high-density, low-enriched uranium fuel for the purpose of replacing highly enriched uranium fuels in research reactors and medical isotope production facilities
- Seeking to bring the Convention on the Physical Protection of Nuclear Material, as amended in 2005, into effect by 2014
- Welcoming an international conference in 2013 organized by IAEA to coordinate nuclear security activities

- Encouraging voluntary contributions to the IAEA Nuclear Security Fund
- Developing options for national policies on management of highly enriched uranium within the framework of IAEA
- Encouraging national measures and international cooperation to prevent radiological terrorism
- Strengthening the physical protection of nuclear facilities and enhancing emergency response capabilities in the case of radiological accidents while comprehensively addressing nuclear security and nuclear safety concerns
- Strengthening the management of spent nuclear fuels and radioactive wastes
- Strengthening the protection of nuclear materials and radioactive sources in transport: encouraging the establishment of a system to effectively manage and track such materials on a national level
- Preventing the illicit trafficking of nuclear materials: strengthening technical capabilities to search for and detect illicitly trafficked nuclear materials and encouraging the sharing of information on persons involved in such activities by cooperating with INTERPOL
- Building nuclear forensics capacity to identify the source of illicitly trafficked nuclear materials
- Welcoming the establishment of centres of excellence for training and education in nuclear security, and supporting networking activities between each centre
- Strengthening the nuclear security culture: encouraging the participation of industry, academia, the media, non-governmental organizations and other civil actors in the discussions on nuclear security
- Strengthening the protection of sensitive nuclear security-related information and enhancing cybersecurity at nuclear facilities
- Promoting international cooperation, such as the provision of assistance to countries for the enhancement of national nuclear security capabilities upon request
- The hosting of the next Nuclear Security Summit in the Netherlands

Achievements and commitments by participating countries

Thirty-two countries made over 70 commitments on specific actions to enhance nuclear security at the Washington Summit, and the national progress reports submitted by the participating countries have shown that nearly all of these have been achieved. Likewise, over 100 commitments were made from participating countries at the Seoul Summit. The following is a summary of the progress made on the commitments announced at the Washington Summit as well as new commitments made at the Seoul Summit.

- *Removing highly enriched uranium or converting it to non-military use.* Since the Washington Summit, around 530 kilograms of highly enriched uranium from eight countries have been removed for disposal, an amount enough to produce about 21 nuclear weapons. In addition, several countries newly

committed to repatriate their unneeded highly enriched uranium. In particular, Ukraine and Mexico accomplished a total “clean-out” of all stockpiles of highly enriched uranium just prior to the Seoul Summit by returning them to the Russian Federation and the United States of America, respectively. During the two years since the Washington Summit, highly enriched uranium equivalent to around 3,000 nuclear weapons in the Russian Federation and the United States has been downblended to low-enriched uranium. On the minimization of the use of highly enriched uranium, the Communiqué of the Seoul Summit encourages participants by the end of 2013 to announce voluntary specific actions to minimize highly enriched uranium. It also recognizes that the development within the framework of IAEA of options for national policies on highly enriched uranium management will advance nuclear security objectives.

- *Disposing and securing plutonium.* The Russian Federation and the United States are working on implementing the Plutonium Management and Disposition Agreement signed between the two countries at the Washington Summit which, when implemented, will result in the disposal of enough plutonium for 17,000 nuclear weapons. Kazakhstan, in cooperation with the Russian Federation, the United States, the United Kingdom of Great Britain and Northern Ireland and IAEA, secured spent nuclear fuel containing enough highly enriched uranium and plutonium to make several hundred nuclear weapons by moving it to a new facility for long-term storage in November 2010. Sweden returned several kilograms of plutonium to the United States immediately before the Seoul Nuclear Security Summit.
- *Converting research reactors and medical isotope production facilities using highly enriched uranium fuel to low-enriched uranium fuel.* The Czech Republic, Mexico and Viet Nam have converted their research reactors from using highly enriched uranium fuel to low-enriched uranium fuel since the Washington Summit, and several countries have presented their plans to do so. In particular, Belgium, France, the Republic of Korea and the United States announced a joint project on assessing the effectiveness of a high-density low-enriched uranium fuel which may replace highly enriched uranium fuels in high-performance research reactors. If the technology, which is based on the centrifugal atomization method developed by the Republic of Korea, is proven to be effective, it will significantly contribute to the minimization of the use of civilian highly enriched uranium worldwide. Furthermore, Belgium, France, the Netherlands and the United States announced a joint project to convert the production of medical isotope molybdenum-99 using highly enriched uranium targets to low-enriched uranium targets by 2015. This effort represents meaningful progress both in terms of enhancing human welfare and eliminating the threat of nuclear terrorism.
- *Strengthening nuclear security-related international conventions and multilateral initiatives.* During the two years since the Washington Summit, 20 additional countries have ratified the amended Convention on the Physical Protection of Nuclear Material, bringing the total number of States parties to the Convention to 55. Meanwhile, 14 countries have newly ratified the International Convention for the Suppression of Acts of Nuclear Terrorism, increasing the number of States parties to the Convention to 79. Among the 34 countries which have newly joined the two conventions, 18 countries are

participants in the Nuclear Security Summit. Meanwhile, over 10 additional countries are proceeding with the ratification process of the two conventions. As for the Republic of Korea, it obtained the approval of the National Assembly for the ratification of both conventions in December 2011 and is in the process of amending its domestic law to deposit the instrument of ratification. With regard to the amended Convention on the Physical Protection of Nuclear Material, participating States agreed to work together to bring it into force by 2014, as stated in the Communiqué of the Seoul Summit. Six countries — Argentina, Mexico, the Philippines, Singapore, Thailand and Viet Nam — have followed through on their pledges made at the Washington Summit to join the Global Initiative to Combat Nuclear Terrorism. In addition, Algeria, Azerbaijan and Malaysia have endorsed the Statement of Principles of the Global Initiative, and the number of partners to the Global Initiative now totals 85. Kazakhstan became the twenty-fourth member to join the Global Partnership against the Spread of Weapons and Materials of Mass Destruction in January 2012. The decision to extend the mandate of the Global Partnership and the Security Council Committee established pursuant to resolution 1540 (2004) was made in 2011; the Seoul Communiqué welcomes the extension and encourages wider participation in both initiatives. IAEA plans to organize an international conference on nuclear security in 2013 aimed at strengthening coordination among nuclear security-related multilateral initiatives.

- *Establishing centres of excellence.* Since the Washington Summit, countries are establishing centres of excellence to enhance national nuclear security capabilities. In addition to the six countries — China, India, Italy, Japan, Kazakhstan and the Republic of Korea — which have announced plans to establish a centre of excellence at the Washington Summit, around 10 countries are either establishing a centre or have plans in this regard. IAEA is working to establish an international network between the centres of excellence to facilitate the sharing of experience and, in so doing, create a synergy effect.
- *Supporting the activities of IAEA.* A number of countries, including Belgium, Canada, Denmark, France, Japan, Norway, the Netherlands, the Republic of Korea and the United Kingdom, have pledged contributions to the IAEA Nuclear Security Fund. Four countries — France, the Netherlands, Sweden and the United Kingdom — have received a review mission of the IAEA International Physical Protection Advisory Service since the Washington Summit, and Australia, Finland, the Republic of Korea, Romania and the United States have presented plans in this regard.
- *Countering the illicit trafficking of nuclear and radiological materials.* Fifty-one countries out of the 53 Summit participants are participants in the IAEA Illicit Trafficking Database. Singapore became the newest participant early in March 2012. A number of joint proposals were made, including on countering nuclear smuggling and the security of radioactive sources. Japan released a statement on transport security jointly with France, the Republic of Korea, the United Kingdom and the United States. Participants agreed to enhance international cooperation on nuclear forensics, which will enable the identification of the origin of stolen nuclear materials. A number of countries have newly joined the Megaport Initiative led by the United States to prevent the illicit trafficking of nuclear materials and radioactive sources through

seaports. The Republic of Korea and Viet Nam are working on a pilot project on establishing within Viet Nam a system to track radiological materials using Global Positioning System technology in cooperation with IAEA. The project will contribute to securing and preventing the theft of radiological materials.

Future plans

The next Nuclear Security Summit will be held in 2014 in the Netherlands.

Annex

Communiqué of the 2012 Seoul Nuclear Security Summit

We, the leaders, gathered in Seoul on 26 and 27 March 2012, renew the political commitments generated at the 2010 Washington Nuclear Security Summit to work towards strengthening nuclear security, reducing the threat of nuclear terrorism and preventing terrorists, criminals or other unauthorized actors from acquiring nuclear materials. Nuclear terrorism continues to be one of the most challenging threats to international security. Defeating this threat requires strong national measures and international cooperation, given its potential global political, economic, social and psychological consequences.

We reaffirm our shared goals of nuclear disarmament, nuclear non-proliferation and peaceful uses of nuclear energy.

Committed to seeking a safer world for all, we also all share the objective of nuclear security. We recognize that the Nuclear Security Summit is a valuable process at the highest political level, supporting our joint call to secure all vulnerable nuclear material in four years. In this regard, we welcome the substantive progress being made on the political commitments of participating States since the Washington Summit.

We stress the fundamental responsibility of States, consistent with their respective national and international obligations, to maintain effective security of all nuclear material, which includes nuclear materials used in nuclear weapons, and nuclear facilities under their control, and to prevent non-State actors from acquiring such materials and from obtaining information or technology required to use them for malicious purposes. We likewise recognize the fundamental responsibility of States to maintain effective security of other radioactive materials.

We reaffirm that measures to strengthen nuclear security will not hamper the rights of States to develop and utilize nuclear energy for peaceful purposes.

Noting the essential role of the International Atomic Energy Agency (IAEA) in facilitating international cooperation and supporting the efforts of States to fulfil their nuclear security responsibilities, we further stress the importance of regional and international cooperation, and encourage States to promote cooperation and outreach activities with international partners.

Noting the Fukushima accident of March 2011 and the nexus between nuclear security and nuclear safety, we consider that sustained efforts are required to address the issues of nuclear safety and nuclear security in a coherent manner that will help to ensure the safe and secure peaceful uses of nuclear energy.

We will continue to use the Washington Communiqué and Work Plan as a basis for our future work in advancing our nuclear security objectives. At this Summit in Seoul, we agree that we will make every possible effort to achieve further progress in the following important areas:

Global nuclear security architecture

1. We recognize the importance of multilateral instruments that address nuclear security, such as the Convention on the Physical Protection of Nuclear Material, as amended, and the International Convention for the Suppression of Acts of Nuclear

Terrorism. We therefore encourage universal adherence to these Conventions. We urge States in a position to do so to accelerate their domestic approval of the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material, seeking to bring the Amendment into force by 2014. We acknowledge the important role of the United Nations in promoting nuclear security, support Security Council resolutions 1540 (2004) and 1977 (2011) in strengthening global nuclear security, and welcome the extension of the mandate of the Committee established pursuant to resolution 1540 (2004). We will strive to use the IAEA Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Rev.5) document and related Nuclear Security Series documents, and reflect them in national practice.

2. We recognize the contributions since the 2010 Summit of international initiatives and processes such as the Global Initiative to Combat Nuclear Terrorism and Global Partnership against the Spread of Weapons and Materials of Mass Destruction, within their respective mandates and memberships. We welcome the wider participation in the Global Initiative and the Global Partnership and value its extension beyond 2012. Noting the importance of strengthening coordination and complementarity among nuclear security activities, we welcome the proposal of IAEA to organize an international conference in 2013. We welcome contributions from industry, academia, institutes and civil society that promote nuclear security.

Role of the International Atomic Energy Agency

3. We reaffirm the essential responsibility and central role of IAEA in strengthening the international nuclear security framework, and recognize the value of the IAEA Nuclear Security Plan 2010-2013. We will work to ensure that IAEA continues to have the appropriate structure, resources and expertise needed to support the implementation of nuclear security objectives. To this end, we encourage States in a position to do so and the nuclear industry to increase voluntary contributions to the IAEA Nuclear Security Fund, as well as in kind contributions. We also encourage continued IAEA activities to assist, upon request, national efforts to establish and enhance nuclear security infrastructure through its various support programmes, and encourage States to make use of these IAEA resources.

Nuclear materials

4. Recognizing that highly enriched uranium and separated plutonium require special precautions, we re-emphasize the importance of appropriately securing, accounting for and consolidating these materials. We also encourage States to consider the safe, secure and timely removal and disposition of nuclear materials from facilities no longer using them, as appropriate, and consistent with national security considerations and development objectives.

5. We recognize that the development, within the framework of IAEA, of options for national policies on the management of highly enriched uranium will advance nuclear security objectives. We encourage States to take measures to minimize the use of highly enriched uranium, including through the conversion of reactors from highly enriched to low-enriched uranium fuel, where technically and economically feasible, taking into account the need for assured supplies of medical isotopes, and encourage States in a position to do so, by the end of 2013, to announce voluntary specific actions intended to minimize the use of highly enriched uranium. We also

encourage States to promote the use of low-enriched uranium fuels and targets in commercial applications such as isotope production, and in this regard, welcome relevant international cooperation on high-density low-enriched uranium fuel to support the conversion of research and test reactors.

Radioactive sources

6. Taking into account that radioactive sources are widely used and can be vulnerable to malicious acts, we urge States to secure these materials, while bearing in mind their uses in industrial, medical, agricultural and research applications. To this end, we encourage States in a position to do so to continue to work towards the process of ratifying or acceding to the International Convention for the Suppression of Acts of Nuclear Terrorism; reflect in national practices relevant IAEA Nuclear Security Series documents, the IAEA Code of Conduct on the Safety and Security of Radioactive Sources and its supplementary document on the IAEA Guidance on the Import and Export of Radioactive Sources; and establish national registers of high-activity radioactive sources where required. We also commit to working closely with IAEA to encourage cooperation on advanced technologies and systems, share best practices on the management of radioactive sources, and provide technical assistance to States upon their request. In addition, we encourage continued national efforts and international cooperation to recover lost, missing or stolen sources and to maintain control over disused sources.

Nuclear security and safety

7. Acknowledging that safety measures and security measures have in common the aim of protecting human life and health and the environment, we affirm that nuclear security and nuclear safety measures should be designed, implemented and managed in nuclear facilities in a coherent and synergistic manner. We also affirm the need to maintain effective emergency preparedness, response and mitigation capabilities in a manner that addresses both nuclear security and nuclear safety. In this regard, we welcome the efforts of IAEA to organize meetings to provide relevant recommendations on the interface between nuclear security and nuclear safety so that neither security nor safety are compromised. We also welcome the convening of the High-level Meeting on Nuclear Safety and Security, initiated by the Secretary-General, in New York on 22 September 2011. Noting that the security of nuclear and other radioactive materials also includes spent nuclear fuel and radioactive waste, we encourage States to consider establishing appropriate plans for the management of these materials.

Transportation security

8. We will continue efforts to enhance the security of nuclear and other radioactive materials while in domestic and international transport, and encourage States to share best practices and cooperate in acquiring the necessary technologies to this end. Recognizing the importance of a national layered defence against the loss or theft of nuclear and other radioactive materials, we encourage the establishment of effective national nuclear material inventory management and domestic tracking mechanisms, where required, that enable States to take appropriate measures to recover lost and stolen materials.

Combating illicit trafficking

9. We underscore the need to develop national capabilities to prevent, detect, respond to and prosecute illicit nuclear trafficking. In this regard, we encourage action-oriented coordination among national capacities to combat illicit trafficking, consistent with national laws and regulations. We will work to enhance technical capabilities in the field of national inspection and detection of nuclear and other radioactive materials at the borders. Noting that several countries have passed export control laws to regulate nuclear transfers, we encourage further utilization of legal, intelligence and financial tools to effectively prosecute offences, as appropriate and consistent with national laws. In addition, we encourage States to participate in the IAEA Illicit Trafficking Database programme and to provide necessary information relating to nuclear and other radioactive materials outside regulatory control. We will work to strengthen cooperation among States and encourage them to share information, consistent with national regulations, on individuals involved in trafficking offences relating to nuclear and other radioactive materials, including through the Radiological and Nuclear Terrorism Prevention Unit of the International Criminal Police Organization (INTERPOL) and the World Customs Organization.

Nuclear forensics

10. We recognize that nuclear forensics can be an effective tool in determining the origin of detected nuclear and other radioactive materials and in providing evidence for the prosecution of acts of illicit trafficking and malicious uses. In this regard, we encourage States to work with one another, as well as with IAEA, to develop and enhance nuclear forensics capabilities. In this regard, they may combine the skills of both traditional and nuclear forensics through the development of a common set of definitions and standards, undertake research and share information and best practices, as appropriate. We also underscore the importance of international cooperation both in technology and human resources development to advance nuclear forensics.

Nuclear security culture

11. Recognizing that investment in human capacity-building is fundamental to promoting and sustaining a strong nuclear security culture, we encourage States to share best practices and build national capabilities, including through bilateral and multilateral cooperation. At the national level, we encourage all stakeholders, including Governments, regulatory bodies, industry, academia, non-governmental organizations and the media, to fully commit to enhancing security culture and to maintain robust communication and coordination of activities. We also encourage States to promote human resources development through education and training. In this regard, we welcome the establishment of centres of excellence and other nuclear security training and support centres since the Washington Summit, and encourage the establishment of new centres. Furthermore, we welcome the effort by IAEA to promote networking among such centres to share experience and lessons learned and to optimize available resources. We also note the holding of the Nuclear Industry Summit and the Nuclear Security Symposium on the eve of the Seoul Nuclear Security Summit.

Information security

12. We recognize the importance of preventing non-State actors from obtaining information, technology or expertise required to acquire or use nuclear materials for malicious purposes, or to disrupt information technology-based control systems at nuclear facilities. We therefore encourage States to continue to develop and strengthen national- and facility-level measures for the effective management of such information, including information on the procedures and protocols to protect nuclear materials and facilities; to support relevant capacity-building projects; and to enhance cybersecurity measures concerning nuclear facilities, consistent with the IAEA General Conference resolution on nuclear security (GC(55)/RES/10) and bearing in mind International Telecommunication Union resolution 174. We also encourage States to promote a security culture that emphasizes the need to protect nuclear security-related information; engage with scientific, industrial and academic communities in the pursuit of common solutions; and support IAEA in producing and disseminating improved guidance on protecting information.

International cooperation

13. We encourage all States to enhance their physical protection of and accounting system for nuclear materials, emergency preparedness and response capabilities and relevant legal and regulatory framework. In this context, we encourage the international community to increase international cooperation and to provide assistance, upon request, to countries in need on a bilateral, regional and multilateral level, as appropriate. In particular, we welcome the intent by IAEA to continue to lead efforts to assist States, upon request. We also reaffirm the need for various public diplomacy and outreach efforts to enhance public awareness of actions taken and capacities built to address threats to nuclear security, including the threat of nuclear terrorism.

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We will continue to make voluntary and substantive efforts towards strengthening nuclear security and implementing political commitments made in this regard. We welcome the information on the progress made in the field of nuclear security since the Washington Summit provided by the participants at this Summit in Seoul. The next Nuclear Security Summit will be held in the Netherlands in 2014.